WORKING CAPITAL MANAGEMENT AND FIRM PROFITABILITY DURING AND AFTER THE ECONOMIC CRISIS AMONG MALAYSIAN LISTED COMPANIES

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ABSTRACT

The aim of the study is to explore the working capital management components and examine their relationship with firm profitability among Malaysia listed companies during and after the global financial crisis of 2008-2009. Based on the descriptive results, Malaysian firms practice conservative working capital management techniques due to the fact that current ratio is high and debt ratio is low compared with prior studies.The multiple regression analysis on the 260 listed Bursa Malaysia companies shows a negative relationship between working capital management components (i.e. average collection period and average payment period) and firm profitability during and after the crisis periods. Moreover, cash conversion cycle negatively relates with firm profitability after the crisis. Inventory turnover days indicate a positive and significant relation with firm profitability during the crisis period. These findings suggest that Malaysian firms should try and collects cash from customers faster, pay bills as soon as possible and minimise the gap between initial investment and the time cash is collected from customers during both crisis and non-crisis periods. Nevertheless, management should maintain considerable level of stock to avoid shortage and supply interruption during the crisis.

Keywords: working capital management, average collection period, cash conversion cycle, inventory turnover period, average payment period, profitability, Malaysia

ABSTRAK

Tujuan kajian ini adalah untuk meneroka komponen pengurusan modal kerja dan memeriksa hubungan mereka dengan keberuntungan yang kukuh di kalangan syarikat-syarikat Malaysia yang disenaraikan semasa dan selepas krisis kewangan global 2008-2009.Berdasarkan keputusan deskriptif syarikat Malaysia mengamalkan teknik pengurusan modal kerja konservatif disebabkan oleh hakikat bahawa nisbah semasa adalah tinggi dan nisbah hutang adalah rendah berbanding dengan kajian terlebih dahulu. Analisis regresi berganda ke atas 260 syarikat yang disenaraikan di Bursa Malaysia menunjukkan hubungan yang negatif antara komponen pengurusan modal kerja (iaitu tempoh kutipan purata dan tempoh pembayaran purata) dan keuntungan firma semasa dan selepas tempoh krisis . Selain itu , kitaran penukaran tunai negatif berkaitan dengan keuntungan firma selepas krisis. Hari pusing ganti inventori menunjukkan hubungan yang positif dan signifikan dengan keuntungan firma dalam tempoh krisis. Penemuan ini menunjukkan bahawa syarikat-syarikat Malaysia perlu cuba dan mengumpul wang tunai daripada pelanggan lebih cepat , membayar bil secepat mungkin dan mengurangkan jurang antara pelaburan awal dan tunai masa yang dikumpul daripada pelanggan semasa kedua-dua krisis dan bukan krisis tempoh . Walau bagaimanapun , pengurusan harus mengekalkan tahap besar stok bagi mengelakkan kekurangan dan membekalkan gangguan semasa krisis.

Kata kunci: pengurusan modal kerja , tempoh kutipan purata , kitar penukaran tunai , tempoh perolehan inventori , tempoh pembayaran purata , keuntungan, Malaysia

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CCC: cash conversion cycle

NOI: Net operating income

ACP: Average collection Period

ITD: Inventory turnover in days

APP: Average payment period

EBIT: Earning before interest and taxes

ROA: Return on assets

OPM: Operating profit margin

WCM: Working capital management

UUM: University Utara Malaysia

SPSS: Statistical package for social science

DR: Debt ratio

CR: Current ratio

SG: Sales growth

WCMC: working capital management component

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The worldwide financial crisis of 2008-2009 that started in the United States brought many negative consequences to the global economy in general. It began as an asset bubble created by many new financial derivatives that, together with other issues, compounded the problems and drove the subprime loan (Krugman, 2009). Krugman further highlighted that the crisis later on escalated into banking and housing crises that effected consumer and investment demand.

The Malaysian economy felt the global economic crisis in two main broad areas, export and foreign direct investment. Impacts on manufacturing sector exports were the most noticeable Abidin and Rasiah (2009) stated that electrical and electronics industry recorded a decline of 41.4% during the first quarter of 2009 which was worst than during the last quarter of 2008 that stood at 22.5%. This was due to a decline in the dominant export-oriented industries together with weak support from the domestic market-oriented industries. The value increment in the sector dropped by 17.6% during the first quarter of 2009, which was worst compared with the decline reported at the end of the year 2008.

The loan activities of commercial banks became lethargic notwithstanding the lower overnight policy rate (OPR), the lower statutory reserve requirement (SRR) and extra funds accessible for loans. The decrease in loan advances started in September 2008 and reached a severe level between November 2008 and January 2009 (Abidin & Rasiah, 2009).

Firms invest in fixed operational assets that should be used for long periods, and although they are the core tools or mainstays for organizational functioning, their acquisition is not an end in themselves (Barine, 2012). Financing and applications of materials should be in place for the regular manufacture of goods and services to satisfy customers' needs (Deloof, 2003). The combination of these elements is called current assets, while the financing is called current liabilities, and the collection of these current assets and current liabilities is called working capital (Baveld, 2012; Soekhoe, 2012).

According to Raheman and Nasr (2007), working capital management involves decisions by company management about the required amount (and combination of) current assets and ways to finance such assets. Working assets are all assets that can be quickly converted into cash during the normal course of business at shortest possible period which is ordinarily one year, as such can be converted into cash upon need. Working capital management aims at keeping an optimal balance between individual working capital components such as account receivables, payables and inventory. While some firms maximize the level of payables, others minimize inventory level and credit to customers (Filbeck &Krueger, 2005)

Companies' management often falls into a critical condition while deciding on what to use in financing, when to use and how to use regular operational capital in running the affairs of the company (Padachi, 2006). Management of a company involves relentless effort in assuring that the company is in good shape to facilitate better performance, thereby achieving the wealth creation motive of shareholders (Filbeck & Krueger, 2005; Padachi, 2006).

In addition, working capital management efficiency is required for the company in planning and managing its operating assets and working liabilities in a way that safeguards the company, from an inability to meet its short-term obligations and daily operations; while, on the other hand, avoiding excessive investment in current assets (Soekhoe, 2012). Moreover, Rehn (2012) argues that excessive working capital results in unnecessary accumulation of inventories that lead to mismanagement, wastage and a higher incidence of bad debt.

Efficient management of investment levels in current assets help in avoiding excessive and inadequate investment (McInnes, 2000). McInnes stated that current assets investments should be adequate to the needs of the business meaning not in shortage or in excess. Normally, working capital needs of firms fluctuate with changing business activity (Sharma & Kumar, 2011). Management should be prompt in initiating actions and correcting imbalances in working capital to meet financing needs (Deloof, 2003; Eljelly, 2004; Shin & Soenen, 1998).

Hence, working capital management is all about managing the investment in short-term assets and short-term liabilities. Such as inventories, account receivables, marketable securities, cash and account payables to an optimal level in order to permit a profitable operation (Baveld, 2012; Rehn, 2012; Soekhoe, 2012 and McInnes, 2000).

This study is based on the trade-off theory which argued that companies should balance profitability and liquidity to avoid income reduction. Thus, Falope and Ajilore (2009) stated that profitability improves due to working capital reduction. This theory suggests a negative relationship between working capital management

components and firm profitability Moreover, this study is founded on the Fisher separation theorem which says company's investment should be solely based on income generation/determinaton irrespective of the financing decisions or choices (Gustafson, Barry, & Sonka, 1988). Thus, investments are solely based on earning preferences. This theory suggests a flexible relation between working capital management components and firm profitability provided it results in increased firm profitability.

1.2 Statement of the Problem

Asia magazine reported that Malaysian firms overall working capital began to be problem in 2006 with billions of dollars tied up unnecessarily. This condition was further worsened by an increase in day's working capital by 27.5% (Wasiuzzaman & Arumugam, 2013). The report further stated that the situation did not improve up to year 2007 with Asia pacific region's top companies having up to $833 billion in unutilized productive working capital. However, the problem started recovering in 2010, and the improvement was more in area of payables compared to receivables and inventories but billions still remained tied up in working capital. Therefore in Malaysia, a need existed to test the ways in which companies manage working capital.

According to Deloof (2003) most firms' management found managing working capital to the optimal level to command efficient operation and enhance profitability was difficult. The problem is how to manage working capital to finance operations without being either excessive or insufficient.

From the review of previous literature, contradicting evidence about the variables of working capital management with firm profitability has been documented. Baveld (2012) found a positive relationship between accounts receivable and profitability in Netherland listed companies during financial crisis period. Sharma and Kumar (2011) recorded the same result in listed Indian companies. Similarly, Uremadu, Egbide, and Enyi (2012) recorded a positive relationship between account receivables and profitability measured through return on assets (ROA) in Nigerian listed companies. Moreover, Abuzayed (2012) also documented a positive relationship in Jordanian listed firms.

However, other studies (e.g. Garcia, Martins,& Brandao, 2011; Mekonnen, 2011; Maliq & Iqbal, 2012; Mansoori & Muhammad, 2012; Raheman, Afza, Qayyum,& Bodla, 2010; Soekhoe, 2012) found a significant negative relationship between account receivables and firm profitability.

Similarly, the mixed result was documented onaccount payables withMansoori and Muhammad (2012), Rehn (2012) and Uremadu et al. (2012) reporting positive relationship while studies such asSoekhoe (2012), Sabri (2012), Mekonnen (2011), Malik and Iqbal (2012), Charitou et al. (2010) and Quayyum (2012) found a negative relation. Moreover, inventory turnover days result showed contradicting findings withMathuwa (2010), Sharma and Kumar (2009), Soekhoe (2012) and Uremadu et al. (2012) reported positive relationship whereas Raheman et al. (2010), Ahmadi et al. (2012), Malik and Iqbal (2012), Ahmadi et al. (2012), Mansoori and Muhammad (2012), Hayajneh and Yassine (2011) recorded a negative relationship with firm profitability.Hence a need exists to further confirm the theory of trade-off

and the Fisher separation theorem on profitability and working capital management components in a different setting like Malaysia.

Finally, Prior studies in Malaysia focused on working capital management and profitability during non-crisis period with emphasis on traditional liquidity measures sucg as current ratio, current assets to current liability ratio, and cash to current assets ratio etc. (Mohamad and Saad, 2010; Zariyawati, Taufiq, Annuar, & Shazali, 2010).

1.3 Research Objectives

The objectives of the study are to:

1. Explore the working capital management components of Malaysian listed firms during and after the global financial crisis of 2008-2009; and
2. Examine the relationship between working capital management components and firm profitability among Malaysian listed firms during and after the global financial crisis of 2008-2009.

1.4 Research Questions

1. What were the working capital management components of Malaysian listed companies during and after global financial crisis of 2008-2009?

2. What was the relationship between working capital management components and firm profitability among Malaysian listed companies during and after global financial crisis of 2008-2009?

1.5 Scope of the Study

This study focuses on Bursa Malaysia companies excluding the real estates investment trusts (REITS), investments and banks and other financial institutions

because of their peculiarities in the regulations and the nature of their business. Moreover, the period of study is divided into two: during (2008-2009) and after (2012-2013) the global crisis.

This study is designed to contribute to the understanding of the relationship between working capital management and firm profitability.

1.6.1 Theoretical Significance

Theoretically this study aims to contribute to the trade-off theory and the Fisher separation theorem by empirically relating working capital management components with firm profitability among Malaysian listed companies. The study is expected to expand the theories by focusing on working capital management and profitability during and after the financial crisis of 2008-2009. Prior studies in Malaysia focused on working capital management and profitability during non-crisis period with emphasis on liquidity.

