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**THE EFFECT OF WORKING CAPITAL MARKET MANAGEMENT ON  
FIRMS PROFITABILITY IN MALAYSIA (CONSTRUCTION PUBLIC LISTED  
COMPANIES)**



**MASTER OF SCIENCE (FINANCE)**

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**THE EFFECT OF WORKING CAPITAL MARKET MANAGEMENT ON  
FIRMS PROFITABILITY IN MALAYSIA (CONSTRUCTION PUBLIC LISTED  
COMPANIES)**

**By**

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**Thesis Submitted to**

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**Pusat Pengajian Ekonomi,  
Kewangan dan Perbankan**

SCHOOL OF ECONOMICS, FINANCE, AND BANKING

**Universiti Utara Malaysia**

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## ABSTRACT

This thesis examines the relationship between working capital management and profitability of construction firms in Malaysia for a period between 2012 and 2020. Study done due to working capital management has a critical role in the profitability of the firms. The research is investigating on the relationships between the four components of working capital management, namely, receivable, payable conversion period, inventory conversion period and cash conversion cycle of Malaysian Construction public listed companies. There is a significant impact for the sales growth, firm size and financial leverage on the profitability of firms as well. The study collected the financial historical data from the Blomberg Terminal. To run the analysis, the one hundred top public-listed companies mainly from the Main in Board of Bursa Malaysia were selected as a sample based on market capitalization. The analysis done using SPSS included the relationship between independent variables which is growth of public listed companies and dependent variable consist of receivable, payable, conversion period, inventory conversion period, and cash conversion cycle. Finally, study reveals that there are positive relationships between all the independent variables with firm growth, but only cash conversion cycle has a significant relationship. Result showed that businesses should efficiently concentrate and build a working capital management strategy to serve their shareholders in optimizing their resources. For future study, recommend to broaden the scope of this analysis to include all sectors specified on Bursa Malaysia.

**Key words:** *cash conversion cycle, receivable, payable, inventory conversion period, conversion period, growth of Malaysian companies, firm size, financial debt and fixed financial asset.*

## ABSTRAK

Kajian ini adalah untuk meneliti hubungan antara pengurusan modal kerja dan keuntungan dalam syarikat pembinaan di Malaysia antara tahun 2012 ke 2020. Kajian ini adalah kerana pengurusan modal kerja kini memainkan peranan penting di dalam keuntungan sektor korporat. Kajian ini diberikan untuk meneliti hubungan antara empat bahagian dalam pengurusan modal kerja antaranya adalah penghutang, hutang yang masih belum dijelaskan, tempoh penukaran tunai, tempoh penukaran inventori dan kitaran penukaran tunai untuk syarikat Pembinaan dalam syarikat yang disenarai awam di Bursa Malaysia. Kesan yang ketara dalam pertumbuhan jualan dan saiz syarikat serta pengaruh kewangan ke atas keuntungan syarikat. Kajian ini mengumpulkan data sejarah kewangan melalui Terminal Bloomberg. Untuk menjalankan analisis ini, seratus teratas yang tersenarai awam di Bursa Malaysia dipilih sebagai sampel berdasarkan modal pasaran. Analisis yang menggunakan SPSS tersebut merangkumi hubungan antara pemboleh ubah bebas yang merupakan pertumbuhan syarikat yang tersenarai awam. Pemboleh ubah bersandar terdiri daripada penghutang, hutang, tempoh penukaran, tempoh penukaran inventori dan kitaran penukaran tunai. Hasil kajian menunjukkan bahawa terdapat hubungan positif antara semua pemboleh ubah bebas dengan pertumbuhan syarikat tetapi hanya kitaran pertukaran tunai yang mempunyai hubungan yang signifikan. Hasil kajian menunjukkan sesebuah perniagaan perlu memfokuskan kepada membina strategi pengurusan modal kerja dengan cekap untuk memberi yang terbaik kepada pemegang saham dalam mengoptimumkan sumber mereka. Untuk kajian masa hadapan adalah di cadangkan untuk lebih kepada skop terhadap analisa kajian ini termasuklah semua sektor yang spesifik dalam Bursa Malaysia.

**Kata Kunci:** *kitaran penukaran tunai, tempoh penukaran diterima, tempoh penukaran inventori, tempoh penukaran yang perlu dibayar, pertumbuhan syarikat-syarikat Malaysia, saiz syarikat, Hutang kewangan, Aset tetap kewangan*

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## CHAPTER ONE

### INTRODUCTION

#### 1. Background of study

Working capital management is critical since it is one of the most essential variables in company finance and investment decisions, particularly in short- finance. Working capital management is most effective when current assets and liabilities are at their optimal levels. Working capital management in the business affects risk and productivity which subsequently contributes to the sustainability of the unpredictable economic current while retaining its worth. (Smith, 1980). For day-to-day operations, liquidity of current assets and liabilities are extremely important (Kesimli & Gunay, 2011).

Working capital management's main goal is to ensure that the firm has enough cash flow to cover its operations and current liabilities. Large companies faced liquidity issues in 2008 during the global financial crisis. Working capital can affect the ability of a company to meet its debt funding obligation because it requires a company to have a minimum of net working capital status by most financial institutions. Mohamad and Saad (2010) urge companies to improve competitiveness and profitability to enhance Working capital management.

Working capital is a form of investment that is known as a short-term financial decision as it is used to fund everyday operational operations for a year (Cumbie & Donnellan, 2017). According to Cumbie and Donnellan (2017), working capital is frequently linked to the use of current assets. and current debt, since working capital management involves two simple tasks: determining the required amount of working capital and determining

how working capital is funded. Cash is required in operations, accounts receivable, inventories, debt paid to manufacturers or trade payables, and accrual debt is all part of the working capital portion (Afrifa & Padachi, 2016). The concept in work capital management is a straightforward and simple way of securing a corporation's ability to bridge the short term assets and short-term liabilities gap in an organization's working capital management (Harris, 2005). Short-term decisions like current assets are a vital component of overall assets and must be closely assessed and handled. (Sin, et al., 2017)

One of the most critical aspects to ensure a company can function effectively and efficiently is the working capital management. It is vital to guarantee that the company can operate its normal business with adequate cash flow, thereby minimizing its failure to pay short-term debt. It is important to avoid unnecessary investments in working capital. While a large amount of capital investment will decrease the liquidity risk, insufficient operating capital can cause shortages and problems will arise in day-to-day operations. Nonetheless, if managers increase invest in working capital, they will tighten up more funds into business operations and increase the investment opportunities. As a result, balancing profitability and liquidity is critical for working capital efficiency (Filbeck, Krueger, & Preece, 2007). On the other hand, assistant managers are responsible in finding strategic plans for the operational capital management.

Current assets are also compared to a company's lifeblood, according to the study from Afrifa and Padachi (2016). The current assets used for business operations are said to have a life of at least one year and are often linked to a company's liquidity, operating performance, risk level, and profitability level (Jakpar, et al., 2017). The basic purpose of working capital management, according to Filbeck and Krueger (2005), is to keep each

component of working capital, such as receivables and payables, at the proper level. Some companies have the maximum payable and others reduce inventories and claims to a minimum payable. One of the standard performance measures to assess the quality of working capital governance of an undertaking is the Cash Conversion Cycle (CCC). According to Laughlin and Richards (1980) companies with a shorter cash conversion cycle (CCC) have lower borrowing costs and spend less on working capital.

Working capital components' proportions might shift over time (Lamberson, 1995). The primary purpose of the components of working capital, according to Van & Wachowicz (2000), is to maximize profitability. Working capital allows the user to take cash in a short amount of time. As a result, each firm must guarantee that its working capital is managed effectively. According to Shin and Soenen (1998), working capital is critical for management and affect to the company's liquidity and profitability. According to Ganeshan (2007), operational capital management efficacy will enhance the productivity of working capital management. Furthermore, according to Raheman and Nasr (2007), managers should reduce the valuation of shareholders to a minimum level to obtain productive in working capital. Efficient management of work capital involves effectively managing work capital components to fulfil the short-term duty (Eljelly, A.,2004).

The most important aspect of operational capital management is ensuring that the business's day-to-day liquidity activities run smoothly. As a result, in order to retain enough liquidity, a corporation should spend more in current assets than fixed assets. However, retaining present assets at a desirable level necessitates a risk-return trade-off. When the company decides to investment more in existing assets, it decreases the risk of

illiquidity but loses profitability, since there is no chance of gaining the excess investment in existing assets. Companies are faced with the issue of obtaining the ideal working capital level where portability and liquidity are at the optimum level or trade-off. (Smith, 1980 & Nasr, 2007), (Nazir, 2009), and (Hill 2010). The compromise is a choice from risk to return. Consequently, the company must maintain the correct balance and more risk investment will be more rewarding. Excess cash from another perspective will lead to investment in small or unearning assets with high liquidity and reality. The reverse will also lead to a shortage of funds resulting in high risk but high mobility in the minimal current asset level. As a result, it will be difficult for the company to maintain daily operations (Horne, J.C., & Wachowicz J.M. (2000). A company strike the proper balance between risk and return in determining a work capital management policy.

Working capital management is essential for organizations that rely on short-term liquidity to survive. Working capital management that is effective allows the firm to respond to unforeseen market variables changes. The management of work capital however depends on the industry, policy, business strategy and so on. As a result, a firm must properly identify the issue in the working capital components and understand the impact on profitability.

This research aims to analyses the connection between working capital management and firm profitability in Malaysia. The objective of this research is to find out how working capital management influences the profitability of Malaysian public listed firms. Research in this field in Malaysia is still scarce in this area. As a result, this study is being

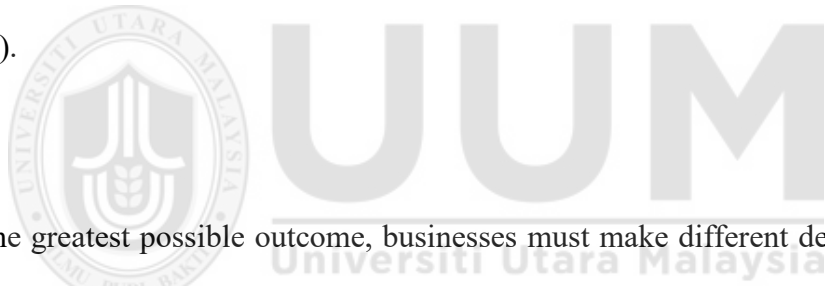
carried out in an effort to bridge the gap by generating analytical findings that can also be used to expand previous local studies on the same issue.

To identify and measure the degree of work capital management in companies, a standard approach was created. It's being utilized to see how work capital management affects Malaysian companies' growth. The goal of this research is to add value to previous working capital management studies by looking at how Malaysian companies' working capital management influences their profitability. The findings of the study might assist managers establish a working capital management strategy, which is critical to a company's performance.

## **1.2 Problem Statement**

A business must manage the working capital in connection with current assets and liabilities in the form of ROA which measures the return on assets. ROA measures how firms manage their assets and debt to generate profits using firm assets. Many researchers used asset returns to define profitability in previous studies. For example, Sharma and Kumar (2011), Banos-Caballero, S., Garcia-Teruel, P. J., and Matinez-Solano, P. (2012), and Nobanee, H., Abdullatif, M., and AlHajjar, M. (2011) are among the authors who used ROA to define profitability in their studies. The main contributing reason to business failure is due to a firm that is heavily dependent on how often it can `generate more cash but with poor management.

According to Deloof, M (2003), firms may boost their profitability by offering an appropriate level of working capital. A company with a good commercial credit policy and a lot of inventory on the balance sheet left side might generate more money and have less stock-outs. The account payable portion of the exchange credit, on the other hand, increases earnings by allowing customers to judge the quality of the items before payment (Long, Malitz & Ravid, 1993; Deloof & Jegers, 1996). A trade credit facility can assist an organisation in determining the quality of products and can be a flexible and cost-effective. (Raheman & Nasr, 2007; Deloof, 2003). However, securing trade credit can be expensive if a business offers early payment deals, which can lead to cash flow issues as a result of uncollected and prolonged trade credit (Gill, A., Biger, N., & Mathur, N., 2010).



To get the greatest possible outcome, businesses must make different decisions on every component of working capital. The importance of working capital management might be understood by considering the function of replacing outdated assets as and liabilities, as well as the economic complexity of the short-term demand sector. Working capital management has a major influence on the company's profitability and liquidity. (Nobanee, Abdullatif & Al Hajjar, 2011). Even if a company is profitable, failure and bankruptcy will arise if it chooses and implements ineffective working capital solutions (amilolo & Demirgneş, 2008).

There are three strategies for handling working capital based on the risk-reward trade-off: conservative, aggressive, and moderate approaches. (Visscher & Winraub, 1998).

Conservative working capital management entails keeping a larger amount of working capital on hand while reducing liquidity risk and lowering returns and income. The aggressive working capital approach involves maintaining a small amount of working capital while taking on a high level of risk and reward. The moderate policy is the product of a trade-off between conservative and aggressive working capital policies, which has been followed by an average risk-return ratio.

Prior research conducted by Nazir and Afza (2009) focused on the aggressiveness of corporate portability and working capital management policies. Evidence indicates that productivity and the aggressiveness with which working capital is managed have a detrimental relationship. Excessive working capital has no guarantee of generating further revenue for the company. Improving working capital optimization requires the use of appropriate techniques. Working capital efficiency is needed to maximize a company's free cash flow as well as sales, return, and profitability to shareholders. must take precautions when investing large sums of money in working capital, according to Vishnani (2007), because this can dramatically decrease a company's profitability.

Working Capital Management (WCM) discusses an arrangement that permits organizations to utilize their Current Assets (CA) and liabilities proficiently, demonstrating keeping up with enough liquidity to meet short-term debt and expenses (Tandoh 2020). Earlier writing has shown flighty outcomes about the impact of working capital administration on organization execution, finding both negative and beneficial outcomes (Salehi et al. 2019; Ebben and Johnson 2011; Singh et al. 2017; Akgün and Karata s 2020; Oseifuah 2018; Tsuruta 2019; Zimon and Dankiewicz 2020). It has likewise been focused on that the worldwide financial catastrophe has expanded the

consideration and conceivably changed the demeanor towards working capital administration to deal with rise organization productivity (Gadelius and Larsson 2019). In the present intricate and changing monetary world, the choices on working capital administration methodologies are probably the most significant and testing assignments for corporate chiefs since they can assume a conclusive part in advancing the monetary circumstance of organizations in the midst of emergency (Salehi et al. 2019), In the midst of emergency, specific consideration ought to be paid to working capital administration, as even the littlest slip-ups in the space of working capital can prompt a deficiency of liquidity by organizations (Chang et al. 2019).

Development industry in Malaysia has seen a sped up vertical pattern since 10 years prior because of its astounding development in a few activities embraced just as the solid help of Government started by the Construction Industry Master Plan (CIMP) 2006 – 2015. The arrangement from Construction Industry Development Board (CIDB) uncovered that the development area is the most generous monetary driver for Malaysia during the tenth Malaysia Plan (10MP) from 2011 to 2015 with a high normal development of 11%. During the time of 10MP, the Government put vigorously in framework, modern parks and private structures. Among them, the private development was the biggest market and diagrammed an ostensible accumulate yearly development rate (CAGR) of 19.7 percent upheld predominantly by the Government's reasonable lodging plan. In spite of the critical commitment of development industry to monetary development in Malaysia, liquidity has been an issue of central issue as it truly gives strain to firms in dealing with their income issue. Project workers direct their activities intimately with the expect to limit the wastage and improve the labor force to ensure the planned conveyance is

accomplished on schedule for the customers. All things considered, the business has been dealing with an ongoing issue of deferred and non-installment questioned by project workers. The installment due is delayed until the goal of the debate which is for the most part take a long term in the court. Deferred installments can extend working capital and drive a need to fund these installment delays and thus drive-up costs that were not calculated into the cost of the bid. As a result, in a fast-growing economy like Malaysia, having a working capital position that can create a short-term financial buffer is critical.

The current study's goal is to examine, analyze, and present empirical data on the influence of Work Capital Management on firm competitiveness in Malaysia from 2015 to 2019. More tests and recent data on different variables will be used for the analysis, as suggested by Wasiuzzaman & Arumugam (2013).

### **1.3 Research Questions**

So far as some companies have not been concerned with liquidity management, a general question is raised. The general research question is to find how to manage working capital in a flexible manner.

Specific research questions:

- i. Is there an important substantial association between Inventory Level and firm's profitability?

- ii. Is there an important substantial association between the Accounts Payables of a firm to a firm's profitability?
- iii. Is there an important substantial association between Cash Conversion Cycle of a firm to a firm's profitability?
- iv. Is there an important substantial association between the Numbers of Days of Accounts Receivable and firms' profitability?
- v. Is there an important substantial association between factors in Working Capital Management (WCM) and firm's profitability?

#### **1.4 Research Objectives**

The fundamental goal of this research is to discover how businesses handle working capital to achieve maximum portability. This study will deal with the connection between the working capital management of and profitability.

The objective of the analysis is to respond to the questions of research. The main objectives of research are:

Specific research questions:

- i. To examine Inventory level of a firm that has a significance related to a firm's profitability

- ii. To identify the link between the Accounts Payables to a firm's profitability
  
- iii. To investigate the association between Cash Conversion Cycle of a firm to a firm's profitability
  
- iv. To determine the association between the Numbers of Days of Accounts Receivable and firms' profitability
  
- v. To identify the association between Working Capital Management (WCM) and firm's profitability

### **1.5 Significance of the Study**

The objective of this research is to help society in general and contribute to literatures. In Malaysia, a research on working capital management impact to the market assessment and firm portability has been conducted by Mohamad and Saad (2010). Furthermore, the evidence presented is mostly from foreign environments in Western countries, with few examples from developed countries such as Malaysia. However, there is a paucity of literature on the topic in Malaysia. According to Wasiuzzaman and Arumugam (2013), Malaysian research on working capital management is insufficient.

The purpose of this thesis is to get a better understanding of how working capital management affects corporate efficiency. By providing more precise empirical measures and insights, the study can help individuals, businesses, organizations, and investors understand how working capital management may influence the performance of a firm positively or negatively on company's success. Non-industrial and industrial companies can use the findings from the research to support and develop their business strategy to boost their financial output. The study is important to help companies in knowing the company's financial well by analyzing the policy on working capital. The study is also critical for policy makers and regulators to ensure proper monitoring, preparation, and regulation of the industry in Malaysia. It is hoped that the empirical finding would help to fill a gap in the research on working capital in Malaysia.

The current study's findings research also help scholars and students in accounting and finance disciplines, as the study offers analytical findings and shows a deeper knowledge of the implications on business profitability of working capital management.

### **1.6 Scope and Limitations of the Study**

The analysis includes a Construction main sectors in the public listed company in Malaysia, which are defined by a number of firms. The first 100 largest on market capital sectors are selected in the Bloomberg terminal. Companies with missing data were then removed. Previously, Bursa Malaysia was referred for the purpose of finding the available data according to the sector. Nevertheless, the data from Bursa Malaysia varies from that of Bloomberg Terminal. Due to time constraints Data from Bloomberg Terminal is chosen as the collection Data from Bursa needed more time and effort to be completed.

## **1.7. Contribution of Study**

### **1.7.1 Academic Contribution**

The objective of this study is added to existing knowledge and to empirically link the components of Working Capital Management components with profitability among Malaysian Construction Publicly Listed Companies. The research also intends to widen the assumptions by concentrating on Working Capital Management and profitability, particularly in the construction industry.

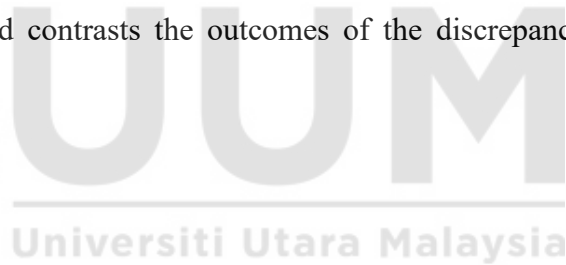
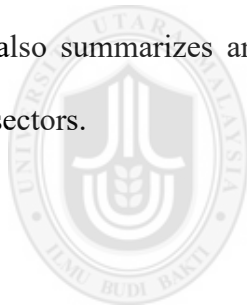
### **1.7.2 Industry Contribution**

The findings of this study may be utilized to establish the actual connection between working capital management components (average collection period,, average payment period, inventory turnover days and cash conversion cycle) and profitability As a consequence of the study, company management will be able to learn realistic lessons from debtor, borrower, and inventory account management in order to increase firm profitability. Management should also consider new techniques and concepts for handling working capital investment.

## **1.7 Organization of the Thesis**

Chapter one is an introductory section, which sets out the context and history of the project, the problem statement, the research purpose, and the importance of the project. Discussions take place on the complexity and limitation faced by the researcher. The

second chapter deals with the literature review. This chapter provides evaluations of relevant work capital management studies and company profitability analyses. It provides literature and data from previous studies relating to days of accounts receivable (AR), days of inventory kept (INV), days of accounts receivable (AP), cash conversion period (CCC) and return on assets (ROA). The next chapter is intended to address the methods used to perform this analysis. It also contains descriptions and discussions on the research methodology used, the creation of theories, the sampling and procedure of data collection, variable calculation and data analysis techniques. The findings of the investigation are described in Chapter 4.. The explanation is provided on descriptive statistics, correlation research, multicollinearity and autocorrelation testing and linear regression analysis. This chapter also summarizes and contrasts the outcomes of the discrepancies between the various sectors.



## CHAPTER TWO

### LITERATURE REVIEW

#### 2.0 Introduction

Working capital is an important factor in a company's productivity and expansion. When working capital is not at an optimum stage, it can cause problems and shortages in day-to-day activities. (Horne & Wachowicz 2000) According to prior research, the importance and relevance of working capital management to company productivity and growth can be explained by examining the different types of variables involved.

Therefore, this chapter offers an overview of previous research findings by reviewing and addressing the selected factors that affect business profitability.

#### 2.1 Working Capital Management and Profitability

Working capital is essential in corporate financial management as its management has a direct relationship with the firm's income and liquidity efficiency (Rehman & Nasr, 2007; Pouraghajan & Emamgholipourarchi, 2012).

The firm will struggle to function efficiently unless work capital components are well managed (Mekonnen, 2011). According to Brigham and Houston (2011), corporate finance officers devote around 60% of their time on Working Capital Management. Working capital management is thus essential in order to maintain the necessary daily financial liquidity to ensure a company's smooth operation. Deloof (2003), Eljelly (2004), Zariyawati (2010).

Working capital management, in theory, refers to how businesses handle their working capital, which includes all current assets and current debt (Lyngstadaas & Berg, 2016). Since it was linked to achieving the core goals of financial management, working capital management would be linked to sustainability and firm worth (Shah & Arif, 2018). Working capital management has the same fundamental goals as financial management, such as maximizing shareholder asset value (Lyngstadaas & Berg, 2016).