1.6.2 Practical Significance

From the practical viewpoint, company management could find the results of this study useful in understanding the relationship between working capital management components (cash conversion cycle, average collection period, inventory turnover days and average payment period) and firm profitability during and after the financial crisis periods. Hence, based on the results, management of companies could learn practical lessons about the management of debtor, creditor, and inventory accounts to enhance firm profitability. Likewise, management should learn about working capital investment management techniques.

1.7 Definition of Terms

Cash Conversion Cycle, the time it takes between the expenditures for raw materials and the final collection from the sales of the good produced (Mekonnen, 2011).

Average Collection Period, the number of days it takes a company to collect cash from debtors. This period indicates the quality of debtors. A company with a shorter collection period has better debtor management policies what reduce the chance of bad debts. Likewise a company that has a longer collection period signifies poor collection policies that can lead to high rate of bad debts (Mekonnen, 2011).

Inventory Turnover in Days, shows the number of days good have been turned over (sold) during a period (usually a year) and demonstrates the efficiency of a firm's ability in managing its inventory (Garcia et al., 2011).

Average Payments Period, accounts payables represents the amount owed to creditors as a result of purchases of materials, components or goods on credit from suppliers while average payment periods is defined as the period between the purchase of these materials, components or goods and the time the money is paid to suppliers (Soekhoe, 2012).

Working capital management is a system of balancing liquidity and profitability of a firm mainly through the use of cash management, inventory management and creditor management techniques

1.8 Organization of Remaining Chapters

This report contains four remaining chapters. Chapter two begins with a brief introduction to the chapter, a review of the Fisher separation theory, the trade-off

theory, an explanation of working capital management, literature on various working capital management practices and techniques, and an exploration of the relationship between working capital management and firm profitability base on prior empirical literatures. Chapter three includes the methodology. This chapter contains an introduction, the population of the study, the sampling size and sampling technique, source and method of data collection and data analysis techniques, the regression model specifications, and the conclusion. The introduction to Chapter four introduces what the chapter is all about, then deals with data presentation, analysis and discussion of the results based on the sampled Malaysian firms listed on Bursa Malaysia obtained from the UUM DataStream. Chapter five gives a brief highlight and has a summary of the significant findings, contributions of the research, limitations of the study and recommendations for future research. The final presents a brief conclusion of the chapter.

1.9 Conclusion

This chapter highlights the background of the study, contains the problem statement, and discusses the importance of this study. The study's objectives, questions and definitions of key terms are also presented. Thus, this chapter sets the foundation on which this study is further built by presenting the sole aim of the undertaking of this research, which is to determine the working capital management techniques and the relationships between working capital management and firm profitability among Malaysian listed firms during and after the economic crisis. Chapter two examines prior studies in this area both globally and in the Malaysian context and to this researcher's knowledge, no other research in Malaysia has studied the relationship between working capital management components and firm profitability during the

financial crisis. Indeed, after the crisis the very limited research mainly focused on traditional measures of liquidity.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter presents the two underpinning theories of the Fisher separation theorem and the Trade-off theory. The chapter highlights the working capital management techniques and practices, the relationship between working capital management components and firm profitability based on prior studies. In the end, the chapter contains the hypothesis development and has a brief conclusion about the chapter.

2.1 Fisher Separation Theory

The Fisher separation theorem says that an optimal investment policy normally is based on the achievement or maximization of the present value of the firm (Gustafson, Barry, & Sonka, 1988). They further stated that investment policy is independent of the decision-maker's preferences and financing decision/choices. Thus, investment decisions are solely based on earnings and the rate of interest in an efficient financial market.

Separation theorem makes a clear demarcation between managerial opportunities of productivity and the entrepreneurial market opportunities. Thus, the primary motive of corporations is to maximize profits/current value without caring about the financing sources or the investment preferences (Fisher, 2010).

Linacre (1998) states investment budgeting decisions are made based on two stages. First, entrepreneurial capital investment decisions should be independent of that of the owner and second, investment decisions are said to be separate from financing decisions.

2.2 Trade-off theory

The trade-off theory balances working capital components and profitability. To have a balance between profitability and liquidity, a firm must initiate careful and efficient management of working capital components to avoid a liquidity crisis and income reduction (Ukaegbu, 2014). Working capital management theory is based on a trade-off between profitability and risks that relate to liquidity (the difference between current assets and current liabilities) (Abuzayed, 2012). Bellouma (2011) argues that working capital management concerns the assets' liquidity. Furthermore, Falope and Ajilore (2009) state that profitability improves due to working capital reduction. Likewise, Phillips (1997) says that holding excess cash leads to opportunity costs of either increased interest expense on the credit line or loss in profit.

Smith (1980), Deloof (2003), Eljelly (2004) and Shin and Soenen (1989) are among the earlier researchers that study the trade-off between working capital management and firm profitability. Abuzayed (2012), Baveld (2012), Bellouma (2011), Bei and Wijewardana (2012) and Ukaegbu (2014) are among the most recent studies.

2.3 Firm Profitability

Profitability is considered to be the capability of adding income from the entire venture operations. This capability demonstrates the ability of a business's management to produce profit by utilizing the available assets available (Subramanyam, 2014).

Subramanyam (2014) stated that profitability is commonly the primary target of the business and is central forboth the survival and the usual operations of the company. He further claims that despite the fact that wealth maximization is an objective that

all shareholders anticipate, they are also worried about the company's profitability. Profitability is about the relationship between the benefits made by the company and the investments taken by the organizations to accomplish these profits. In this manner, real action is required to regulate a firm's financing and contributing activities towards the perfect utilization of accessible resources so as to accomplish the best possible return for shareholders.

A variety of measures such as return on investment (also known as return on assets or return on invested capital), return on equity, operating profit margin, gross profit margin, net profit margin and return on income can be used to measure profitability (Subramanyam, 2014). Thus, return on asset (ROA) demonstrates the general effectiveness of business, and the higher this ratio, the greater the profitability. This ratio is a sign of the profitability of the company's aggregate capital financed by equity and debt capital. Investors consider this ratio because it gives a reasonable picture of the company's profitability. Return on invested capital is considered to be the most recognized measure of a firm profitability can be used for planning and control, a measure of profitability and a test of managerial effectiveness.

Operating profit is an alternate measure of profitability. It is the result of all the principal undertakings of the company. Operating profit reflects the relationship between operating profit and sales. It demonstrates the yield of the main activity before non-operating costs, and income charges and shows the ability of the company to earn a profit from its primary business (Subramanyam, 2014). He further states that net profit margin measures the overall operation of the company in terms of both operating and non-operating income. Thus, operating profit accounts for income from investment in other companies and the company's usual operations.

The use of this ratio is not encouraged when trying to measure actual business daily operational activities. The ratio used for this is calculated as net income over sales.

2.4 Working Capital Concept

According to Barine (2012), working capital management is referred to as decisions relating to working capital and short-term financing, involving managing relationships between a firm's current assets and current liabilities and the motive is to ensure that the company continues operations without any hitch and has sufficient cash flow to meet both debts obligations and upcoming operational expenses.

Moreover, Rehn (2012) expresses gross working capital as the investment required for cash, receivables and inventories. He argued that, according to Fisher's separation theorem, gross working capital is the investment needed while net working capital is current assets minus current liabilities. However, according to Baveld (2012), gross working capital known as current assets is divided into trade and other receivables, inventories, short-term investments, cash and cash equivalents, and prepaid expenses. These assets are found on the left side of the balance sheet and generate cash within one year.

Working capital management helps to ensure that the corporation has enough cash flow for the day-to dayprofitable operations. Working capital management efficient provisions can guarantee the achievement of business objectives, whereas, inefficient management can result in losses as well as to a definite downfall of what may generally be an assuring concern (Kaur et al., 2013).

Furthermore, Baveld (2012) describes working capital management as one of the financial management aspects of the firm, whereas the other forms include capital budgeting and capital structuring that typically deals with long-term investment and returns of the company. Therefore, working capital management is imperative for companies, especially those involved in manufacturing and trading and distributions due to the strong relationship between working capital and profitability in these companies' line of business (Raheman et al., 2010). Raheman et al. found the fact that current assets in these companies comprise more than half of total assets. Hence, companies should monitor account receivables, account payables and inventories. In managing account receivables, companies should account for the existing trade-off between securing sales and profit and the inherent opportunity costs and the risks embedded in credits to customers (Eljelly, 2004).

Deloof (2003) stated that a consequence exists for maintaining high inventory level that is the opportunity cost of maintenance and the advantage of securing sales and good reputation. The company should try as much as possible to determine an adequate level of investment in stock to the optimal level of investment in stock in order to have efficient inventory management. However, Richards and Laughlin (1980) maintained that companies should keep a high level of materials when the benefits surpass the holding costs. Such benefits include a purchase discount for bulk order quantities, high costs of order placement, unreliable delivery time, negligible storage costs and when material in question does not have a substitute.

Working capital management techniques include aggressive and conservative approaches (Baveld, 2012). Uremadu et al. (2012) posits that working capital management should balance liquidity and profitability of a firm mainly through the

use of cash management, inventory management and creditor management techniques.

Rehn (2012) states that a company accrues accounts receivables the moment it sells goods or services to customers. The company will receive the cash after few days, weeks or months depending on the terms and conditions of payments. Therefore, companies are involved in credit management that is decisions regarding terms of sales, collection policy and credit analysis in order to improve efficiency of collections. A just-in-time inventory management strategy system says inventorues will only arrive at the company when needed. Thus, inventories are kept at a bare minimum level and the supply chain process must be optimized to avoid exhaustion and solve issues of holding costs (Baveld, 2012). On the other hand, account payables management is very paramount because it serves as short-term method for financing for the company by typically paying short-term debt when necessary. However, delaying account payables will be detrimental to the company when suppliers begin to be suspicious of the company's financial strength (Deloof, 2003).

2.5 Working Capital Management and Profitability

Working capital plays a paramount role in corporate financial management because its management has a direct relationship with the firm's profit performance and liquidity (Rehman & Nasr, 2007; Pouraghajan & Emamgholipourarchi, 2012). Without proper management of working capital components, the company will find it difficult to run a smooth operation (Mekonnen, 2011). Furthermore, Brigham and Houston (2011) state that corporate financial managers spent about 60% their time on working capital management. Therefore, working capital management is paramount for keeping the required daily operational liquidity to ensure a hitch-free

running of a firm, thereby meeting the company's wealth creation motive (Deloof, 2003; Eljelly, 2004; Zariyawati et. al., 2010).

Working capital management incorporates choices on the amount and the structuring of the components of current assets and current liabilities. Working capital management is among the best factors that have an influence to an extensive degree on the profitability of the business (Kaur, Singh, & Ropar, 2013). Kaur, Singh, and Ropar said that management of working capital is among the most vital features of a company's financial management, influencing both its profitability and effectiveness. An excessive investment in current assets lowers a firm's profitability whereasan inadequate investment in current assets threatens the solvency of the business (McInnes, 2000).

Net working capital, defined as current assets minus current liabilities, highlights the financial health of a business (Rehn, 2012). A company with a positive net working capital has an excellent basis for expansion (Singh & Asress, 2011). Companies can pay-off obligations and have extra funds to finance daily business operations (Zariyawati et al., 2010). A negative net working capital means that the company's direct liabilities exceed immediate assets. Thus, negative net working capital poses a high risk for the firm as it can not pay an entire obligation on request or when due and cannot continue to finance operations smoothly (Baveld, 2012; Rehn, 2012).