Working capital management necessarily requires decisions over the volume and structure of current assets and liabilities. Working capital management is one of the most essential factors influencing a company's profitability (Kaur, Singh & Ropar, 2013). Operating working capital management, according to Kaur, Singh, and Ropar (2013), is one of the most significant elements that influence profitability and success of a company's financial management.

Working capital management, profitability, and corporate value all have a relationship that affects one another, according to theoretical framework and firm growth (Brigham & Houston, 2018). The aim of managing working capital is the maximization of the value of the business's worth. (Shah & Arif, 2018). Working capital management efficiency increases performance while also increasing a company's profitability (Rasyid, et al., 2018).

Net working capital, defined the difference between current assets and current liabilities, stresses a company's financial health (Rehn, 2012). An organization with a healthy net working capital offers an excellent expansion basis (Singh & Asress, 2011). Companies

will pay off debt and have sufficient funds to support regular business activities (Zariyawati et al., 2010). A negative net working capital means the direct liabilities of the company are greater than the immediate assets. Consequently, negative net working capital poses a high risk to the company because it cannot pay a full obligation on request or when due and cannot continue to fund operations smoothly (Baveld, 2012; Rehn, 2012). Others suggest that receivables, inventories, and trade payables are the primary components of working capital, while cash is excluded because it is part of the financing process (Sunday, 2017).

Furthermore, according to Lyngstadaas and Berg (2016), effective working capital management is likely to considerably reduce the need for operational capital spending, resulting in increased cash flow and firm profitability. As a result, businesses must enhance their working capital management performance reduce investment costs and maximize profits.

Analysis of firm cash flows is necessary to understand the influence of working capital management on company profitability. If a firm has a longer period of cash conversion, this may mean that the profits of the product have longer credit policies or high inventories (Rehn, 2012). Rehn states that a higher cash conversion cycle might have a detrimental effect on the company's profitability by increasing the amount of time the money is tied up in receivables from non-interest account. For businesses to achieve higher net present value (NPV), their cash turnover period will be reduced so that money is received within the shortest possible time.

The primary aim of working capital management is to take existing assets and liabilities into account so that the company can also satisfy its short-term running expenses and debt commitments. Even if a company's performance remains positive, inadequate working capital management may lead to bankruptcy, while excess working capital will quickly result in a low return on investment (Mandiefe, 2016).

Smith (1980) is one of the researchers who discusses the trade-off between profitability and liquidity in the management of working capital. Smith finds that greater liquidity and profitability could be improved by a shorter cash conversion time. Instead of making a choice between liquidity and profitability, a firm can maximize the relation between sales and fund. As a consequence, good working capital management may help a business stay profitable. but inefficient management can result in losses or a loss which may be a continuing issue (Kaur, 2013). Optimization of working capital leads to a rise in profits or a decrease in labor costs, creating a severe balance between liquidity and profitability (Padachi, Narasimhan, Durbarry, & Howorth, 2008).

Between 2009 and 2013, Kasiran, Mohamad, and Chin (2016) published a report in Malaysia on the productivity of working capital management to profitability of 24 small and medium-sized enterprises (SMEs). According to their findings. Working capital management and profitability have a favorable connection. Another recent research, conducted by Bulin, Basit, and Hamza (2016) on 50 Malaysian public companies between 2011 and 2015, revealed a strong effect of working capital management on firm profitability.

Experimental proof has shown that functioning working capital management can altogether affect firms' performance in the midst of monetary emergency (Akgün and Karatas 2020; Bavelde 2012) in light of the fact that it influences current asset, short term liabilities, incomes, and costs of operations (Zimon and Dankiewicz 2020). During the Coronavirus financial crisis, managers ought to be touchy to an adequate degree of turning out capital for their organizations to remain still versatile and competitive. To accomplish economical turn of events, organizations should consistently utilize the right working capital management techniques since setting a decent degree of net-working capital causes the advancement of the expenses of overseeing it and keeping up with financial liquidity (Zimon and Dankiewicz 2020). Working capital management not exclusively is very important for firms with less financial assets yet in addition they are compelling when firms are extending their ventures during financial recovery periods (Le 2019). Consequently, to get free of short-term financial issues in the midst of emergency, manager should utilize suitable working capital approaches. As a general rule, the WCM approach comprises of three fundamental gatherings including aggressive, conservative, and moderate strategy (Tandoh 2020; Zimon and Dankiewicz2020; Weinraub and Visscher 1998). The aggressive strategy is relied upon to have a higher danger and better yields, while the moderate strategy is connected to bring down hazard and lower returns (Weinraub and Visscher 1998). In short, a high level of receivables and liabilities, as well as a low level of stocks, inventories, and short-term investments, are characteristics of the aggressive strategy (Zimon and Dankiewicz 2020; Zimon 2020a). Then again, the motivation behind the moderate methodology is to eliminate the customer bankruptcy hazard (Zimon and Dankiewicz 2020). Diminishing receivables from clients, keeping up

with high stocks, and opportune settlement of liabilities are elements of the moderate strategy (Zimon 2020b). In conclusion, the moderate strategy aims to minimize the disadvantages of conservative and aggressive strategies and to maximize their advantages. The moderate strategy are partitioned into two systems: a moderate–forceful methodology and a moderate–moderate one The moderate–conservative strategy is based on the principles of the conservative strategy, and the moderate–aggressive strategy is designed according to the aggressive strategy (Zimon 2020b). The present business world at times faces unforeseen difficulties like economic crisis. As a result of the uncertainty in the business environment, organizations should maintain a minimum liquidity need to be flexible in times of crisis and solve their challenges (Chang et al. 2019; Schilling 1996)

## **2.2 Working Capital Management**

Working Capital Management (WCM) is critical to a company since it has a directly affects productivity and liquidity. The firm’s WCM components represent half the total assets (Raheman & Nasr, 2007). Even if the company’s profitability is consistently positive, unproductive WCM might cause bankruptcy (Kargar & Bluementhal, 1994). The existence of a significant quantity of current assets in a company might easily result in a lower average return on investment (Raheman & Nasr, 2007). Working capital management must be done in such a way that short-term obligation payment defaults are eliminated, and excessive working capital rates are minimized (Eljelly, 2004). Working capital management was compartmentalized in the 1980s (Hill & Sartoris, 1983). Working Capital Management is divided into three categories: cash, accounts payable, and accounts receivable. Different managers at various organizational levels are in charge

of these components (Sartoris & Hill, 1983). According to Sartoris and Hill (1983), these three compartments had to converge for an integrated solution. Working Capital Management (WCM) is an integration that includes inventories, accounts payable, and accounts receivable. Account receivables may be used to provide consumers with a short-term loan. Furthermore, account receivables are critical for the security of business revenue. To add to that, account receivables are essential for the securement of consumer sales. (Jarvis & Berry, 2006).

Lazaridis and Tryfonidis (2007) researched on Athens Stock Exchange's to identify a link between competitiveness and the working capital management of listed firms. They conclude that shorter period of production time before the product's sales would result in higher profitability. Based on their findings, less profitable businesses decrease the cash conversion cycle cash gap by lowering their account receivables cycle. Excessive capital usage is the result of too much inventory with low sales that leads to expense of the firm's profitable operations.

Previous empirical research on the effect of WCM on the valuation of the firm does not provide convincing proof that the company's Working Capital Management effectively maximizes its profit. (Kieschnick, 2006). Firms that handle working capital management effectively with shorter trade cycle period would experience higher operating cash flow and more valuable. (Shin & Soenen, 1998). As a result, in order to maximise its worth, a business must decrease the net trading period to a reasonable minimum to optimize its value (Shin & Soenen, 1998).

### 2.3 Firm Profitability

The potential to generate profits from the whole company operations is known to be profitability. This capacity demonstrates a management's ability to produce income by using the available assets available. Subramanyam (2014) claims that profitability is usually the company's primary target and is essential to the company's survival as well as its normal operations. He further claims that given the fact that the maximization of wealth is an objective which all shareholders anticipate, they are also concerned about the profitability of the company. Profitability is about the relationship between the company's income and the organizations expenditures to achieve those gains. Real action is needed in this way to control the financing of a company and to contribute activities towards the maximum use of accessible capital in order to achieve the best possible return for shareholders.

Return on investment (also known as return on assets), return on equity, gross profit margin, operational profit margin, return on profits, and net profit margin are some of the indicators that may be used to measure profitability (Subramanyam, 2014). As a result, return on assets (ROA) reflects total market performance, with the higher the ratio, the better the profitability. This ratio is a measure of the profitability of the net equity and debt capital funded by the company. Investors consider this measure, as it gives a clear image of the productivity of the product. The return on capital invested is considered the most known indicator of a firm's profitability for planning and management and also an indicator of profitability and a test of managerial effectiveness.

Operating profit is an alternative indicator of performance. This is the outcome of all of the company's principal undertakings. Operating profit represents the connection of operating profit to sales. It shows the yield of the key operation before non-operating expenses and sales charges which then demonstrates the company's ability to make a profit from its primary sector (Subramanyam, 2014). He further notes that the net profit margin calculates the company's overall performance in terms of both operating and non-operating sales. Operating profit thus accounts for the profits from investment in other sectors and the normal activities of the company. The usage of this ratio is not recommended when attempting to quantify day-to-day operating activities of actual company. The ratio employed for this is measured as net income over profits.

## **2.4 Components of Working Capital Management**

### **2.4.1 Return on Assets**

Profitability can be measured using the Asset Return (ROA) that is calculated as the ratio of net income to total assets. A lot of researchers have used ROA as profitability metric. There are occasions when firm profitability can be referred as firm efficiency. Some writers used ROA rather than ROE, since they focus only on operating efficiency and try to avoid variations in capital structure (Jose, Lancaster, & Stevens, 1996).

The final result of a company's many policies and actions are referred to as profitability. The benefits of liquidity, asset management, and leverage on firm value was demonstrated in combination. (Alsartawi, 2019). Alsartawi (2019) has mentioned that a reason for profitability can be expressed as the company's capacity to produce profit from

operating operations using assets. Profitability is not the same as profit margins. Profitability is an amount of profit to money that must be spent to produce profit, whether margin is the revenue ratio to business value such as revenue or output (Alsartawi, 2019).

If any of these statements are linked to Fama and French's (2000) definition of profitability as a component of firm value, a new partnership can be developed to improve the company's capacity to maximizing profitability by optimizing profitability in the working capital management and also improving firm value.

In this research, the return on assets is utilized to determine the company's profitability. It functions as variable dependent. This is measured to the total asset ratio by calculating the earnings before interest and tax (EBIT). ROA has been used in several studies to describe profitability. Sharma and Kumar (2011) use asset return to explain the firm's profitability in their study. The research delves into the influence of working capital management on a company's profitability. Banos-Caballero, Garcia-Teruel, and Matinez-Solano (2012) used asset returns to estimate business profitability in another study on the influence of working capital on the profitability of Spanish SMEs.

Furthermore, in their research of the cash conversion process and corporate performance in Japan, Nobanee, Abdullatif, and AlHajjar (2011) employ the return on assets as a metric of business profitability. Mohamad and Saad (2010) investigated the effects of business impact on profitability in Malaysia. Return on equity invested and return on assets are used to calculate a company's profitability. In their research of corporate returns and the cash conversion process, Jose, Lancaster, and Stevens (1996) employ return on assets and return on equity as proxies for firm profitability. Taani (2012) and

Alavinasab and Davoudi (2013) calculate profitability for companies by using asset returns and equity returns. Lazaridis and Tryfonidis (2006), Garcia (2011) use their dependent variable as a measure of gross operating income. Deloof (2003) and Malik and Bukhari (2014) use the return on equity to calculate firm profitability in analysis. Makori and Jagongo (2013) use the return on assets to reflect profitability in their report on working capital and profitability while Ching, Novazzi, and Gerab (2011) use the return on revenue and return on assets for their analysis. In Swedish, Yazdanfar (2013) performs an analysis to find empirical evidence of variables that could influence firm profitability. He performs unrelated regression method with cumulative observations of 87 000 for samples 12 530 firms. The samples consist of non-financial micro-enterprises operating from 2006 to 2007 in four business sectors. The author pointed out that corporate size, lagged profitability, growth, and productivity had a positive impact on corporate profitability, while corporate age and association with industry had a negative impact on profitability.

If all of these claims are connected to Fama and French's (2000) concept of profitability as an aspect of firm value, a new relationship may be formed to boost the company's ability to produce profits by optimizing profitability in working capital management while still increasing firm value.

#### **2.4.2 Cash Conversion Cycle**

Dong and Su (2010) looked at the connection between the cash conversion cycle and profitability as evaluated by gross operating income. The analysis is based on a survey of 130 companies listed between 2006 and 2008 on the Vietnam stock market. The cash

conversion process is divided into three stages: receivables, day accounts payable, and day inventory. A multiple regression and correlation study of the debt ratio, sales, fixed financial assets to net assets, and cash conversion period revealed a strong negative association between the number of days of account receivable and the number of days of inventory and cash conversion cycle. Researchers claim to have a positive association with profitability with the account payable days. According to the analysis, a company would produce value for its owners if it waited longer to pay its debts and lowered its cash conversion cycle, inventory and receivable days.

The cash conversion period may be used to determine how appropriately a business manages its working capital (Rasyid, et al., 2018). Rasyid et al. (2018) define the cash cycle as the total of days from which a company pays for raw material inventory sales and when a firm earns money from the sale of finished items.

The cash conversion cycle has been identified as a common technique of assessing working capital management in a number of studies. Since the company's cash transfer process takes a long time to complete the cycle, the cash trapped in working capital accumulates. The circumstance can occur in one of two ways, depending on the firms' existence and industry: either because of having a large inventory or because of having extensive trade credit (Deloof, 2003). Working capital characteristics such as inventory day sales, average collection duration, cash conversion cycle, and productivity are all negatively impacted, according to the majority of these studies from 1996 through 2006, Zariyawati, Annuar, Taufiq, and Abdulrahim (2009) studied Malaysian listed companies for 11 years. Using regression analysis on 148 sample organizations, the study discovered

a substantial adverse relationship between the cash conversion cycle and a company's profitability. The cash conversion cycle and net operating income have a considerable inverse connection, according to Ahmadi, Arasi, and Garajafary (2012). The data was analyzed using Pearson correlations and regression analysis utilizing data from a survey of 33 Tehran-listed firms from 2006 to 2011.

Previous findings on working capital management have employed a variety of models to illustrate the advantages and risks of research findings, particularly in terms of their effect on financial efficiency. According to theory, improving working capital management performance would increase business profitability, which is backed up by reports that the cash conversion cycle has a significant adverse effect on profitability (Afrifa & Padachi, 2016; Sin, et al., 2017; Jakpar, et al., 2017). The more efficiently a firm handles its labor capital, the more profitably it is, according to the findings, as shown by a faster cash conversion cycle. Contrary to other research, the cash conversion cycle has had a major benefit for profitability and reveals poor management of working capital. ( Lyngstadaas & Berg, 2016; Wiyono, 2017). However, as long as the cost of increasing working capital expenditure does not outweigh the benefits, the longer the cash conversion cycle can increase profitability (Afrifa & Padachi, 2016).

Although cash is the most liquid asset, an increase in cash from working capital management will raise the business operating cash flow and vice versa. Based on 184 businesses registered on the Tehran Stock Exchange, Rash and Tariverdi (2015) discover a substantial positive association between working capital management and operating cash flow from 2009 to 2013.

Similarly, Raheman (2010) discovered a substantial negative association between the cash conversion cycle and company profitability in a survey of 204 Pakistan-listed businesses from 1998 to 2007. From 2005 to 2009, Quayyum (2012) discovered a similar substantial negative relationship in the cement industry in Bangladesh with a survey of four firms. Akinlo and Olufisayo (2011), alternatively, report a favorable relationship between the cash conversion cycle and business profitability using a general moment approach.

Vishnani (2007) chooses electronic industry as a research area. They conclude that there is no substantial link between profitability and liquidity within industry in the electronic industry. Zariyawati (2009) conclude that the profitability and cash conversion cycle relationship is negative. Studies by Sen and Eda (2009) show that a business's profitability increases when the cash conversion cycle is shorter. In Falope and According to Ajilore's (2009) research, there is a substantial negative relationship between profitability and working capital components for a group of 50 Nigerian businesses. According to Uyar (2009), the cash conversion cycle has a considerable adverse association by asset performance. According to Rezazadeh and Heidarian (2010), increasing the Cash conversion cycle increases a business's profitability.

Ramesh, Al-Habsi, and Al-Sharji (2017) discovered that CCC has a substantial negative effect on return on assets based on data from 19 industrial firms listed on Oman's Muscat stock exchange from 2006 to 2015. In contrast, Jakpar, Tinggi, Siang, Johari, Myint, and Sadique (2017) studied 164 Malaysian listed manufacturing businesses from 2007 to 2011 and discovered that the firm's ability to convert cash conversion cycle from working

capital management had discernible effect on the company's profitability. Many studies, such as those by Afrifa and Padachi (2016), Lyngstadaas and Berg (2016), Jakpar et al. (2017), Sin et al. (2017), and Sunday (2017), find that efficient working capital management has insignificant influence on profitability. As a result, it's reasonable to conclude that the relationship between working capital management and profitability may be assumed to be ambiguous.

Working capital management's main purpose is to increase the firm's worth (Shah & Arif, 2018). Working capital management efficiency increases the firm's profit while also improving profitability. (Rasyid, et al., 2018). According to Fama and French (2000), the link between profitability and firm value may be shifted in a new direction that increases the company's potential to make profits since it is supported by working capital management efficiency.

### **2.4.3 Account receivables**

Account receivables must be closely managed even though the components may be constant over time at some point. (The Firth, 1976). When sales of products or services are on credit sales, receivables are also reported in the company's balance sheet. Credit sales duration is a cycle in which a client of a business is given a specific amount of time to repay the cash owed to the firm. Companies handle receivables in such a manner that the client is aware of the payback period and when it is due (Padachi, 2006).

A credit sales audit is usually conducted by the company accountant or credit collector to discover who pays on time and who does not take essential management action. When a company receives funds ahead of schedule, it boosts its working capital and profits.

Although, if a corporation focuses excessively on getting cash from customers too fast, the parties' relationships may become strained, which can have a long-term negative influence on the company's commercial revenues since the client may go to a competitor. Also though, the aim of credit sales enforcement is to increase revenue, but this can potentially result in losses due to bad debts. On the other hand, a strict credit sales policy decreases the risk of bad debt but allows sales to decrease. Wasiuzzaman and Arumugam, (2013), Raheman (2010), Abuzayed (2012) and Nobanee (2009) find positive association between account receivables and profitability, whereas several other studies document an adverse relationship between account receivables and profitability (Sen & Mathuva, 2010; Falope & Ajilore, 2009; Lazaridis & Tyrfonidis, 2006)

Uremadu, S. O., and Egbide, B. P. E. (2012) identify a contrary finding on the basis of a sample of 25 companies listed in Nigeria from 2005 to 2006 and report a positive substantial relationship among account receivables and profitability assessed by asset return (ROA). In addition, Sharma and Kumar (2009) report a positive and substantial relationship between the collection duration of receivables and the profitability of Indian listed firms.

Similarly, Abuzayed (2012) shows a substantial link between account receivables and profitability in a sample of Jordanian publicly listed enterprises from 2000 to 2008. Despite employing two dependent variables, return on assets (ROA) and net profit margin (NPM), Quayyum's (2012) study shows that Bangladesh-listed businesses have a negative connection. Ahmadi et al. (2012) examined the listed food sector in Tehran for five years, from 2006 to 2011, utilising a sample of 33 firms as a measure of profitability.

It is discovered that account receivables and business profit have a significant negative connection. In addition, for a five-year period from 2006 to 2010, Soekhoe (2012) reports a similar negative relationship on the Dutch listed companies. He employed a sample of 70 firms with asset return (ROA) that were used to reflect profitability for the firm. On the other hand, Bhunia and Das (2010) a lower degree of relationship between account receivables and firm profitability. Bhunia and Das (2010) use the return on capital employed (ROCE) to reflect profitability for the eight-year period from 2003 to 2010, with a sample of 100 firms. However, Rehn (2012) documents a substantial relationship between the sales outstanding of the day and the profitability of a sample of Finnish and Swedish firms.

The negative link between receivables and profitability meant that the longer the company has to collect creditors' payments, the lower the profitability (Falope & Ajilore 2009; Deloof 2003). As a result, several research have discovered a large negative association between accounts receivable and business profitability, with just a few research finding a positive connection. This implies that the faster a corporation converts its sales (credits) into cash, the more profitable it becomes.

#### **2.4.4 Account payable**

The credit that the company gets is the account payable. If a company makes a purchase on credit, Hampton and Wagner (1989) must follow the term given by the seller on an agreement to pay for purchases of the products. This is reported as payable accounts before the goods are paid for in cash. Account payable can be perceived as a short-term loan or funding source. Typical strategy for payable account is "2 in 10, net 30." That

means that if the client were willing to pay within 10 days, they can get a 2 percent discount then within 30 days the total amount of the payable will be charged. To make this clear, the 2 percent can be converted into a 43 percent annual rate, which is massive as compared to usual annual rates (Leach & Melicher, 2011). Instead of funding sources, account payable can also be used to determine the price of the goods (Deloof, 2003; Lee & Stowe, 1993; Long, Malitz & Ravid, 1993; & Smith, 1987). The evaluation may be place within the credit period and if the product is not satisfying, all the products may be returned to the manufacturer without any charge.

On 37 listed Netherlands firms, Baveld (2012) reports a major inverse relationship between profitability measures through asset returns and gross operating profit and average payment. According to Charitou et al. (2010), the profitability-based return on assets (ROA) was strongly and negatively based to the collection period of creditors for a test of 43 companies listed in Cyprus for the ten-year cycle of 1998 to 2007.

Mansoori and Muhammad (2012), on the other hand, find a substantial inverse connection between account payables and return on assets as a profitability indicator (ROA). Between 2004 and 2011, the same research approaches were used on a model of 92 Singaporean publicly listed companies. In a sample of twenty-five (25) Nigerian listed enterprises during a two-year period from 2005 to 2006, Uremadu et al. (2012) discovered good relationship between day collection period (DCP) and company profitability as evaluated by return on assets (ROA.) Rehn (2012) shows a substantial positive connection among profitability and accounts payable days due in a sample of Finnish and Swedish businesses.

### **2.4.5 Inventory**

Inventory represents a huge component of many firms' overall assets. Thus, efficient management is required for the company's regular production, selling operations and reducing the cost of maintaining inventory (Firth, 1976). The overall aim of inventory management is to maintain a level inventory that suits a company's sales amount and reduce the storage and financing costs of products. (Wagner & Hampton, 1989). Deloof (2003) contends that managing inventories involves an arrangement between income and expenses.