For the maximization of profits and corporate survival, companies must have an optimal level of working capital (Deloof, 2003). Working capital management has a very significant relationship with corporate profitability, risk, and, in the long run, firm's value (Baveld, 2012). Moreover, Falope and Ajilore (2009) examined how

profitability improved as a result of a reduction in working capital using a sample of 50 Nigerian companies for the period of 1999-2006.

According to Home and Wachowicz (2000) (cited in Saleem & Rehman, 2012), situations in which working capital levels are inadequate could lead to waste or shortages in daily operation.

To understand how working capital management affects company profitability requires considering the company's cash flows. If a company has a longer cash conversion cycle, this might indicate that the company's sales are rising or that the company has longer credit policies or high inventories (Rehn, 2012). Rehn stated that a higher cash conversion cycle may affect a company's profitability badly by increasing the time the money is tied up in non-interest account receivables. For companies to have a higher net present value (NPV), they should shorten their cash conversion cycle so that money is collected within the shortest time possible.

Smith (1980) is among those earlier researchers who examined the trade-off between profitability and liquidity in working capital management. Smith found that a shorter cash conversion cycle could help in having better liquidity and profitability. Rather than making a decision between liquidity and profitability, a company should optimize the link between sales and finance. Moreover, efficient working capital management can guarantee the success of a business but inefficient management can result in losses or a downfall of which could be a continuing concern (Kaur et al., 2013).

Raheman and Nasr (2007) described working capital as an extremely critical component of finance because working capital directly influences the profitability

and liquidity of any business particularly in a developing nation such as Pakistan. An optimization of working capital prompts an amplification of profits or minimization of working expense, bringing about an extreme balance between liquidity and profitability (Padachi, Narasimhan, Durbarry, & Howorth, 2008). In this way, aggressive working capital policy (excessively little investment in working capital) can prompt an interruption in production, builds the danger of not having the capacity to meet the financial commitments and lower profitability. In the meantime, a conservative financing policy (much investment in working capital) brings about unused funds that can acquire no profit yet increase cost (Kuar et al., 2013).

2.5.1 Cash Conversion Cycle (CCC)

Zariyawati, Annuar, Taufiq, and Abdulrahim (2009) investigated Malaysian listed companies for the period of 11 years during the period from 1996 to 2006. The study using regression analysis on 148 sample companies documented a significant negative relationship between the cash conversion cycle and a firm's profitability. Similarly, Ahmadi, Arasi, and Garajafary (2011) found a significant inverse relationship between the cash conversion cycle and net operating income. Using a Tehran listed companies with a sample of 33 firms for the period from 2006 to 2011 in which they used Pearson correlations and regression analysis to analyze the data.

Likewise, Raheman et al. (2010) recorded a significant negative relationship between cash conversion cycle and firm profitability on Pakistan listed companies with a sample of 204 firms for the period from 1998 to 2007. Quayyum (2012) arrived at similar significant negative relationship in the Bangladeshi cement industry with a sample of four firms for the period from 2005 to 2009.

Contrarily, Akinlo and Olufisayo (2011) recorded a positive relationship between cash conversion cycle and firm profitability using general moment method. The study uses 66 Nigerian companies for the period of nine years from 1999 to 2007. Similarly, Baveld's (2012) study showed a positive but insignificant relationship during the crisis period of 2008-2009. However, he documented similar negative and significant relationship during the non-financial crisis period from 2004 to 2006 in The Netherlands with a sample of 37 companies covering before the crisis and during the crisis periods. Likewise, Mekonnen (2011) analysed Addis Ababa listed companies and found a significant negative relationship between the cash conversion cycle and gross operating profit representing profitability with a sample of 13 firms for the period from 2005 to 2009.

Moreover, Dong and Su (2010) revealed a similar negative significant result on Vietnamese- listed companies. Thus, this study agreed with Garcia et al.'s (2011) results about European- listed companies that recorded a negative significant relationship between the cash conversion cycle and gross operating profit. The study employs a sample of 2,974 for the period 1998-2009 and uses descriptive statistics, correlation and regression (OLS and GLS) analysis. Similarly, Ogundipe, Idowu, and Ogundipe (2012) documented a negative relationship between the cash conversion cycle and firm performance of 54 Nigerian listed companies for the period of five years from 1995 to 1999.

Ahmadpour, Zare, and Rostami's (2011) study documents a significant adverse relationship between the cash conversion cycle and firm profitability represented by return on assets (ROA) on the Tehran stock exchange with a sample of 112 firms for the period from 2000 to 2009. Similarly, Falope and Ajilore (2009) recorded a

negative significant relationship between the cash conversion cycle and net operating profit on Nigerian-listed companies. The study applied regression analysis on a sample of 50 Nigerian companies from 1996 to 2005. Moreover, Soekhoe (2012) recorded a negative significant relationship between the cash conversion cycle and firm profitability on Dutch listed firms with a sample of 70 companies for the period from 2006 to 2010.

Numerous studies use returns on asset as a measure of firm profitability testing the influence of cash conversion cycle on profit performance of companies (e.g., Charitou, Elfani, and Lois, 2010; Mohamad and Saad, 2010; Mansoori and Muhammad 2012; Pouraghajan and Emamgholipourarchi 2012; Quayyum, 2012; Sabri 2012) and recorded a significant inverse relationship between the cash conversion cycle and return on assets (ROA).

In most research that examines the relationship between the cash conversion cycle and profitability the results show a negative significant relationship. As highlighted earlier in the introduction, the study considers the financial crisis and after the crisis periods and looking at the above findings of previous studies with Baveld (2012) that document a different result for Netherlands listed companies on the cash conversion cycle and profitability during the crisis.

H_1: There is a negative relationship between the cash conversion cycle and profitability during and after the crisis period of 2008-2009 and 2012-2013.

2.5.2 Accounts Receivables

Malik and Iqbal (2012) investigated the relationship between accounts receivables and firm profitability. The result showed a significant adverse relationship of account receivables and net operating income (NOI) proxying profitability on Pakistan listed companies with a sample of 19 firms for the period from 1990 to 2001. There results agreed with Mekonnen's (2011) finding on Addis Ababa listed companies with a sample of 13 firms for the period from 2005 to 2009. Similarly, Dong and Su (2010) reported a substantial negative relationship between accounts receivable and profitability on Vietnam listed companies with a sample of 130 firms for the period from 2006 to 2008, and he used gross operating profit in measuring firm profitability.

However, Baveld (2012) examined the Netherland listed companies for the period from 2008 to 2009 during a financial crisis. The study, using a sample of 37 firms, found a positive relationship between account receivables and firm profitability using return on assets (ROA) and gross operating profit (GOP) as profitability measurements. Similarly, Akinlo and Olufisayo (2011) found a substantial positive relationship between average collection period and firm profitability using the general moment method on a 66 selected Nigerian companies for the period of nine years from 1999 to 2007.

Contrarily, Ahmadpour et al. (2011) investigated Tehran listed firms with a sample of 112 companies for the period from 2000 to 2009. They documented a significant negative relationship between accounts receivables and return on assets (ROA) as a measure of profitability. Furthermore, Ching, Novazzi, and Gerab (2011) recorded similar significant adverse relationships of account receivable and firm profitability on Brazilian listed firms with a sample of 16 firms for the period from 2005 to 2009.

Uremadu et al. (2012) established a contrary result on Nigerian listed companies based on a sample of 25 firms for the period from 2005 to 2006 and documented a positive significant relationship between account receivables and profitability measured by return on assets (ROA). Moreover, Sharma and Kumar (2009) reported a positive and substantial relationship between receivables collection period and the profitability of sample Indian listed companies. The study employed 263 nonfinancial firms for the period of nine years from 2000 to 2008.

Similarly, Abuzayed (2012) recorded a positive association between account receivable and profitability on a sample of Jordan listed companies for the period of nine years from 2000 to 2008. However, Quayyum (2012) study revealed an adverse relationship on Bangladesh- listed companies despite using two dependent variables, return on assets (ROA) and net profit margin (NPM). He used a sample of only for companies for the period from 2005 to 2009.

Ahmadi et al. (2012) studied Tehran listed food industry for the period of five years from 2006 to 2011 with a sample of 33 companies using operating net profit as a measure of profitability and found a significant inverse relationship between account receivables and firm profitability.. Furthermore, Soekhoe (2012) recorded a similar negative relationship on Dutch listed companies for a five-year period from 2006 to 2010. He employed a sample of 70 firms with return on assets (ROA) used to represent firm profitability.

Likewise, Pouraghajan and Emamgholipo (2012) used (ROA) and return on investment (ROI) as proxies of profitability using Tehranlisted firms with a sample

of 80 companies for the period of five years from 2006 to 2010. Their study documented a similar inverse relation between account receivables and profitability. Similarly, Falope and Ajilore (2009) found a significant and positive relationship between average collection period and net operating profit. The study employed a sample of 50 Nigerian non-financial firms for the period of 10 years from 1996 to 2005.

On the other hand, Bhunia and Das (2010) found a lower degree of relationship between account receivables and firm profitability. Bhunia and Das used return on capital employed (ROCE) to represent the profitability with a sample of 100 companies for the period of eight years from 2003 to 2010. However, Rehn (2012) documented a significant relationship between day's sales outstanding and profitability on a sample of Finnish and Swedish companies.

Thus, several studies have found a significant negative relationship between accounts receivables and firm profitability with only few recording a positive relationship. This means the less time a company takes to turn its sales (credits) into cash the more profitable it will become. Baveld (2012) found that, during the financial crisis, companies typically changed only the account receivables system while allowing their inventory and payables policy to remain unchanged. He further stated that companies extended credit to customers during crisis periods. This result aligns with that of Love, Preve and Sarria-Allende (2007) on Asian nation's trade credit policy during the crisis. Furthermore, Yang (2011) supported this finding based on the study of a sample US manufacturing firms. Thus, during the crisis period the average collection period had a positive relationship with firm profitability.

H_2: There is a negative relationship between average collection period and profitability after the crisis period of 2012-2013.

H_3: There is a positive relationship between average collection period and profitability during the crisis period of 2008-2009

2.5.3 Inventory Turnover

Raheman et al. (2010) conducted research on Pakistan manufacturing companies using net operating profit as a measure of profitability with a sample of 204 companies covering a period of ten years from 1998 to 2007. The results show a significant negative relationship between inventory turnover days and profitability on the selected companies. Moreover, Malik and Iqbal (2012) examined the Pakistan sugar industry and discovered a significant negative relation of inventory turnover days and net operating profit as a measure of profitability. The study uses a sample of 19 firms for the period from 1990 to 2001. Similarly, Ahmadi et al. (2012) discovered similar negative relation on Tehran stock exchange listed companies with a sample of 33 firms for the period from 2006 to 2011.

However, Uremadu et al. (2012 found a contrary result, that of a positive relationship between inventory conversion periods (ICP) and return on assets (ROA) on Nigerian quoted production industry with a sample of 25 companies for the period from 2005 to 2006. Furthermore, Soekhoe's (2012) study of 70 Dutch listed companies documented a similar positive relationship for the period from 2006 to 2010, although the result found an insignificant relationship between inventory turnover days and return on assets (ROA) using a fixed effects model. Moreover, Sharma and Kumar (2009) recorded a significant positive relationship between inventory

turnover days and firm profitability on a sample of 263 Indian firms for the period of nine years from 2000 to 2008. Similarly, Mathuwa (2010) found a significant positive relationship between inventory conversion period and firm profitability on 30 sample Kenyan companies from 1993 to 2008.

Nevertheless, Mansoori and Muhammad (2012) recorded a significant inverse relationship between inventory turnover days and return on assets (ROA). The data was for Singaporean listed companies with a sample of 92 firms for the period from 2004 to 2011. Likewise, Hayajneh and Yassine (2011) reported a negative relationship between the inventory period and profitability measure of net operating profit (NOP) on a sample of 53 Jordan listed companies.

Quayyum (2011) used return on assets (ROA) and net profit margin (NPM) to represent firm profitability on a sample of Bangladesh cement listed companies for the period of five years. The finding showed a significant inverse relationship between profitability and inventory turnover period. Similarly, Ching et al. (2011) employed return on sales (ROS), return on assets (ROA), and return on equity (ROE) on a sample of Brazilian quoted companies for the period of five years from 2005 to 2009. The study recorded a significant inverse relationship between inventory turnover and return on assets and returns on sales with no statistical relationship on return on equity. These findings aligned line wit those Dong and Su (2010) who studied Vietnam listed companies with a sample of 130 firms over the period of three years from 2006 to 2008. The study, while documenting the negative relationship between inventory turnover and firm profitability, used gross operating profit (GOP) to measure profitability.

Lastly, Sharma and Kumar (2009), Soekhoe (2012) and Uremadu et al. (2012) documented a positive relationship, but many studies have shown a significant negative relationship between inventory turnover and profitability of companies.

H_4: There is a negative relationship between inventory turnover days and profitability during and after the crisis periodof 2008-2009 and 2012-2013.

2.5.4 Account Payables

Soekhoe (2012) examined the Dutch listed firms for the period of five years from 2006-2010 with a sample of 70 companies. The study showed an inverse relationship between the number of day's for accounts payables (NDAP) as a measure of time taken to pay creditors and return on assets (ROA) that represents firm profitability. Ahmadi et al. (2012) studied Tehran listed food companies with a sample of 33 firms for the period from 2006 to 2011 and documented the same result. Similarly, Sabri (2012) examined Amman stock exchange listed companies in Jordan for the period of eight years from 2000 to 2007. The study documented a similar inverse relationship between average payment period and profitability.

Furthermore, Mekonnen (2011) study revealed a significant negative relationship between profitability and average payment period on Addis Ababa listed companies using same tools of data analysis. The study used gross operating profit as a measure of profitability with a sample of 13 firms for the period of five years from 2005 to 2009. Likewise, Malik and Iqbal (2012) examined the relationship between account payables and profitability and found a significant negative relationship between the number of days account payables (NDAP) and net operating income (NOI) as a

measure of profitability on Pakistan listed companies. The paper used a sample of 19 companies for the period of eleven years from 1990 to 2001.

Baveld (2012) documented a significant inverse relationship between profitability measures through return on assets and gross operating profit and average payment period during both the crisis and non-crisis periods on 37 listed Netherlands companies. According to Charitou et al. (2010), return on assets (ROA), representing profitability, was significantly and negatively related with creditors' collection period with a sample of 43 Cyprus listed companies for the period of ten years from 1998 to 2007.

However, Mansoori and Muhammad (2012) found an opposite significant positive relationship between account payables and return on assets (ROA) as a measure of profitability. The study used a sample of 92 Singaporean listed firms for the period from 2004 to 2011 using similar tools of analysis. Similarly, Uremadu et al. (2012) recorded a positive relationship of day's collection period (DCP) on firm profitability measured through return on assets (ROA) on a sample of twenty-five (25) Nigerian listed companies for the period of two years from 2005 to 2006. Rehn (2012) also reported a significant positive relationship between profitability and account payables days outstanding on a sample of Finnish and Swedish companies.

As seen above, many studies on the relationship between account payables management and firm profitability have shown a negative significant relationship, except for those of Mansoori and Muhammad (2012), Uremadu et al. (2012) and Rehn (2012). For nagative relationship see for example (Baveld, 2012; Garcia et al., 2011; Quayyum, 2012; Raheman et al., 2010; Sabri, 2012 and Soekhoe, 2012).

H_5: There is a negative relationship between average payment period and profitability during and after the crisis periodof 2008-2009 and 2012-2013.

2.5.5 Control Variables

Mohamad and Saad (2012) established that current ratio had a significant adverse relationship with financial performance of 172 Malaysian listed companies. In this study, return on assets, return on invested capital and Tobin Q represented firm performance for the period from 2003 to 2007. Similarly, Eljely (2004) study of Saudi Arabian listed firms documented the similar inverse relationship between current ratio and profitability with a sample of 29 companies. However, Rehn (2012) found a significant positive relationship between current ratio and firm profitability on a sample of Finnish and Swedish firms. This study further documented a positive significant relationship on sales growth and a negative significant relationship for debt ratio with firm profitability. Moreover, Hayajneh and Yassine (2009) reported a similar positive relationship of current ratio with firm profitability on Jordanian listed companies and a positive finding for sales growth and a negative relationship on debt ratio with profitability

Likewise, Kuar et al. (2012) study 164 listed Indian BSE 200 companies for the period of 2000-2010. Using correlation and regression analysis, the study recorded a significant negative relationship between current ratio and firm profitability of BSE 200 manufacturing companies. Moreover, Ahmadi et al. (2012) used current ratio and debt ratio as control variables for 33 Tehran stock exchange quoted companies during the period from 2006 to 2011. Their study documented an inverse relationship for current ratio and debt ratio with profitability. Moreover, Ahmadpour et al.'s

(2012) study also recorded a similar inverse relationship of the control variables of current ratio, debt ratio and profitability. The study employed a sample of 112 companies for the period from 2000 to 2009.

Ching et al. (2011) recorded a negative relationship between debt ratio and return on assets on a sample of Brazilian quoted companies for the period from 2005 to 2009.. Similarly, Garcia et al. (2011) examined 2,974 sample European listed firms for the period of twelve years from 1998 to 2009. In the study, the control variables of current ratio, debt ratios were includedThe study found a significant negative relationship between current ratio and debt ratio on profitability.

Malik and Iqbal (2012) used current ratio, gearing ratio, and sales growth on a study of Pakistan sugar industry for the period from 1999 to 2009 with a sample of 19 firms. The study found a positive significant relationship between sales growth and profitability of firms while current ratio and gearing ratio had a negative relation with firm profitability. Mansoori and Muhammad (2012) studied Singaporean listed firms for the period from 2004 to 2011 using a fixed effect model. The study used sales growth and leverage as control variables. The result showed a significant positive relationship between sales growth and firm profitability but leverage had a significant negative relationship on the profitability measure of return on assets (ROA).

Baveld (2012) studied Netherlands listed companies using the control variables of growth, debt ratio and current ratio. The study documented a positive significant relationship between growth and profitability and a negative and significant relationship between control variables of debt ratio and current ratio and profitability

for the periods from 2004 to 2006 and from 2008 to 2009. Similarly, Soekhoe (2012) used financial debt ratio as a control variable on Dutch listed firms. He found a significant negative relationship between debt ratio and profitability.

H_6: There is a positive relationship between sales growth and firm profitability.

H_6 : There is a negative relationship between current ratio and firm profitability.

H_6: There is a negative relationship between debt ratio and firm profitability.

2.6 Conclusion

This chapter highlights the theories relevant to the working capital management and firm profitability, explains the working capital management techniques, practices and efficiency. The chapter further presents the relationship between working capital management components and firm profitability based on previous studies, the also includes the hypotheses developed using prior literature.

The next chapter explains the study's methodology by highlighting the population and sample for the study, the sampling techniques, methods of data analysis, and the regression models.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter presents the method used in conducting the research work. It presents the research elements including the population of this study, the sample size, sampling frame and sampling technique in selecting a representative sample of the population. The chapter also explains the appropriate method use in sourcing and collecting data, and, finally, the statistical methods of data analysis.

3.2Research Design

3.2.1 Type of Study

The research uses correlational descriptive research design that aligns with the research purpose, which investigates the relationship of working capital management components with firm profitability among Malaysian listed companies. The study collects data on both the working capital variables and the profitability measures based on the model of the study.

3.2.2 Data collection source and Method

This study uses a secondary data source that is called non-survey method. The data was obtained from the University Utara Malaysia DataStream on the Bursa Malaysia listed companies. Items explained under the variable measurement below were collected accordingly.

3.2.3 Population Frame

The population frame of this study is the Bursa Malaysia listed companies, excluding real estates investment trusts (REITS), investments and banks and other financial institutions because of their peculiarities in regulations and nature of business. That is because what the research uses (working capital components) in testing companies' profitability are mostly not found in these type of companies. Thus, the population of this study was 789 Malaysian listed companies.

3.2.4 Sample & Sampling Technique

The sample size of the study was drawn using the Krejcie and Morgan (1970) sample size selection tableunder the 95% confidence level, which is the level mostly used in social science study. The table shows that for research with a population of 800, the sample size based on the formula is 260. Hence, the sample used in this study is 260 with observationsdrawn for both of the two periods (during and after the crisis). A probability sampling technique called the stratified simple random sampling technique in Table 3.2 belowwas used in picking the 260 sample companies. Utilizing probability techniques, every member of the aggregate firm's number hadan equal chance of being chosen.

Table 3.2
Sample Selection

SECTOR	POPULATION	SAMPLE
Construction	43	14
Hotels	5	2
Consumer products.	138	46
Industrial production	249	82
Plantations	44	14
Properties	89	29
Technology	33	10
Trading/services	188	63
Total	789	260

The derived 260 sample was further distributed between the eight relevant sectors by dividing each sector population with the total 789 population of the study and multiplied by the 260 selected companies accordingly as shown in Table 3.2. This study used year 2008-2009 as crisis period because at the period the crisis was eminent and pronounced globally and was used in the research of Baveld (2012). Moreover, this study had chosen year 2012-2013 leaving a gap of two years of 2010 and 2011 because year 2012 and 2013 are most recent and those two years might have aftermath effect of the crisis.

3.3 Regression Models

The model is derived from the research of Baveld (2012), Bhunia and Das (2010), Mohamad and Saad 2012, Quayyum (2012) and Hayajneh and Yassine (2009). Several studies on working capital management have used four models from which

this research will draw. According to Rehn (2012), analysing working capital management components individually shows a clear relationship between profitability and management style. Furthermore, Baveld (2012) advised researchers to study the individual relationships between working capital management and profitability during crisis periods.

$$\pi_{it} = \beta_0 + \beta_1 ACP_{it} + \beta_2 CR_{it} + \beta_3 DR_{it} + \beta_4 SG_{it} + \varepsilon_{it} \ \ldots\ldots\ldots\ldots\ldots Model\ I$$

$$\pi_{it} = \beta_0 + \beta_1 ITD_{it} + \beta_2 CR_{it} + \beta_3 DR_{it} + \beta_4 SG_{it} + \varepsilon_{it} \ \ldots\ldots\ldots\ldots\ldots Model\ II$$

$$\pi_{it} = \beta_0 + \beta_1 APP_{it} + \beta_2 CR_{it} + \beta_3 DR_{it} + \beta_4 SG_{it} + \varepsilon_{it} \ \ldots\ldots\ldots\ldots\ldots Model\ III$$

$$\pi_{it} = \beta_0 + \beta_1 CCC_{it} + \beta_2 CR_{it} + \beta_3 DR_{it} + \beta_4 SG_{it} + \varepsilon_{it} \ \ldots\ldots\ldots\ldots\ldots Model\ IV$$

Where: π_{it} stands for profitability of firm i for the period t, and it is measured through OPM and ROA signifying operating profit margin and return on total assets. ACP_{it} represents the average collection period for company i for period t and it measures the time a firm took to collects cash from customers while, ITD_{it} means inventory turnover days for company i for period t. and represents time taken to turn inventory into cash, APP_{it} is the average payment period for firm i for the period t. CCC_{it} represents the cash conversion cycle for firm i for the period t and it measures the time a business takes to receive cash from initial cash outlay. The CR_{it} stands for current ratio for company i for the period t, DR_{it} is the debt ratio for company i for period t and SG_{it} represents Sales growth for firm i for period t. The subscript i represents the company cross-sectional dimension while t represents the time series dimension, and the combination of the two (it) represents the panel dimension. The symbol β_0 represents constant while ε_{it} take cares of all other factors that have influence on the dependent variable (π_{it}).