The ideal inventory level is evaluated by a business examining each of three WCM components. The optimal point will be achieved if the interest of a business is maximized (Howorth & Westhead, 2003, Deloof, 2003, Afza & Nazir, 2007). In principle, from the viewpoint of the Chief Financial Officer (CFO), WCM is a basic and clear framework that guarantees ample financial capital to fund current assets and liabilities (Harris, 2005). CFO struggles to find the optimum level of each component of Working Capital Management (WCM) (Lamberson, 1995). In another perspective, working capital level, depends on a firm's Working Capital Policy (WCP).

### **2.4.6 Financial Debt Ratio**

The financial debt (leverage) ratio indicates the amount of foreign debt is utilized to fund the company's assets. When the firm's external debt financial expenditures surpass its earnings before interest and taxes, it suffers severe losses. The financial debt ratios,

which are short-term loans added to long-term loans, and total assets are then determined (Deloof, 2003; Karaduman, 2004; Lazaridis and Tryfonidis, 2006; Dong and Su, 2010). This is plainly related to the fact that the corporation takes loans from financial institutions and is required to return the loan with interest.

#### **2.4.7 Growth**

Growth rate is also important to companies as the economic condition which reflects the country will affect the profitability of a business. The financial crisis from 2007 to 2008 is an indicator of economic conditions. Researchers such as Mathuva (2009), Enqvist et al (2011) and Karaduman (2004) also employ this control variable. The GDP also controls inflationary pressures affecting components of working capital (Mathuva, 2009). This control variable is determined as follows: sales of this year minus sales of the year before separated by sales of the previous year. This control variable is used in research such as Samiloglu and Demirgunes (2008), Sharma and Kumar (2011), Karaduman et al. (2011), Shin and Soenen (1998), Karaduman et al. (2011), Deloof (2003), Falope and Ajilore (2009) and Zariyawati et al. (2009).

#### **2.4.8 Current Ratio**

This variable has just one measurement and is determined by dividing current assets by current liabilities. This variable is used only by Zariyawati et al. (2009), Shin and Soenen (1998), and Sharma and Kumar (2011). This control variable will also be included in subsequent studies to improve the reliability of this study.

According to Sathyamoorthi C. R., Christian J. Mbekomize, Mogotsinyana Mapharing, and Popo Selinkie (2018), in order to promote profitability, a corporation should minimize its current ratio by lowering its current assets. They emphasized that in order to boost a firm's profitability, the cash reserves should be increased.

## **2.5 Theoretical Discussion**

### **Working capital policy**

According to Arnold (2008), there are two extremes, conservative policy and aggressive policy, that are the total opposites of WCP's. Such policies clarify the relationship between current asset value and volume of sales. Another policy that a company might implement is a moderate policy.

#### **2.5.1 Moderate policy**

A moderate strategy is used if the business's fixed assets and half of its capital assets are primarily made up of long-term debt and equity. This method is concerned with matching risks to expected benefits. In other words, this technique generates a modest quantity of working capital while posing a reasonable degree of risk. Current assets are backed by short-term debts, whereas non-current assets are supported by long-term borrowings and equity under this structure. The disadvantage of this approach is that it requires large expenses, which decreases the company's profitability. (Arnold, 2008).

### **2.5.2 Conservative policy**

The first is a relatively conservative strategy employed by a company that operates in an uncertain environment and relies on buffers to minimize production interruptions. This approach necessitates huge cash reserves, vast inventory, and more generous consumer credit terms (Arnold, 2008). The benefits of this strategy include increased revenue, income, and goodwill, as well as lower production costs due to large inventory levels and large accounts receivable. (Garcia-Terual, P. J., & Martinez-Solano, P. 2010) Some disadvantages include greater expenses because of high inventory rates, decreased credibility due to the utilization of significant amounts of commercial credits and a higher chance of default payment by customers.

### **2.5.3 Aggressive policy**

The aggressive WCM policy is the inverse of this technique. This method is ideal for the firm that operates in a secure and specified environment which working capital is kept at a lowest level. The firm's limits the inventory and cash balances to the minimum, and to get consumers to pay as soon as possible. Wang (2002) criticizes this approach, as reducing the inventory to the minimum level would lead to lower revenues. The benefits of this approach are primarily to reduce the cost of holding the inventory and the account receivable. The risk taken is therefore high to a low level as there is also a lower level of the account receivable. The benefit of this approach is primarily to reduce the expense of maintaining the inventory and the accounts receivable. The risk taken is also reduced to a low level, as the size of the accounts receivable is also lower. The drawbacks of this

method include a loss of earnings, goodwill, and benefit owing to a lack of inventory, as well as extending trade to a company's clients. The benefits and drawbacks of this technique are illustrated in the trade-off diagrams above.

According to Nazir and Afza (2009), working capital management is essential to establish a perfect equilibrium between the components of working capital: payable receivables and inventory. The value of all components in working capital management will come up with a direct influence on a company's efficiency (Raheman 2010; Filbeck & Krueger, 2005). Maintaining an optimum quantity of working capital to achieve successful working capital management is a critical component of generating stakeholder value. Furthermore, through leveraging working capital, the firm's production will increase (Raheman & Nasr, 2007).

#### **2.5.4 Trade-off theory**

The trade-off principle combines working capital with profitability. To strike a balance between profitability and liquidity, a firm must carefully and effectively manage working capital components in order to prevent a liquidity crisis and a decline in sales (Ukaegbu, 2014). Working capital management is concerned with striking an equilibrium between profitability and liquidity issues, which is specified as the discrepancy between existing assets and current liabilities (Abuzayed, 2012). Working Capital Management, according to Bellouma (2011), is linked to asset liquidity. In addition, Falope and Ajilore (2009) note that profitability increases as a result of a reduction in working capital. Likewise, Phillips (1997) says keeping excess cash contributes to either increased interest spending on the credit line or reduction in income cost of opportunity.

Among those who have studied the tradeoff between work capital allocation and profitability, are Smith (1980), Deloof (2003), Eljelly(2004) and Slin and Soenen (1989). Abuzayed (2012), Baveld (2012), Bellouma (2011), Bei and, Wijewardana (2012), and Ukaegbu (2014).

## **2.6 Chapter Summary**

Most researcher find similar findings best from the studies listed above. These researchers establish a negative relationship between profitability and account payables and help with companies making full use of suppliers 'graded credit period when a business is not profitable. The negative relationship between productivity and receivable trade means less profitable firms take longer periods to obtain receivables from the transaction. Similarly, profitability firms turn the inventory into finished goods over a short period of time showing the negative connection between profitability and inventories. Furthermore, academics measure the profitability in several ways. These include return on assets, return on equity, return on revenue, return on investment, gross operational profit and net income. However, Shin and Soenen (1998), Deloof (2003), Garcia and et.al (2007) and Nobanee et.al (2011) conclude that they are more accurate since they have employed large numbers of samples to process extended periods of time of study. The main concern is that Deloof (2003) and Soenen (1998) study data are now obsolete.

According to Mathuva (2010), when research is in contradiction with the conclusions of other researchers, the association between inventory days, payable days and profitability is positive. Mathuva (2010) employs just 30 sample listed on the Nairobi Stock Exchange for its research, but market usage in comparison with the western market was not evolved and established. These can be the possible reasons for Mathuva's different conclusion (2010).

According to Bagchi and Khamrui (2012), Raheman and Nasr (2007), and Ching, the link between profitability and debt is a negative relationship (2011). Furthermore, a link is demonstrated between the sales logarithm, business size, and profitability. The outcomes for Aneshan (2007) and Mathuva (2010), on the other hand, diverge. According to Ganeshan (2007), it is not required to link profitability to working capital management. They look at the telecoms industry. Izadima and Taki (2010) analyzed the impact of corporate productivity and working capital management on 'efficiency' of the listed businesses on the Tehran Stock Exchange during the cycle from 2001 to 2008. Total assets were identified to be used as a proxy for profit efficiency. The discovery points to an inverse link between asset return and cash conversion period. They also learn that substantial investment in receivables and inventories reduces profitability.

This chapter covers strategies, practices, and productivity of working capital management in conjunction with theories of working capital management and corporate profitability. In addition, the chapter shows the link between the working capital management component and business profitability on the basis of past studies.

The next chapter discusses the methodology of the research by highlighting the population and sample for the research, sampling procedures, data processing methods and regression models.

**Table 2.1: Summary of some previous findings Author**

	<b>Variables</b>	<b>Methodology</b>	<b>Findings</b>
Zimon, Grzegorz, and Robert Dankiewicz. (2020)	Receivables turnover ratio, Receivables in current assets, Inventory	Pearson's linear correlation analysis 54 construction sector in Poland	Trade credit management strategy is slowly changing from moderately conservative or conservative to a clearly conservative one.
Tandoh, Jacob Kplorla. (2020)	Short-term receivables turnover ratio, Inventories turnover, CCC	Ordinary Least Squares Regression 61 small and medium-sized enterprises (SMEs) operating in Group Purchasing Organizations (GPOs) in the Polish	Positive and significant association between CCC and ROS.
Oseifuah, Emmanuel. (2018)	Inventory conversion period (ICP), receivables conversion cycle (RCP) and the payables deferral period (PDP) and, the cash conversion cycle (CCC).	Regression analyse of 75 non-financial listed firms on South Africa over the ten year period, 2006 to 2016,	During the crisis period, there is a positive and insignificant relation between firm value and both CCC and RCP, while the relationship between firm value and both ICP and PDP are negative and insignificant.
Gadelius, Arvid, and Erik Larsson. (2019)	Cash Conversion Cycle (CCC), Days Account Receivable, Days Account Payable, Number of Days Inventory, Firm debt ratio	Regression models of 78 Swedish listed companies over the time-period 2003–2017.	firms enhance their profitability by increasing the length of their CCC.

Deloof (2003)	CCC, Gross operating income, account receivables days, account payables days, Inventories, Sales growth and financial debt	1,009 non-financial firms in Belgium. Regression and correlation analysis	Gross operating income, account receivables days, account payables days and inventories are negatively significant.
Eljelly (2004)	Cash Gap, Current ratio, Net Operating Income, Total Assets and Net Sales	Correlation & regression analysis of Joint stock firm in Saudi Arabia	Firm's Profitability relation with its liquidity is adversely significant. CCC is a more precise measure of liquidity than current ratio (CR)
Garcia-Teruel & Martinez-Solano (2010)	CCC, Account, Receivables, Account Payables, SIZE, GROWTH, DEBT, GDPGR	Univariate and Multivariate regression analysis of 8,872 SME companies in Spain from 1996-2002.	Reducing of inventories by managers could create value for firm, and shorter CCC improves firm's profitability.
Lazaridis and Tryfonidis (2006)	Gross operating profit and CCC	Correlation & regression analysis of 131 firms listed in Stock Exchange of Athens for the period of 2001-2004.	Negative substantial relation between Gross operating profit and CCC.
Nazir & Afza & (2009)	Tobin's q, ROA, ROE, Current Assets, Current Liabilities.	Correlation & regression analysis of 205 listed companies in Pakistan from 1998-2005.	Firm's profitability and degree of aggressive policies of investing or financing in working capital are negatively related.
Padachi (2004)	Accounts receivables days, inventories days, accounts payable days ,CCC and ROTA	Applying fixed effect regression model and pooled OLS to 58 small manufacturing firms in Mauritius.	There is a large and strong link between profitability and working capital. The tendency of short-term component of financing working capital is also increasing.

Raheman & Nasr (2007)	Average collection period, CCC, Current ratio, and Net Operating assets.	Pearson correlation & regression analysis of 94 firms in Karachi Stock Exchange, Pakistan from the period 1999-2004.	Working capital variables and company's profitability are negatively related and significant.
Shin & Soenen (1998)	Adjusted Stock return and NTC	58,985 US firm-year observation from the period of 1975-1994 obtained from COMPUSTAT.	Working capital is negatively related with profitability



## CHAPTER TREE

### RESEARCH METHODOLOGY

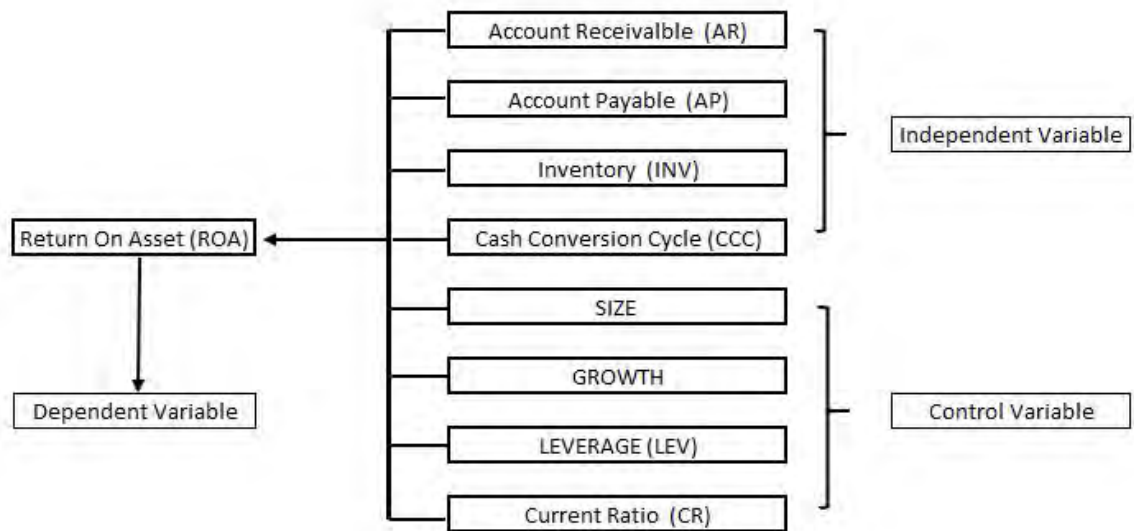
#### 3.0 Introduction

The methods used to perform this research is examined in this chapter. The methodology used is important to ensuring that the results are accurate and dependable. In order to get a clearer view of the variables studied, the researchers built the research framework on this topic. The theoretical framework approach shows the framework for days of receivables, days of accounts payable, days of inventory and cash conversion cycle to the company's profitability (ROA). The output results were determined separately for each sector. The researchers will also address the hypotheses development, the process of data collection, variables measurement and data analysis techniques.

Hypotheses 1 to 5 must be verified in order to comprehend how working capital management works and how listed firms maintain their profitability. The dependent, independent, and control variables are discussed in the second section of this chapter. Part C of this chapter deals with the sample and data collection.

#### 3.1 Theoretical framework

This section describes the variables utilized in this study, including the dependent, independent, and control variables. The independent variable is the altered value, while the dependent variable is the consequence of the modified independent variables. The control variables indicate the factors controlling certain values.



### 3.1.1 The dependent variable

The dependent variable, which is profitability will be determined using the Return on Assets (ROA). The return on assets (ROA) statistic measures how much profit a company may produce from its assets. (Melicher & Leach, 2009) (Melicher & Leach, 2009) (Melicher & Le Karaduman et al (2004), Padachi (2006), Martinez-Solano (2007), Sharma and Kumar (2011), and Enqvist et al (2011) have all employed ROA as a dependent variable. The ROA may frequently be calculated as a net profit in proportion to the assayable business, which is a reasonable method of determining the extent to which the ROA may be utilize. The ROA shall be measured as follows

$$\text{Return on Assets} = \text{Net profit} / \text{Total Assets}$$

### 3.1.2 The independent variables

Profitability will be determined using the Cash Conversion Cycle (CCC). The CCC represents the option of deciding how much to spend in consumer and inventory accounts, as well as how much credit to extend to suppliers according to Garcia-Tereul and Martinez-Solano (2007). As a result, the CCC serves as an independent variable. The following equation is used to compute this variable:

$$\text{Cash Conversion Cycle} = \text{Number of Days Accounts Receivables} + \text{Number of Days Inventory} - \text{Number of Days Accounts Payable}$$

The components of the Cash Conversion Cycle are measured as follows:

$$\text{Number of Days A/R} = \text{Accounts Receivables/Sales} * 365$$

$$\text{Number of Days Inventory} = \text{Inventory/Cost of Goods Sold} * 365$$

$$\text{Number of Days Accounts Payables} = \text{Accounts Payables/Cost of Goods Sold} * 365$$

The Cash Conversion Cycle, according to Melicher and Leach (2009), is the time it takes to obtain materials and create completed items (inventory-to-sale conversion period) plus the time it takes to collect credit sales (sales-to-cash conversion period) minus the time it takes to pay credit suppliers (purchase-to-payment conversion period). The average collection period and receivables length are both indicators of how long it takes a business to recover money from a client. The interval between when raw materials enter the firm and when a product is sold is referred to as the collecting time (or inventory gathering period). Such factors are measured as averages over the year based on the financial statements of the various organizations.

### **3.1.3 The control variables**

The control variables, in addition to the independent and dependent factors, may impact the business's profitability: the financial debt ratio, the fixed current ratio, company size, and growth.

## **3.2 Hypothesis Development**

Several findings have been carried out on the effect of a company's profitability on account receivable. The most of these researchers have found that the company's profitability and the number of days that account receivable remain inactive are both negative (Deloof, 2003; Lazaridis I & Tryfonidis, 2006, Garcia-Teruel & Martinez-Solano, 2007, Raheman & Nasr, 2007, Samiloglu & Demirgunes, 2008, Falope & Ajilore, 2009, Gill et al., 2010 & Mathuva, 2010). This negative association should be apparent in this sample as well. This expectation is based on a variety of factors. The first point is that the publicly listed firm on Bursa Malaysia has a great reputation and popularity for the high quality of its products. Customers are not motivated to exploit the receivable account to overcharge for poor product quality. The second argument is that businesses are better off limiting the risks they take to a manageable level. By limiting accounts receivable to a minimum level will help reduce the risk since primary causes of increased accounts receivable are unimportant. Furthermore, companies in this sample have just one goal for accounts receivable management is to reduce expenses to a minimum.

The cost of accounts receivable is generally linked to operations and incentive expenditures, as well as the cost of debt collection activities. The following hypothesis

has been created as a result of the huge evidence of a negative association and the reasoning given above:

Hypothesis 1: The accounts receivables of a firm are substantial adversely related to a firm's profitability

To compute the company's Cash Conversion Period (CCC), the number of days of accounts payable must be subtracted. Accounts payable is likely to have a positive effect on a company's profitability, however practically all studies looking at the impacts of the Cash Conversion Process (CCC) on a company's profitability have revealed a negative correlation (Shin & Soenen, 1998, Wang, 2002, Deloof, 2003, Lazaridis & Tryfonidis 2006; Garcia-Teruel & Martinez-Solano, 2007, Raheman & Nasr, 2007;, Samiloglu & Demirgunes, 2008, Zariyawati et al., 2009; Falope & Ajilore, 2009; Dong & Su, 2010, Mathuva, 2010). Nevertheless, according to the empirical evidence found by Deloof (2003), Lazaridis and Tryfonidis (2006), Raheman and Nasr (2007), Garcia-Teruel and Martinez-Solano (2007), Falope and Ajilore (2009), Sharma and Kumar (2011) and Karaduman et al. (2011), this is not the case. They stress out that the competitiveness of the company has a negative connection on some of the accounts payable. Deloof (2003) claims that this is because companies with a high or high productivity pay their bills in this situation, productivity influences the accounts payable policy rather than the other way around. He then makes the case for a second reason: if the firm pays its invoices late, it will not be eligible for an early payment incentive. This negative association is also expected in this study. The rationale for this link is based on the cost associated with the usage of accounts payable, as proposed by Deloof (2003) in his second claim. As explained earlier in this article, accounts payable sometimes have a strategy of "2 in 10,

net 30.". When a company submits its bills within 10 days, the company is entitled to a two percent discount. This can also be translated as follows: if they pay after these 10 days, they have to "pocket" this two per cent, which represents almost 40 per cent of the annual average the other explanation for the accounts payable as companies have fairly high exposure to the capital market accounts payable as a source of funds is not important. The possible loss of confidence when corporations utilise their accounts payable and pay them later is one of the many reasons for not utilising them. The above relationship is expected, and the following hypothesis is used to evaluate it.:

Hypothesis 2: The accounts payables of a firm are substantial adversely related to a firm's profitability

The relationship between productivity of the company and inventory management is examined by Deloof (2003), Laziridis and Tryfonidis (2006), Garcia-Teruel and Martinez-Solano (2007), Raheman and Nasr (2007), Samiloglu and Demirgunes (2008), Falope and Ajilore (2009), Mathuva (2010). Karaduman et al. (2011) and Sharma and Kumar (2011) find that the profitability of the company has a negative relationship with the number of days in inventories. Contradictive data was discovered by Mathuva (2010), who finds a positive impact. He concludes that with a high level of inventories, companies could prevent production stoppages. In order to make full income, the organization must keep the number of days of inventory as low as possible. Although any theory does not say otherwise, this is always supposed to be held as small as possible, because cutting any expense is very necessary even for a large organization to survive the tumultuous times of a crisis.

The companies in the sample of this study are required to keep inventories at a minimum level in order to keep costs at a minimum level. The first explanation for this conclusion is that the reasoning for the use of large inventories to prevent output stoppages is not true for the firm analysis. This is because the company is highly integrated in terms of its supply chain and production. The second and most important justification for keeping inventories at a lower level is for the firm to be able to cut costs. The costs involved are administrative costs, storage costs, protection costs, and insurance cost. Due to all the other authors have found proof of a adverse impact on the productivity and inventories of the business and since the inventories are very costly and the firm of this sample does not pay attention to the use of a high level of inventory, the following hypothesis is developed:

Hypothesis 3: The inventory level of a firm is substantial adversely related to a firm's profitability

The effect of employing the Cash Conversion Cycle (CCC) to combine WCM elements is projected to be negative. This assumption is based on the idea that the Cash Conversion Cycle (CCC) variables, namely the number of days of inventory and account receivables, are thought to be adversely related to the company's profitability. Furthermore, the (negative rather than positive) assumptions regarding the quantity of accounts payable are not likely to have an influence on the CCC's estimated negative impact. The vast empirical data collected by several writers who have considered the influence of the cash conversion process on a business' productivity supports this idea. (Shin & Soenen, 1998; Wang, 2002, Deloof, 2003, Laziridis & Tryfonidis, 2006; Garcia-Teruel & Martinez-Solano, 2007; Raheman & Nasr, 2007, Samiloglu & Demirgunes, 2008; Uyar, 2009;

Zariyawati et al., 2009; Falope & Ajilore, 2009; Dong & Su, 2010; Mathuva, 2010; Karaduman et al., 2011 & Quayyum, 2012). The following hypothesis must be tested to demonstrate its impact:

Hypothesis 4: The cash conversion cycle of a firm is substantial adversely related to a firm's profitability

Mohamad and Saad (2010) looked at Bloomberg's database of 172 Malaysian firms from 2003 to 2007. Researchers arrive to the conclusion that working capital components have a negative association with business performance. In their study, Gill et al. (2010) identified a substantial correlation between profitability and working capital management. In his research, Mathuva (2010) discovers a positive relationship between business profitability and inventory days and payment days, but a negative relationship between firm profitability and receivable days. Deloof (2003) compiled a list of 1009 Belgian non-financial companies from 1992 to 1996. In their research, they used regression analysis and correlation analysis. The components of working capital are shown to be negatively connected to profitability, according to researchers. In order to validate this link, the following hypothesis must be tested.