The research uses VIF (variance inflation factor) and (D-W) Durbin-Watson and checks for the existence of multicollinearity and autocorrelation; while skewness and kurtosis are used to inspect for data normality.

Table 3.1

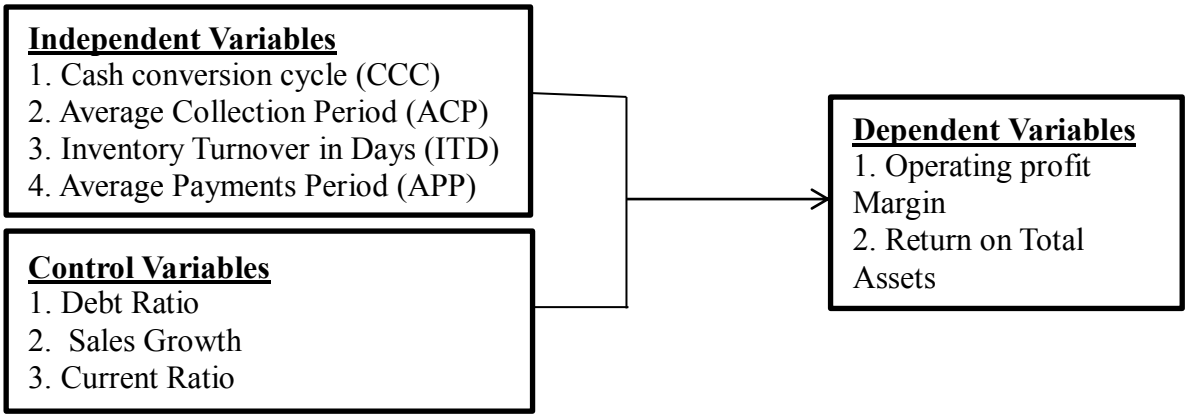
Operational definition and variable measurement

Abbreviation	Operational definition	Measurement
ROA	Return on assets is measured by dividing net income by total assets of a company and it measures the efficiency of a firm in utilising assets (Baveld, 2012; Ching et al., 2011; Mohamad and Saad, 2012).	$\frac{\text{net income}}{\text{total assets}}$ Baveld (2012)
OPM	OPM demonstrates the yield of the main activity before non-operating costs, income charges, and shows the ability of the company to earn a profit from its primary business (Subramanyam, 2014).	$\frac{\text{operating profit}}{\text{net sales}}$ Subramanyam (2014)
CCC	The time gap that existed between the initial cash expenditure in production process down to the cash collection from customers (Mekonnen, 2011).	$(\text{ACP} + \text{ITD}) - \text{APP}$ Mekonnen (2011)
ACP	This is the number of days it takes a company to collect cash from debtors (Mekonnen, 2011).	$\frac{\text{account receivables}}{\text{net sales}/365\text{days}}$ Mekonnen (2011)
ITD	Shows the number of day's goods has been turned over (sold) during a period usually a year (Garcia et al., 2011).	$\frac{\text{inventory}}{\text{cost of goods}\frac{\text{sold}}{365\text{days}}}$ Garcia el al. (2011)
APP	The period between the purchase of these materials, components or goods and the time the money is paid to suppliers (Soekhoe, 2012).	$\frac{\text{account payables}}{\text{cost of goods}\frac{\text{sold}}{365}\text{days}}$ Soekhoe (2012)

DR	This is the portion of outsiders' capital in the firm's capital structure (Hayajneh & Yassine, 2011).	$\frac{\text{total debt}}{\text{total assets}}$ Rehn (2012)
CR	This is the number of times current liabilities were covered by current assets (Soekhoe, 2012).	$\frac{\text{current assets}}{\text{current liabilities}}$ Soekhoe (2012)
SG	This measures the firm's sales increment over a period usually one year (Baveld, 2012).	$\frac{\text{current sales} - \text{previous}}{\text{previous sales}}$ Baveld (2012)

Figure 3.1

Research Framework



The dependent variables comprise operating profit margin (OPM) and return on assets (ROA). The argument for the adoption of operating profitability as one of the dependent variables is because operating profitability has the advantage of considering the actual operating performance of a company unlike other earning measures that takes financial activity into analysis which distort the operating performance (Garcia et al., 2011). On the other hand, return on assets has the advantage of indicating the extent to which a company turns its assets in earning

income (Subramanyan, 2014). Thus, it measures the level of asset utilisation in income generation.

The independent variables are cash conversion cycle, average collection period, inventory turnover in days, average payment period and control variables of current ratio, debt ratio and sales growth.

3.4 Data Analysis Techniques

The dependent and independent variables were first analysedwith descriptive statistics and their normality (consistency) assessed, after which the Pearson correlation co-efficient was applied to test their relationship, and, finally the study used SPSS ordinary least square regression analysis. Thus, the study uses descriptive statistics, the Pearson correlation coefficient and multiple regression analysis, in a manner similar to that which Baveld (2012) used.

Descriptive statistics analyses and interprets the data using minimum, maximum, mean, and standard deviation. The study used skewness and kurtosis to confirm the normality of the data to ensure the reliability and validity of the data for arriving at substantial evidence upon which to base the study's conclusions.

The study employs Pearson correlation coefficient statistics to determine the relationship between the working capital management components which are the independent variables and the operating profit margin and return on assets which are the dependent variables representing the profitability. The values of the correlation coefficient can range from -1 to +1 identifying the direction of the relationship. The negative sign shows an inverse relationship while the positive sign reveals the

positive relationship between the variables. The closer to -1 or +1 the stronger the relationship is.

The study uses multiple regression statistics to measure the level to which the explanatory/independent variables explain/influence the dependent variable in the study. The multiple regression analysis examines the adjusted r-square, the significance level, standardized beta and t-values in the study. These statistics help in knowing the extent to which the independent variables jointly explain the dependent variable in the study and indicate whether to reject or acceptthe hypotheses raised earlier.

3.4 Conclusion

This chapter contains the research design, the population of the study, the sampling and sampling techniques, the regression models and the research framework. The chapter further presents the variables and how they will be measured measurement and the operational definitions.

The next chapter shows the data analysis, interpretation and discussion, compare and contrast of the research findings with prior studies and finally the hypothesis testing

CHAPTER FOUR

RESULTS AND DISCUSSION

4.0 Introduction

This chapter presents the results of this study that determines the working capital management and the relationship with profitability of Malaysian listed companies for two periods (during the crisis and after crisis). The analysis, interpretation and discussion includedescriptive statistics, Pearson correlations and finally the regression analysis that examines the relationship between working capital management components (average collection period, average payment period, inventory turnover days, and cash conversion cycle) and firm profitability. The study uses control variables of current ratio, sales growth and debt ratio and,at the end, has a conclusion for the chapter.

4.1 Descriptive Statistics

Table 4.1 below highlights the descriptive results of the sample companies in this study. Descriptive statistics summarize the sample rather than the population of the study (Garson, 2012), and the descriptive statistics are for 260 Malaysian firms for two periods (during crisis 2008-2009 and after crisis 2012-2013). In this section, the findings are compared with the results of prior studies.

The mean value of return on assets (ROA) after the crisis was 2.24% with a minimum of -46.3% while the maximum was 35.9% and the standard deviation, showing the dispersion from mean values in the sample, was 8.18. The results are considerably similar with findings of Soekhoe (2012) with 3.79% average return on

assets on selected Dutch listed companies. Likewise, Sabri (2012) founda 4.3% mean on a sample Amman Stock exchange firms in Jordan. Qauyyum (2011) documented a different finding on Bangladesh listed companies with an average of 5.6%. Similarly, Charitou et al. (2010) recorded a 5% mean on a sample Cyprus listed companies. Thus, Malaysian firms earnedon average a lower return on assets compared to the above studies, but these divergent findings can be attributed to the nature of the market and differences in the period of analysis.

Average operating profit margin (OPM) was 3.40% with a standard deviation of 11.48, the maximum percentage in the sample is 36.8% while the minimum was -56.6%. Hence, the results indicate that Malaysia registered firms earned on average 3.40% out of sales revenue when non-operating income and expenses were not brought into the picture. Quayyum's (2011) study in Bangladesh showed a mean result of 5.5% on net profit margin (NPM). Similarly, Hayajneh and Yassine (2011) reported an average net operating income of 5.7% on Jordanian listed companies. Thus, Malaysian listed firms earned lower operating margin compared with these studies, which could be due to measurement differences, economic and environmental conditions.

Table 4.1
Descriptive Statistics

	During the crisis 2008-2009					After the crisis 2012-2013				
Variables	**N**	**Min**	**Max**	**Mean**	**Std dev.**	**N**	**Min**	**Max**	**Mean**	**Std dev.**
OPM	520	(74.90)	43.60	4.79	12.41	520	(56.60)	36.80	3.40	11.48
ROA	520	(31.40)	37.60	3.02	7.59	520	(46.30)	35.90	2.24	8.18
CCC	520	1.30	755.70	142.90	98.99	520	(38.40)	781.10	141.84	109.51
ACP	520	9.50	536.70	98.75	70.61	520	6.80	607.10	100.17	79.53
ITD	520	0.40	638.30	97.96	77.71	520	1.40	584.50	98.65	79.01
APP	520	0.40	229.20	53.62	41.26	520	0.40	322.20	56.98	46.15
CR	520	0.10	8.40	1.96	1.28	520	0.10	9.40	2.24	1.60
DR	520	0.00	78.90	23.93	16.62	520	0.00	68.80	21.16	15.41
SG	520	(93.70)	99.60	6.04	31.14	520	(63.50)	159.60	5.67	26.44

During the crisis both profitability measures showedhigher profit with a mean value of 4.79% for the operating profit margin and 3.02% for the return on assets, although the dispersion was higher during the crisis period. Thus, Malaysian firms were more profitable during the crisis period than after the crisis.

Cash conversion cycle (CCC) had an average of 141.84 days with a standard deviation of 109.51. Hence, Malaysian firms took 141.81 days on average to collect money from customers from the initial capital outlay, although this varied among the sample companies. Similarly, some previous studies have documented a higher dispersion from the mean.For instance, Hayajneh and Yassine (2011) recorded an average of 217 days and standard deviation of 269.50. Likewise, Garcia et al. (2011) record a mean of 101.06 days with a standard deviation of 127.09 based on Bangladesh listed companies. However, a Baveld (2012) found a lower mean and standard deviation on Netherlands companies with an average of 56.08 days and standard deviation of 36.97. Moreover, Soekhoe (2012) documented a lower mean of

35.78 days. In the end, cash conversion cycle was moderate for the sample, although Malaysian companies needs to be a little bit more efficient in managing the cycle.

The average collection period (ACP) was 100.17 days, 6.80 days and 607.10 days for the mean, minimum and maximum days respectively. The standard deviation was 79.53 and compared with the standard deviations of Garcia et al. (2011) at 83.61 and Hayajneh and Yassine (2011) at 149.79.Thus, the dispersion of Malaysian firms was lower and the selected Malaysian firms' management style did not differ much. Malaysian companies took 100.17 days on average to collect money from credit sales while taking a maximum of 607.10 days and a minimum of 6.80 days for the collection period after the crisis.

Inventory turnover days (ITD) average after the crisis was 98.65 days with a minimum of 1.4 days and maximum of 584.5 days; the standard deviation was 79.01. Mekonnen (2011) reported almost the same mean at 97.58 days for Addis Ababa listed companies. Similarly, Hayajneh and Yassine (2011) documented a mean of 193.3 days with a standard deviation of 169.6. Thus, the dispersion among the sample firms in Malaysia for the management style of inventory was not as much compared with the results of Hayajneh and Yassine in Jordan.

The management of the average payment period (APP) pattern among the selected firms that can inferred from the standard deviation of 46.15 was that that management did not vary much compared with the finding of Garcia et al. (2011), which had a standard deviation of 89.35 on the selected European companies. The mean, maximum and minimum days companies took to pay creditors were 56.98, 322.20 and 0.40 days respectively in Malaysia. Baveld (2012) found almost similar

mean days of paying suppliers with a result of 44.72 days for Netherlands companies. However, Soekhoe (2012) and Mekonnen (2011) found higher means of 194.54 days and 104.49 days.

The current ratio mean statistic was 2.24 times with a minimum of 0.10 times while the maximum value was 9.4 times. Thus, Malaysian firms onhad current assets that cover more than twice the current liabilities. Previous studies reported a lower rate, including Baveld (2012), Mekonnen (2011) and Garcia et al. (2011) with 1.4 times, 1.88 times and 1.94 times respectively. However, Burnia and Das (2012) found nearly a similar result (2.31 times). Thus, the firms in the Malaysian sample adopted conservative working capital management policies almost collectively because the standard deviation was just 1.60.

Debt ratio had a 21.16% with a standard deviation of 15.41 and maximum value of 68.8% while the minimum value was 0%, meaning that no debt existed in the capital structure in this firm. Garcia et al. (2011) founda similar mean of 21.97% on selected European companies. Contrarily, Baveld (2012), Soekhoe (2012), Mekonnen (2011), and Charitou et al. (2012) documented higher mean values of 41%, 58.60%, 49.60% and 46% respectively. Thus, Malaysian firms had lower debt financing in capital structure.

Sales growth had an average of 5.67% with a standard deviation of 26.44. Hayajneh and Yassine (2011) recorded virtually similar results of a 7.36% mean value. On the other hand, Baveld (2012), Charitou et al. (2012), and Mekonnen (2011) found higher mean statistics on sales growth of 10%, 28% and 11% respectively. Thus, Malaysia listed companies' recorded lower sales growth compared with findings of

previous studies, although the time periods were not the same.

The crisis period results show not much difference with non-crisis period, although debt capital was a bit high with high dispersion. Similarly, the cash conversion cycle was high during the crisis while average collection period was not equal to what was obtainable after the crisis. Nevertheless, the average payment period was minimal during crisis. Baveld's (2012) study, which was based on Netherlands firms during the financial crisis of 2008-2009, found different results with the ROA in Netherlands being higher, and the working capital components showing better management efficiency. Baveld study recorded lower mean values of 49.59 days, 56.53 days, 34.60 days and 41.55 days for cash conversion cycle, average collection period, inventory turnover days and average pay period respectively.

4.2 Correlation

Table 4.2 below reports the correlation matrix of the crisis period while Table 4.3 shows the results of the aftercrisis period (2012-2013). Correlation indicates the existence and level of the relationship between variables (Garson, 2012).

Table 4.2
Pearson Correlation during the Crisis Period (2008-2009)

		OPM	ROA	CCC	ACP	ITD	APP	CR	DR	SG
OPM	Correlation	1								
	Sig. (2-tailed)									
ROA	Correlation	.702**	1							
	Sig. (2-tailed)	.000								
CCC	Correlation	-.039	-.042	1						
	Sig. (2-tailed)	.373	.342							
ACP	Correlation	-.259**	-.180**	.520**	1					
	Sig. (2-tailed)	.000	.000	.000						
ITD	Correlation	.134**	.040	.825**	.085	1				
	Sig. (2-tailed)	.002	.359	.000	.053					
APP	Correlation	-.099*	-.130**	.048	.604**	.053	1			
	Sig. (2-tailed)	.024	.003	.275	.000	.226				
CR	Correlation	.216**	.267**	.200**	-.054	.198**	-.195**	1		
	Sig. (2-tailed)	.000	.000	.000	.216	.000	.000			
DR	Correlation	-.251**	-.356**	-.040	-.006	-.052	-.017	-.570**	1	
	Sig. (2-tailed)	.000	.000	.367	.884	.237	.704	.000		
SG	Correlation	.363**	.366**	-.115**	-.176**	-.020	-.065	-.016	-.055	1
	Sig. (2-tailed)	.000	.000	.008	.000	.657	.140	.724	.209	

Note: *. Correlation is significant at the 0.05 level (2-tailed);**. Correlation is significant at the 0.01 level (2-tailed).

Table 4.3
Pearson Correlations in the After Crisis Period (2012-2013)

		OPM	ROA	CCC	ACP	ITD	APP	CR	DR	SG
OPM	Correlation	1								
	Sig. (2-tailed)									
ROA	Correlation	.709**	1							
	Sig. (2-tailed)	.000								
CCC	Correlation	-.040	-.082	1						
	Sig. (2-tailed)	.358	.061							
ACP	Correlation	-.176**	-.174**	.598**	1					
	Sig. (2-tailed)	.000	.000	.000						
ITD	Correlation	.055	-.024	.782**	.121**	1				
	Sig. (2-tailed)	.213	.591	.000	.006					
APP	Correlation	-.114**	-.146**	-.003	.512**	.064	1			
	Sig. (2-tailed)	.010	.001	.937	.000	.145				
CR	Correlation	.235**	.257**	.234**	.063	.137**	-.212**	1		
	Sig. (2-tailed)	.000	.000	.000	.153	.002	.000			
DR	Correlation	-.138**	-.217**	-.043	-.011	-.020	.049	-.580**	1	
	Sig. (2-tailed)	.002	.000	.325	.805	.642	.265	.000		
SG	Correlation	.108*	.194**	-.033	-.005	-.036	.007	-.045	.005	1
	Sig. (2-tailed)	.014	.000	.458	.909	.415	.865	.304	.902	

Note: * Correlation is significant at the 0.05 level (2-tailed); **. Correlation is significant at the 0.01 level (2-tailed).

During the crisis period of 2008-2009 correlation results shows a significant negative correlation for ACP and APP on both OPM and ROA, which represented firm profitability. Similarly, the cash conversion cycle showed a negative correlation with both profitability measures although the correlation was insignificant. Baveld (2012) documented an insignificant association with ROA during the crisis period in Netherlands listed companies, which aligns agreement with findings of this current study. Likewise, Baveld's finding on creditors' payment period was negative, which is similar to the results in this study. However, Baveld foundan insignificant correlation between debtors' collection period and return on assets while this current study documented a significant correlation. The correlation between inventory turnover days (ITD) and operating profit margin (OPM) was positive and significant but it is insignificant with return on assets (ROA) the second profitability measure.

Control variables of current ratio and sales growth also correlate positively with both profitability measures. Hayajneh and Yassine (2011) documented similar significant positive correlations between current ratio and sales growth on profitability measures of ROA and gross profit in Jordan manufacturing firms. However, debt ratio correlates negatively with profitability and it is substantial in this study.

The result of non-crisis period (after crisis) shows a significant negative correlation of average collection period (ACP) and average payment period (APP) on both profitability measures (OPM and ROA). This finding is congruent with prior studies such as those of Muhamad and Saad (2010), Malik and Iqbal (2012), Mekonnen (2011) Ahmadpour et al. (2011), Ching et al. (2011), Quayyum (2012), Ahmadi et al. (2012) and Soekhoe (2012). However, Uremadu et al. (2012) and Sharma and Kumar (2009) had a contrary result on the account receivables collection period.

Furthermore, a negative correlation between the cash conversion cycle (CCC) and both profitability measures of OPM and ROA is highlighted in the table. Inventory turnover days (ITD) had an insignificant correlation with return on assets and operating profit margin. Previous studies such as those of Raheman et al. (2011) and Malik and Iqbal (2012) found a negative correlation between cash conversion cycle and profitability and inventory turnover days and profitability.

Two of the three control variables of current assets and sales growth showed a significant and positive correlation with both profitability measures of operating profit margin (OPM) and return on assets (ROA). This evidence shows that the more a firm has current assets and increment in sales/revenue the higher the profitability is; this meansthat there is a direct association. However, the other control variable of debt ratio showed a significant negative correlation for both ROA and OPM.

Conclusively, control variables of current ratio and sales growth had significant direct relationships with both profitability measures during both crisis and non-crisis period in Malaysia. Debt ratio had a large inverse correlation with both measures of firm profitability in the two periods of crisis and non-crisis of the study.

The correlation between independent variables shows no multicollinearity problem with the exception of cash conversion cycle and inventory turnover days. A high correlation exists between the cash conversion cycle and inventory turnover period, but it is consistent with prior studies (e.g., Baveld, 2012; Hayajneh and Yassine, 2011; Mansoori and Muhammad, 2012; Mekonnen, 2012 and Rehn, 2012). These previous studies employed four models to eliminate the problem of multicollinearity among the working capital management components.

4.3 Normality Test

Table 4.4 below presents the SPSS normality results of skewness and kurtosis for both crisis and non-crisis periods. Kline (1998) states that skewness should be less than ±3 while; kurtosis should not exceed ±10. The statistics for both periods shows no any value in either skewness or kurtosis of up to ±3 or ±10; hence, the data is normal for regression analysis.

Table 4.4
Normality tests

Variables		During crisis 2008-2009		After crisis 2012-2013	
	N	**Skewness**	**Kurtosis**	**Skewness**	**Kurtosis**
OPM	520	-1.588	9.712	-1.606	6.429
ROA	520	-0.588	3.939	-1.474	7.843
CCC	520	1.735	5.625	1.873	5.587
ACP	520	1.965	5.705	2.441	8.366
ITD	520	2.378	9.563	1.923	5.186
APP	520	1.605	2.968	2.236	7.144
CR	520	1.95	4.866	1.672	2.962
DR	520	0.511	-0.371	0.491	-0.428
SG	520	0.379	0.474	1.656	6.076

4.4 Autocorrelation and Multicollinearity

According to Makridadis and Wheelwright (1978) (cited in Baveld, 2012), the Durbin-Watson statistic should not be less than 1.5 or above 2.5. Thus, any deviation from these figures indicates autocorrelation among the predicting variables. The study usesvariance inflation factor (VIF) to check for multicollinearity between independent variables and the existence of multicollinearity leads to failure of detecting a variable that influences the dependent variables the most (O'Brien, 2007). O'Brien further states that VIF should not exceed 10. Similarly, Silver (1997) suggests the same rule of thumb for the variance inflation factor. Table 4.5 below

shows no any variance inflation factor value of more than 10; therefore, the data has no problem of multicollinearity among all independent variables.