Hypothesis 5: the company's working capital management (WCM) is substantially negatively linked to the productivity of the company.

### **3.3 Research design**

This study employed variables to investigate the link between a business's profitability and its working capital management. Quantitative analysis and descriptive statistics shall be included in the study methodology. Quantitative approach is used since the financial data obtained in the Bloomberg Terminal was used in these studies. In addition, the ordinary least square is used to perform a regression analysis. The time series and cross-sections should be used to carry out the analysis, since this study uses five years of time and measures the actions of the company's working capital components over those five years.

According to the research methodology, return on assets (ROA) is a dependent variable, whereas days accounts receivable (AR), days inventory held (INV), days accounts payable (AP), and cash conversion period (CCC) are independent factors. Control variables include firm size (SIZE), leverage (LEV), sales growth (GROWTH), and current ratio (CR).

#### **3.3.1 Data collection, sampling & procedure**

##### **3.3.1.1 Sampling**

The data is made up of 40 construction companies on the Malaysian stock market listed in Bursa Malaysia. The firm is chosen from the largest number in the Bloomberg terminal. Nonetheless, due to the different categories of sectors provided by Bloomberg Terminal and Bursa Malaysia, Data are taken from the Bloomberg Terminal to guarantee a seamless data collection as the Bloomberg Terminal generates the wide data.

Construction is an important component of every nation's infrastructure and industrial development. Forecasting of working capital management together with cash requirements is important for all construction firms at the tendering phase, for all construction firms, the provision of working capital together with cash requirements at the tender stage is crucial since cash flow is a significant factor for the failure of construction companies at the beginning of the project. Constructors tend more to focus on short-term financial plans than on long-term initiatives. The construction industry generates substantial employment and boosts development in other sectors through backward and forward linkages. Consequently, this critical activity is vital for the healthy growth of the economy. The construction industry in Malaysia provides work opportunities to nearly 800,000 people.

### **3.3.1.2 Data Collection Procedures**

We used a panel data methodology to evaluate the proposed hypotheses, where the data was collected from 2015 to 2019. The sample selected includes all construction companies. 25 companies with no full data have been excluded. The scope of findings for this analysis spans a scope of five years from 2015 to 2019. The period of analysis for this research covers a period of five years from 2015 to 2019. The period selected is based on data availability in recent years. The number of construction companies available is 40, with a total of 200 for five years observation.

The criteria used to select the sample in construction & material sector are as follow:

- 1) Listed in Bursa Malaysia
- 2) Construction sector
- 3) All data must be available for year 2015-2019

Companies with no financial information were removed from the sample within 5 years of observation. The filtration of samples is done as follows:

Construction

Initial samples: 75

Less: samples with incomplete data: (25)

Total: 40

This thesis carried out a statistical analysis using the Statistical Kit for Social Sciences (SPSS) to check the hypotheses. The SPSS carried out a descriptive statistical analysis, a correlation check and a regression analysis.

### **3.4 Measurement of Variables**

The researcher used OLS regression equations following previous work by Sharma and Kumar (2010) and Nazir and Afza (2009) to test the cash conversion period (CCC). Nevertheless, three other independent variables are regressed together in a single regression model. Variables are days of accounts receivable (AR), days of inventory held (INV) and days of accounts payable (AP). It has been supported by Makoriand Jagongo, (2013), using linear regression analysis. CCC is not used with other variables and due to the high degree of multicollinearity and it is run separately. Due to of this reason, it was automatically omitted from the equation in SPSS the regression for CCC is performed on

its own, while other variables are regressed together to save time as this analysis consists of two different industries that need to be regressed separately to see the difference in results for each industry

Model 1:

$$\text{ROA}_{it} = \beta_0 + \beta_1 \text{AR}_{it} + \beta_2 \text{INV}_{it} + \beta_3 \text{AP}_{it} + \beta_4 \text{SIZE}_{it} + \beta_5 \text{LEV}_{it} + \beta_6 \text{CR}_{it} + \beta_7 \text{GROWTH}_{it} + \text{eit} \quad (1)$$

Model 2:

$$\text{ROA}_{it} = \beta_0 + \beta_1 \text{CCC}_{it} + \beta_2 \text{SIZE}_{it} + \beta_3 \text{LEV}_{it} + \beta_4 \text{CR}_{it} + \beta_5 \text{GROWTH}_{it} + \text{eit} \quad (2)$$

ROA measures return on assets, AR measures days accounts receivable, INV measures days inventory held, AP measures days accounts payable, while CC measures the cash conversion cycle. SIZE measures firm size, LEV measures leverage, CR measures current ratio and GROWTH measures sales growth. The subscription  $i$  denotes firm (cross section dimension) and  $t$  denoting years (time series dimension) ranging from 2014 to 2018, while  $e$  denotes error term.

Return on asset is used as an independent variable since it has better measurements than other variables. It's because ROA is a metric that connects a company's profitability to its assets. Previous research by Sharma and Kumar (2011), Caballero, Garcia-Teruel, and Matinez-Solano (2012), Mohamad and Saad (2010), Alavinasab and Davoudi (2013), Jose, Lancaster, and Stevens (1996) and Makori and Jagongo (2013) used returns on asset

to evaluate firm profitability in their research. The return on the asset is measured as earnings before interest and the tax EBIT) over the total assets.

Independent variables used in this analysis were also supported by previous literature. Sharma and Kumar (2011) used the same four independent variables to research the effect of the profitability of the business on the working capital. The same independent variables were also used by Bieniasz and Gołas (2011) who conducted a study in Poland. Day accounts receivable (AR) is calculated as accounts receivables/ (sales/365), day accounts payables is analyzed as accounts payable/ (COGS/365), day inventory held is calculated as average inventories/(COGS/365) and CCC is calculated as AR plus INV minus AP. There are four control variables provided in the equations which are GROWTH (the sales growth), LEV (the leverage) SIZE (company size), and CR (current ratio). These variables had been used in previous researches such as Sharma & Kumar (2011), Charitou, Lois, & Santoso (2012) and Saghir, Hashmi, & Hussain (2011). Sales growth calculated as  $(Sales_1 - Sales_0) / Sales_0$ , leverage calculated as total debt over total asset, size is calculated as natural logarithm of total asset and current ratio is calculated as current assets over current liabilities.

Variables	Measurement	Expected Sign
Days' account receivables (AR)	Account receivables / (sales/365) Perkovic (2012)	Negative
Days' inventory held (INV)	Average inventories / (COGS/365) Perkovic (2012)	Negative
Days' conversion cycle (CCC)	AR+INV-AP Perkovic (2012), Sharma & Kumar (2011)	Negative
Firm size (SIZE)	Natural logarithm of total asset Sharma & Kumar (2011)	Positive

Sales growth (GROWTH)	$(\text{Sales}_1 - \text{Sales}_0) / \text{Sales}_0$ Sharma & Kumar (2011)	Positive
Leverage (LEV)	Total debt / Total asset Sharma & Kumar (2011)	Negative
Current Ratio (CR)	Current assets / Current liabilities Sharma & Kumar (2011)	Positive

### 3.5 Data Analysis Techniques

For this analysis, the ordinary least square (OLS) approach is used to research the relationship between days of accounts receivable, days of sales payable, days of inventory and cash conversion cycle with return on assets. The methodology used is a descriptive analysis, correlation of variables and regression analysis.

#### 3.5.1 Descriptive Analysis

The descriptive statistics highlight the most important aspects of the data collected. A description of the mean, median, standard deviation, minimum and maximum measurements will be included in the descriptive statistics.

Descriptive analysis usually helps to provide the descriptive information of the data obtained. Descriptive analysis is a summary statistic table that includes the maximum and minimum values, mean and also mode and median values. This also measures the variability of variables including the standard deviation. Descriptive statistics include clear summaries of the sample being analyzed.

### 3.5.2 Correlation of Variables

The link between the variables is explained via correlation study. The Pearson correlation analysis will be used in this study of the link between profitability and working capital management. Deloof (2003), Padachi (2006), Mathuva (2009), Gill et al (2010), and Enqvist et al (2010) are among more researchers that have employed the Pearson correlation (2010). The Pearson correlation investigation indicates the link between the variables, but the causes are not explained. (Shin & Soenen, 1998; Deloof, 2003; Mathuva, 2009; Dong & Su, 2010). In a technique that controls additional explanatory factors, the Pearson correlation does not give a strong link measurement. The correlation between a variable and all other explanatory factors is not taken into consideration when looking at the basic correlation of a bivariate in a traditional matrix (Padachi, 2006). As a result, next regression (multivariate analysis) will be performed.

The correlation of variables was shown in the correlations matrix table. The correlation between the different variables shows negative or positive to demonstrate the positive or negative relation between the studied variables. The relationship is between two variables in which both shift in tandem. The value + 1.00 shows the perfect positive correlation among variables, whereas 0.00 does not indicate correlations and - 1.00 shows a perfect negative correlation. Positive association occurs when two variables shift in the same direction. For instance, the other variable often decreases and vice -versa when one variable decreases.

### **3.5.3 Regression analysis:**

The Fixed Effects Model (FEM) and Pooled OLS regression will be used in this investigation. The FEM describes profit variations inside companies, whereas the pooled OLS explains profit discrepancies across businesses (Mathuva, 2009). The exclusion of everything time invariant from the model is a flaw in FEM (Deloof, 2003). As a result, the income variability derived by Return on Assets (ROA) from 2006 to 2010 is incompatible with the Fixed Effects Model (Deloof, 2003). As a result, the Fixed Effects Model cannot account for the income volatility indicated by the Return on Assets (ROA) from 2006 to 2010. (Deloof, 2003). As a result, OLS-models are used, which include not only the Fixed Effects Model variables but also income volatility. In order to evaluate the connection between dependent and independent variables, a linear regression model is conducted. The association between ROA and day-to-day accounts receivable (AR), ROA and day-to-day inventory held (INV), ROA and day-to-day accounts payable (AP), and ROA and cash conversion cycle is investigated using linear regression (CCC). AR, INV and CCC are regressed together in multiple regression analysis, while CCC is regressed on its own in the second model due to high multicollinearity. The regression is performed for two separate sectors in order to find a result for each sector.

### **3.6 Chapter Summary**

Chapter 3 includes a report on the methods used to carry out this analysis. This also addressed the theoretical procedure, which identifies the independent and dependent variables that would be examined in this study. The hypothesis' development was also explained in order to show how the hypothesis came to be and to illustrate the link

between the independent and dependent variables studied. The chapter as well addressed the sampling and process of data collection followed by the calculation of variables using the ordinary least square process. Finally, this chapter addressed the methods of data analysis used to perform this study.