Table 4.5
Autocorrelation and Multicollinearity Tests

	During Crisis 2008-2009				**After Crisis 2012-2013**			
	Model 1	**Model 2**	**Model 3**	**Model 4**	**Model 1**	**Model 2**	**Model 3**	**Model 4**
	VIF	VIF	VIF	VIF	VIF	VIF	VIF	VIF
CR	1.496	1.551	1.588	1.555	1.518	1.546	1.591	1.616
DR	1.495	1.498	1.532	1.501	1.509	1.515	1.521	1.528
SG	1.041	1.006	1.013	1.018	1.003	1.003	1.003	1.003
ACP	1.039				1.005			
ITD		1.047				1.025		
APP			1.074				1.056	
CCC				1.063				1.073
D-W	1.657[a]	1.616[a]	1.626[a]	1.634[a]	1.497[a]	1.455[a]	1.483[a]	1.471[a]

4.5 Regression Analysis

Table 4.6 and 4.7 below report the regression results of the independent variables against the two profitability measures of operating profit margin (OPM) and return on assets (ROA) based on the four models specified under the regression models. Values in [ ] represents the standardized beta while the t-values are shown in { }. The t-statistics is used to either reject or fails to reject a hypothesis, whereas the beta values highlight the level of the independent variable's relationship with the dependent variable.

Table 4.6
Regression results of Working Capital Management Components and profitability

Dependent Variable = OPM								
	During Crisis 2008-2009				After Crisis 2012-2013			
Variables	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 1**	***Model 2***	**Model 3**	**Model 4**
ACP	.000***				.000***			
	{-5.018}				{-4.578}			
	[-.197]				[-.191]			
ITD		.006***				0.538		
		{2.776}				{.617}		
		[.111]				[.027]		
APP			0.168				0.125	
			{-1.382}				{-1.539}	
			[-.056]				[-.067]	
CCC				0.421				.023**
				{-.805}				{-2.272}
				[-.033]				[-.100]
CR	.016**	.031**	.020**	.004***	.000***	.000***	.000***	.000***
	{2.418}	{2.165}	{2.337}	{2.882}	{5.008}	{4.464}	{4.155}	{5.060}
	[.114]	[.106]	[.116]	[.142]	[.257]	[.236]	[.222]	[.272]
DR	.000***	.001***	.001***	.002***	0.868	[.982]	0.904	0.775
	{-3.592}	{-3.439}	{-3.406}	{-3.140}	{.166}	{-.023}	{-.121}	{.286}
	[-.169]	[-.165]	[-.166]	[-.152]	[.009]	[-.001]	[-.006]	[.015]
SG	.000***	.000***	.000***	.000***	.005***	.005***	.006***	.006***
	{8.144}	{9.090}	{8.864}	{8.859}	{2.835}	{2.802}	{2.785}	{2.753}
	[.320]	[.357]	[.352]	[.353]	[.118]	[.119]	[.118]	[.117]
Anova	.000[a]	.000[a]	.000[a]	.000[a]	.000[a]	.000[a]	.000[a]	.000[a]
Adj R^2	22.8%	20.3%	19.4%	19.2%	9.9%	6.3%	6.6%	7.1%

Note: * significant at the 0.10 level; ** significant at the 0.05 level; and *** significant at the 0.01 level.

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Table 4.7
Regression results of Working Capital Management Components and Profitability

Dependent Variable = ROA								
	During Crisis 2008-2009				After Crisis 2012-2013			
Variables	**Model 1**	**Model 2**	**Model 3**	**Model 4**	**Model 1**	**Model 2**	**Model 3**	**Model 4**
ACP	.002***				.000***			
	{-3.049}				{-4.632}			
	[-.117]				[-.189]			
ITD		0.800				0.249		
		{.254}				{-1.153}		
		[.010]				[-.048]		
APP			.016**				.015**	
			{-2.425}				{-2.444}	
			[-.095]				[-.104]	
CCC				0.334				001***
				{-.967}				{-3.256}
				[-.038]				[-.138]
CR	.019***	.013**	.057*	.006***	.000***	.000***	.001***	.000***
	{2.359}	{2.488}	{1.909}	{2.742}	{4.525}	{4.262}	{3.496}	{4.865}
	[.109]	[.118]	[.091]	[.130]	[.226]	[.219]	[.182]	[.254]
DR	.000***	.000***	.000***	.000***	.075*	.071*	.034*	0.128
	{-6.001}	{-5.779}	{-6.129}	{-5.679}	{-1.787}	{-1.808}	{-2.124}	{-1.523}
	[-.276]	[-.269]	[-.286]	[-.264]	[-.089]	[-.092]	[-.108]	[-.077]
SG	.000***	.000***	.000***	.000***	.000***	.000***	.000***	.000***
	{8.650}	{9.280)	{9.097}	{9.127}	{5.000}	{4.877}	{4.922}	{4.890}
	[.332]	[.354]	[.346]	[.350]	[.203]	[.202]	[.203]	[.201]
Anova	.000[a]	.000[a]	.000[a]	.000[a]	.000[a]	.000[a]	.000[a]	.000[a]
Adj R^2	26.4%	25.1%	26%	25.3%	14.3%	11%	11.8%	12.6%

Note: * significant at the 0.10 level; ** significant at the 0.05 level, and *** significant at the 0.01 level.

R-square explains the predictor variables linear relationship with the dependent variables in the model, the more the variables in the model, the higher is the r-squared (Garson, 2012). Garson further states that the adjusted R-squared take cares of the insignificant variable added into the model by shrinking the value of the R-squared. Thus, adjusted R-squared enhances the generalizability of the result revealed by the model.

Model 1 had an adjusted R-square of 22.8% and 9.9%in Table 4.6 above while 26.4%and 14.3% in Table 4.7 above,which represent during and after the crisis periods respectively. This pattern of lower adjusted R-squared after the crisis compared to the crisis period is similar in models 2, 3 and 4. This suggests that working capital management variables hada stronger relationship with profitability during crisis than after the crisis period. Hence, working capital management explains changes in firm profitability the most during the crisis period. Therefore, managing working capital was more important during the crisis than after the crisis period for the relationship with profitability. The models in both periods of study are capable of explaining changes in the dependent variable based on the significant Anova p-value of 1% throughout. Therefore, the models can explain part of the changes in the examined variables while keeping other variables constant.

In addition, Model 1 during the global crisis of 2008-2009, showerd a significant inverse relationship between the account receivables collection period and both profitability measures of OPM and ROA at 1% level in Table 4.6 and 4.7 above. This result aligned with trade-off theory that predicts a negative relationship between components of working capital management and firm profitability to which average collection period. .Even though, the finding is contrary to Baveld's (2012) results on

long-term profit relationshipsin the Netherlands listed companies. Thus, based on this finding, Malaysian firms did not change their account receivables collection system even during the crisis period of 2008-2009. The reason why Malaysian listed companies did not change the collection policy can be attributed to the fact that Malaysian government had pumped many funds into the economy in form of loans with the motive of insulating the economy from the effects of the crisis (Abidin &Rasiah, 2009). They further stated that Malaysian banks were not affected enormously by the crisis because Bank Negara introduced many policies previously learned from the Asian crisis in xxx that helped. Finally, this finding did not supporthypothesis 3, which expected a positive relationship between profitability and the account receivables collection period during the crisis.

Moreover, model 1 after the crisis shows a significant inverse relationship between the average collection period (APP) and operating profit margin (OPM) atthe 1% level in Table 4.6 above whereas in Table 4.7 above the model reveals the relationship between the average collection period and return on assets (ROA) (the second profitability measure), and that relationship is also negative and significant at the 1% level. Thus, the less time a business takes to collect payment from customers the higher the benefits. This finding aligns with the Fisher separation theorem and trade-off theory of working capital management. Malik and Iqba (2012) found the same resultsfor Pakistan companies using net operating profit. Similarly, several studies have documented significant adverse relationships between debtor's collection period and firm profitability (e.g., Ahmadpour et al., 2011; Ahmadi et al., 2012; Baveld, 2012; Ching et al., 2011; Dong and Su, 2010; Mekonnen, 2011; Soekhoe, 2012).

However, Sharma and Kumar (2009) reported a significant positive relationship between account receivable days and profitability for selected Indian companies. According to the trade-off theory, the faster a company collects money from debtors the higher the profit. This assertion says that the company will have more money to finance future operation thereby earning more profit in the process. The standardized beta value of [-.191] and [-.189] is recorded for ACP relationship with profitability measures of OPM and ROA in Table 4.6 above and Table 4.7 above respectively. On a final note, hypothesis 2 is supported and fails to be rejected based on the sufficient t-value of {-4.578} in Table 4.6 and {-4.632} in Table 4.7.

Model 2 reported the result of inventory turnover days relationship with operating profit margin (OPM) during crisis in Table 4.6 above and is direct and significant at 1% level while it is insignificant on return on assets (ROA), the second profitability measure although positive in Table 4.7. This positive finding isaligned with the Fisher separation theory that says an optimal investment policy normally is based on the achievement or maximisation of the present value of the firm. It is independent of the decision-maker's preferences and financing decisions and choices. Hence, working capital management policy should be flexible and solely centred on earning preferences.

Nevertheless, Baveld (2012) reported a significant inverse relationship between inventory turnover days and profitability in Netherlands during the global crisis of 2008 to 2009. This disagreement might be explained due to the fact that the crisis impactedthese countries differently. According to Abidin and Rasiah (2009), the Malaysian government introduced various policies that helped companies and banks during this crisis period. They stated that the government in Malaysia has pumped

billions of Ringgit into the economy with the aim of insulating the country from the effect of the crisis. Thus, during the crisis, the money supply had increased significantly in the Malaysian economy while the money supply was entirely different with the Netherlands economy.

Hypothesis 4was not supported during the crisis period based on the t-value of (2.776) in Table 4.6 above and the standardized beta value in the table is [.111]. Mathuwa (2009) posited that firms tend to have high inventory in their operating cycle to reduce supply chain bottlenecks and reduce customer disappointment. Similarly, Richards and Laughlin (1980) argued that companies should keep a high level of materials when the benefits of holding surpass the costs. These benefits include a purchase discount for bulk order quantities, high costs of order placement, unreliable delivery time, negligible storage costs and material in question does not have substitute.

Furthermore, Model 2 reports an insignificant relationship between inventory turnover days and both two profitability measures of operating profit margin (OPM) and returns on assets (ROA) during the non-crisis period (after the crisis). Thus, inventory turnover days have no implication on profitability level. Similarly, Ching et al. (2011) documented an insignificant relationship between inventory turnover days and return on equity on Brazilian listed firms. Moreover, Soekhoe (2012) found a positive insignificant effect of inventory turnover on return on assets on Dutch listed companies. Bhunia and Das (2010) documented lower relationship between profitability and inventory turnover days.

In Model 3during the crisis period, the average pay period is significantly and inversely related with return on assets (ROA) at the 5% levelbut the result of the profitability measure of operating profit margin (OPM) was insignificant although negative. This result is in conformity with trade-off theory that argued an inverse relationship between creditors pay period and firm profitability. Similarly, Baveld (2012) study on Netherlands listed companies during the global crisis of 2008-2009 documented negative relationship between average collection period and firm profitability. Thus, companies must settle with creditors in the shortest time possible to avoid a reduction in profitability. The Beta value of average pay period was [-0.095] lower than that of non-crisis period. The t-value of {-2.425} sufficiently supports hypothesis 5.

After the crisis Model 3 showed a significant inverse relationship between average pay period and the second measure of profitability (ROA) at the 5% level in Table 4.7 above during non-crisis periodWhile, the first measure of profitability (OPM) revealed an insignificant negative relation. This finding indicates that any delay in paying creditors would lead to a reduction in firm profitability. Thus, standardized beta value of [-0.104] in Table 4.7 above means that a return on assets of 6% for example wouldbe reduced to 5.896% if the average payment period increased by one day. This result is similar to several studies (e.g., Ahmadi et al., 2012, Baveld, 2012; Charitou et al., 2010; Malik & Iqbal, 2012; Mekonnen, 2011; Sabri, 2012; and Soekhoe, 2012).

Conclusively, based on the proof of a significant inverse relationship between average payment period and return on assets (ROA) and sufficient t-value of {-2.444} in Table 4.7 above, hypothesis 5 was supported.

Based on Model 4, the result during the crisis shows an insignificant relationship between cash conversion cycle and both measures of firm profitability although negative. Similarly, Baveld (2012) reported the same result during the crisis on the selected Netherlands companies. Baveld further asserted that studying individual working capital management variables is more efficient during a crisis rather than the combined effect. Therefore, this study supports the assertion.

In addition, cash conversion cycle hada significant inverse relationship with firms' profitability during the non-crisis period of 2012-2013 (after the crisis) on both measures of profitability (OPM and ROA) at the 5% and the 1% level respectively. This negative finding aligns with both theories of Fisher separation arguing about optimal investment decision should solely on profit determination and the trade-off theory that claims on negative relation between components of working capital management and firm profitability. This means that the less time a company takes from the initial purchase of materials to the collection of money from customers, the higher will bethe profitability. Similarly, previous studies such as Ahmadi et al. (2011), Baveld (2012), Dong and Su (2010), Garcia et al. (2011), Mekonnen (2011), Quayyum (2012) and Raheman et al. (2010) reported a negative relationship between cash conversion cycle and profitability.

The standardized beta value of [-0.138] in Table 4.7 above is higher than recorded in Table 4.6 above ([-0.100]). Moreover, the t-value of {-3.256} supports hypothesis 1.

The control variable of current ratio has a direct and significant relationship with firm profitability measures of operating profit margin and return on assets during both periods of crisis and after the crisis at the 5% and the 1% level respectively. Thus, the more a company has current assets, the higher profitability is. This finding aligns with the Fisher separation theorem. Based on this evidence, Malaysian companies practice conservative working capital management policy. Hayajneh and Yassine (2011) recorded similar findings for Jordanian quoted companies. Likewise, Rehn (2012) found similar significant positive relationships between current ratio and firm profitability for Finnish and Swedish firms. The significance level during the crisis shows an element of reduction in current assets financing (i.e current ratio) in Model 2 and 3 (5% and 10%).Therefore, Hypothesis (6) that expects a negative relationship between current ratio and firm profitability is partially supported. Moreover, this finding is in line with Fisher separation theorem.

Sales growth as one of the control variables had a direct and significant relationship with both profitability measurements during both crisis and non-crisis period at the 1% level. This result conforms to the trade-off theory and the Fisher separation theorem because the more revenues a company has, the higher the margin. Several previous studies have indicated similar results, including Baveld (2012), Hayayneh and Yassine (2011), Malik and Iqbal (2012) and Mansoori and Muhammad (2012).Hence, hypothesis (7) is sopported and fails to be rejected.

On the other hand, debt ratio had an inverse relationship with profitability measures of return on assets during crisis at a 1% level in all models while debt ratio was insignificant after the crisis in model 4 and only at 10% level on the remaining models. Moreover, on operating profit margin during crisis the relationshipwas at the

1% level throughout the four models whereasthe relationship was insignificant after the crisis Accordingly, the more a company applied debt financing in capital structure the less profitable the company would be. The result aligns with both the theory and prior empirical studies including Ahmadi et al. (2012), Ahmadpour et al. (2012), Ching et al. (2011), Garcia et al. (2011), Mansoori and Muhammad (2012) and Malik and Iqbal (2012).Hypothesis (8) is supported and fails to be rejected.

4.6 Conclusion

This chapter contains the descriptive statistics, the Pearson correlations and the regression analysis of the study. The chapter discusses the results of study in comparison with previous findings and reveals whether hypothesis earlier raised were supported.. The next chapter presents a summary of findings, the implications of the study, the limitations and recommendations for future research.

CHAPTER FIVE

CONCLUSION AND RECOMMENDATION

5.0 Introduction

This study offers practical evidence on the working capital management technique and relationship with profitability of Malaysian listed companies. This chapter completes the thesis by presenting a summary of findings, implication of the study, limitation, and recommendation for future research and in the end a brief conclusion.

5.1 Summary of Major Findings

The study aims at determining the effects of working capital management during the crisis and after the crisis periods on Malaysia Registered companies. Second, the study examined the relationship between working capital management components and firm profitability during and after the crisis periods. To fulfil the above objectives, the study used a sample of 260 quoted Malaysian companies for the two periods from 2008 to 2009 and from 2012 to 2013. The data was collected from the UUM DataStream and analysed using SPSS to computethe descriptive statistics, the Pearson correlations, and SPSS OLS regression.

Average collection period, one of the working capital management components, showeda sufficient inverse relationship with the two employed measures of profitability during both periods of study. However, during the crisis the relationship between inventory turnover days and the profitability measure of operating profit margin (OPM) was positive and significant.

Average payment period had a negative relationship with the profitability measure of return on assets (ROA) during both crisis and after crisis periods while the other profitability measure showed no significant relationship with average payment period. Similarly, the cash conversion cycle showed an inverse relationship with profitability measures of return on assets and operating profit margin during the after crisis period.

Table 5.1
Summary of Hypothesis Testing

Hypothesis	**Support During Crisis**		**Support After Crisis**	
	OPM	**ROA**	**OPM**	**ROA**
H1 (CCC)	Insignificant	Insignificant	Supported	Supported
H2 (ACP)	-	-	Supported	Supported
H3 (ACP)	Not Supported	Not Supported	-	-
H4 ((ITD)	Not Support	Insignificant	Insignificant	Insignificant
H5 (APP)	Insignificant	Supported	Insignificant	Supported

Table 5.1 above shows the hypothesis-testing summary, during the crisis, the result showed an insignificant result on cash conversion cycle (CCC) on both profitability measures although in the same direction as expected by hypothesis 1, meaning negative as expected but insufficient. However, the result after the crisis support and fails to reject hypothesis 1 on both profitability measures of operating profit margin (OPM) and return on assets (ROA). The hypothesis predicts an inverse relationship

of the cash conversion cycle with firm profitability during the crisis and after the crisis. On the other hand, hypothesis 2is for the non-crisis period only thatpredicts a negative relationship between the average collection period and firm profitability.The result of the study supported this hypothesis based on the negative significant result of the profitability measurement of operating profit margin (OPM) and return on assets (ROA). Furthermore, hypothesis 3 is for the crisis period only thatpredicts a positive relationship between average collection period and profitability during crisis. The findings showed a significant negative relationship and therefore did not support this hypothesis on both profitability measurements.

Hypothesis 4 predicts a negative relationship between inventory turnover days and profitability during the crisis and after the crisis periods. The result showed a positive relationship during the crisis on the profitability measure of operating profit margin (OPM) and therefore the hypothesisis not supportedduring the crisis periodwhile the other measure showed insignificant result although positive and contrary to the hypothesis. However, after the crisis the result was insignificant although negative, hence the hypothesis is partially supported since the direction turned out to be as predicted but insubstantial. Finally, hypothesis 5 predicts a negative relationship between average payment period and profitability during both the crisis and after the crisis period. The negative significant resultduring both crisis and after the crisis periodson the profitability measure of return on assets (ROA) supports the hypothesis, while the other measure of operating profit showed negative but insubstantial result. Nevertheless, the result is in the same direction with the expectation of hypothesis 5.

5.2 Implication of the Study

This study examines working capital management relationship to firm profitability during both the crisis and after the crisis periods. Very few studies have examined the relationship between working capital management and profitability in Malaysia, and none to the best of my knowledge have studied the relationship during and after the crisis period. Because of this the study has expand literature on working capital management and firm profitability during the crisis and after the crisis periods.

5.2.1 Theoretical Implication

This study supports further the trade-off theory based on the findings that firms that have efficient and effective collection and payment policies could enhance profitability due to the fact that cash could be available for reinvestment to earn more profit.Moreover, the study further strengthen trade-off theory and the Fisher separation theorem (the optimal investment policy) by proving that shortening the gap between initial purchase of raw materials down to the collection of sales proceeds could improve firm profitability, based on the significant inverse relationship between cash conversion cycle and firm profitability. The finding about inventory turnover days during the crisis period, which stated maintaining considerable levels of inventory, could avoid supply disruption and shortages, which could improve profitability, further strengthen the Fisher separation theorem that argued investment decisions should be based on earning preferences.

5.2.2 Practical and Policy Implication

Practically this study proves that to improve credit policy, management should collect cash from customers faster during both crisis and non-crisis period based on the significant negative relationship between collection period and profitability.

Moreover, firms in Malaysia could use techniques such as factoring and credit insurance for faster cash collection and minimize the risk brought by uncertain customers. The earlier collection of money from customers helps management to have enough cash for contractual obligations and daily operation requirements, which in turn enhance profitability

In addition, based on the finding of this study to improve inventory management system, companies should maintain a considerable level of inventory to minimize shortage and supply interruptions during a future crisis period. This requirement could be because there is a high cost of order placement, unreliable delivery times, very limited suppliers of materials (monopoly), reasonable purchase discounts available for bulk order quantities and the upkeep costs that are negligible. Thus, the benefits of stock holding exceed the inventory holding cost.

Furthermore, to improve creditors' payment policy, companies listed in Malaysia should pay bills within the shortest time possiblebecause delaying account payables is detrimental to the company the moment suppliers become suspicious about a company's financial strength.In this end, delay in payment leads to profit reduction. Thus, firms could be profitable by paying creditors as soon as possible during both crisis and after the crisis period.

Finally, to get the most out of working capital investment, Malaysian registered firms could enhance profitability by ensuring a minimal gap between the initial time raw materials are purchased and the time cash is collected from customers during non-crisis periods. This is because, the longer the time cash remains in the conversion cycle, the less profitable the business will become.

5.3 Limitation of the Study

This thesis did not cover the long-term relationships between account receivable and firm profitability as did Baveld (2012). Furthermore, this study covers only the crisis and after the crisis without studying the pre-crisis period, which show different results. Similarly, this study uses only the three control variables of current ratio, sales growth and debt ratio.

5.4 Recommendation for Future Research

Research should be carried out to investigate the long-term relationship between account receivables collection periods and profitability to see whether the relationship differs. Future research should be undertaken to compare the crisis period with pre-crisis period in order to see whether they might be different. Finally, future researchers should consider adding more control variables while studying working capital management and firm profitability.

5.5 Conclusion

This chapter concludes the study by giving a summary of major findings and a summary of the hypothesis test results. This chapter highlights the implication of the study on the nature of Malaysian firms' working capital management and the relationship with firm profitability. The chapter discusses the study's limitations andmakes suggestions for future research.

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