## CHAPTER FOUR

### RESULT AND ANALYSIS

#### 4.1 Introduction

This chapter examines the effects of the connection between dependent and independent variables discovered by descriptive analysis, correlation, and regression. The impacts of working capital management on company profitability are investigated using regression models and variable correlations.

#### 4.2. Descriptive Statistic

**Table 4.1**

Table 4.1 provides descriptive statistics, including minimum, maximum, mean and standard deviation values. The duration of the thesis shall be five years from 2015 to 2019. The survey consists of 40 companies and 200 findings. Profitability is determined by the return on assets.

	N	Minimum	Maximum	Mean	Std. Deviation
ROA	200	-49.5833	30.5996	4.918	6.6748
AR	200	14.4374	8,546.5467	235.0524	318.7408
AP	200	3.9510	5,045.9060	147.3746	425.3784
INV	200	17.8060	47,816.2628	873.6337	2,867.7566
CCC	200	-404.5455	58,981.4646	560.7163	2,937.7276
SIZE	200	10.1813	15.2690	13.5631	1.1385
GROWTH	200	-12.4830	2288.0468	19.2815	88.2680
CR	200	0.3500	8.6800	3.1200	2.4800
LEV	200	0.1190	2,618.8000	2.1268	1.4800

The analysis shows that profitability has a mean value of 4.918 with a standard deviation of 6.6748. The higher the standard deviation of CCC (2937.72) implies a large difference in WCM among construction firms. As the minimum value of CCC is -404, 55 a negative figure, this ensures that the Days in Account Payable is greater than the Inventory and Days for Account Receivable and the maximum is 58,981.46 days. Although the average value is 560.7 days, this shows that the firm spends 560.7 days for cash.

It should also be highlighted that other component of working capital have a awfully substantial standard deviation, indicating a significant variance in the management of these components by firms in the construction industry. The number of days where the firm converts the inventory into a sale is 873.63 days with a standard deviation of 2867.7566. As the minimum period taken by the company is 17 days, the maximum time is 47,816 days. The average time spent collecting cash from clients is 235.05 days with a standard deviation of 318.74. As the minimum collection time is 14 days and the maximum collection time is 8546 days. However, the average time spent paying suppliers to the firm is 147.37 days with a standard deviation of 425 days. The minimum period to be paid is 3 days, with a maximum period of 5,045 days.

According to the descriptive figures for the control variables, the lowest values of standard deviation of company size, which is 1.1385, indicates low variation in the size of firms, with an average of 13.5631, a minimum of 10.1813, and a maximum of 15.2690. The average growth is 19.2815 and the highest standard deviation is 88.268 indicating that growth in construction firms varies greatly, with a minimum of 12.483 and a maximum of 2,288.0468.

Leverage shows the calculated mean and standard deviation is 2.1268 and 0.14800. The statistic for current ratio shows a mean 3.1200 and standard deviation is 2.400.

### 4.3 Correlation Analysis

The five working capital management measures have a negative correlation with ROA (AR, AP, INV, CCC, LEV). This means that the elements of working capital management and profitability are diametrically opposed. Profitability rises as Days in Account receivable, Payable, Inventory, Cash Conversation Cycle and Leverage is lower.

**Table 4.2**

	ROA	AR	AP	INV	CCC	SIZE	GROWTH	CR	LEV
ROA	1	-0.105	-0.184**	-0.014	-0.184**	0.021	.188**	146**	-0.065
AR		1	-0.089	-.120*	0.074	-0.080	-0.099	-	-
AP			1	0.013	-.997**	0.037	-0.002	-	0.069
INV				1	0.064	.157**	.125*	.118*	0.067
CCC					1	-0.025	0.014	0.025	-
SIZE						1	0.090	.123*	0.041
GROWTH							1	.978**	.132*
CR								1	.111*
LEV									1

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

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

The CCC, which shows negative association with ROA (-0.184), is consistent with prior research indicating that reducing the number of days working capital leads to boosted profitability. The negative and important association between ROA and AR that ROA and AR have a stronger relationship than the other WCM indicators.

The associations between control variables of growth and firm size have an insignificant relationship with profitability, meaning that while sales growth and company size are favorably connected to profitability, the relationships are small and not meaningful. The leverage has a negative association with profitability, but it is significant. That is, the more leverage a construction company utilizes, the lower its profitability.

#### 4.4 Autocorrelation and Multicollinearity

A multicollinearity test is used to determine whether multicollinearity exists. The Variance Inflation Factor (VIF) is the most often used tool for detecting multicollinearity. The aim of the multicollinearity test is to see whether the explanatory variables in a multiple regression model are strongly linearly correlated.

VIF should be in the range of 1 to 10 for best results. If the value is greater than 10, the independent variables have strong correlations, resulting in multicollinearity issues. The three independent variables were evaluated in one equation. Except for CCC which is automatically omitted from the calculation.

**Table 4.3 Tests for Model 1 and Model 2**

	Model 1	Model 2
Variables	VIF	VIF
AR	1.0869	
INV	1.3286	
AP	1.4328	
SIZE	1.081	1.078
LEV	1.389	1.324
CR	1.58	1.68
GROWTH	1.0859	1.068

CCC		1.061
D-W statistic	2.167	2.163

To conclude, the construction VIF for days account receivables, days inventory, and days account payable range from 1.0 to 10. This means that the value is fine and within the spectrum of optimal value, indicating that autocorrelation is not present. The D-W statistic had values of 2.167 and 2.163 because of the autocorrelation test. It is in the 0 to 4 range, indicating an ideal value. It can lead to the conclusion that the data has no autocorrelation or multicollinearity.

#### **4.5 Linear Regression Analysis**

The R-square shows how much of the variance in the benchmark index is clarified by it. The value of R square will range from 0 to 100. An R-square of 100 indicates that the factor explains the entire index. The R-square for both models in this model is 22% and 26% which means that 22% to 26% of the return on asset (dependent variable) is described by the independent variables. To compensate for the extra variable in the formula, adjusted R-square is used. The changed R-square in this case is 22.1 percent. The F value for this model is 9.560 and 10.867 which is a significant value. An ideal significant value of F is less than 0.05, so the F value in this model is fine since it shows a significant value of .000, which is less than 0.05.

**Table 4.4**

Variable	Model 1	Model 2
	AR, INV, AP	CCC
AR	-0.005***	
INV	-0.003**	
AP	0.001*	
SIZE	1.381**	1.213*
LEV	-6.821	-5.187
CR	0.765**	0.86*
GROWTH	0.005	0.006
CCC		-0.005*
R square	0.278	0.261
Adj. R square	0.221	0.22
F value	9.560	10.867

\*\*\* Significant at 0.01

\*\*Significant at 0.05

\*Significant at 0.1

The three independent variables in the first equation have important coefficient values in the construction sector. Days of accounts receivable (AR) and days of inventory retained (INV) have a negative significant value since they are negatively correlated to return on asset (ROA). The reduction in AR and INV for one day would increase ROA by 0.005 and 0.001 percent, respectively. The result of AR contradicts with Malik and Bukhari (2014) and Sharma and Kumar's (2011) findings. However, it is supported by Deloof (2003), Garcia (2011), Charitou, Elfani, and Lois (2010), Lazaridis and Tryfonidis (2006), Mansoori and Muhammad (2012), Usama (2012), Shubita (2013), and Makori and Jagongo (2013).

The INV regression result shows a negative significant relationship between firm profitability and INV. Deloof (2003), Lazaridis and Tryfonidis (2006), Mansoori and Muhammad (2012), Usama (2012), Saghir, Hashmi, and Hussain (2011), Perkovi (2012)

and Garcia (2011) accept this view. However, Sharma and Kumar (2011), Lazaridis and Tryfonidis (2006), Deloof (2003), Garcia (2011), and Malik and Bukhari (2011) find that days' accounts payable (AP) has a positive significant relationship with ROA (2014). They discover that AP has a negative relationship with firm profitability, implying that the longer the AP, the lower the firm's profitability.

CCC was used as an independent variable in Model 2, and the coefficient value is significantly negative. Makori and Jagongo (2013), Nobanee, Abdullatif, and AlHajjar (2011), Deloof (2003), Mohamad and Saad (2010), Alavinasab and Davoudi (2013). and Garcia (2011) support this conclusion. Sharma and Kumar (2011), Charitou, Lois, and Santoso (2012), and Malik and Bukhari (2014), on the other hand, find a positive relationship between CCC and firm profitability. To elaborate, the negative association between CCC and ROA in the construction sector implies that shortening the duration of CCC will allow a firm to gain more benefit. Any rise in CCC, on the other hand, would decrease company profitability by 0.005%.

#### **4.6 Summary of Findings**

Through correlation analysis, all control variables in both models indicate a consistent relationship. Wasiuzzaman and Arumugam (2013), Lazaridis and Tryfonidis (2006), Iqbal, Mulani, and Kabiraj (2013), and Yazdanfar (2013) find that size has a positive relationship. It shows that firms of larger scale will produce higher profits. In the case of leverage, a negative relationship is found which, indicates that lower leverage would result in a higher return on asset (Wasiuzzaman & Arumugam 2013, Malik & Bukhari 2014, Nazir & Afza, 2009, Iqbal, Mulani & Kabiraj, 2009). The current ratio has

a positive connection with return on asset in both models, according to the regression results. Sharma and Kumar (2011) validated it in their three regressions for days of inventory held, days of account payable, and cash conversion period. The fourth control variable, sales growth, is found to have a positive relationship with firm profitability. It shows that a company with stronger sales growth has more resources available to it, which will help the company's profitability. Lazaridis and Tryfonidis (2006), Wasiuzzaman and Arumugam (2013), and Yazdanfar (2013) have all come to similar conclusions.



## CHAPTER FIVE

### CONCLUSION AND RECOMMENDATION

#### 5.1 Introduction

This chapter is discussed to explain the conclusions of this report and to review the results of the study as a whole. This section addresses the findings as well as the contributions of this report. The final part of this chapter addresses potential studies that can be conducted in the future to strengthen the results of the present report.

#### 5.2 Summary of Study

This chapter addresses the findings of the report, which used multiple regression analysis. All the findings of the previous studies have been proven. The outcome is different for each sector as the nature of the business is not the same. The aim of this research is to explore, by utilizing the dependent variable, the link between accounts receivables, inventory days, accounting days and the cash conversion cycle.

Firms' profitability in the construction sector are found to have negative correlations with the days' accounts receivable (AR), the days' inventory held (INV) and the cash conversion cycle. This means that the drop-in receivable days, the inventory days held, and the cash conversion cycle (CCC) would improve the profitability of the business. It has a good connection with the days' accounts payable. It illustrates why firms wait and postpone their invoice to benefit from credit terms given to their suppliers.

Leverage has generated a negative result, demonstrating that lowering leverage would increase firm profitability. A smaller amount of leverage means a company has less debt, which will boost profits. Both models have a positive value for size, which is utilized as a control variable. It shows that increasing the company size show a positive impact on profitability. Both models for all sectors show a positive relationship in sales growth performance. It implies that faster growth would boost the profitability of firms in all sectors.

### **5.3 Hypothesis Testing Finding**

Based on the result of the first model, H1a, H2a and H4a are recognized. H1a indicates that there is an adverse connection between the profitability of the firm and the days' accounts receivable. The studies validate that the shorter the time it takes to collect receivables from debtors, the better the profitability, and vice versa. This appears to be the most common finding in most studies on working capital management and profitability, and it is line with the observations of Deloof (2003), Padachi (2006), Raheman and Nazr (2007), Mathuva (2010), and Ukaegbu et al (2014). The logic behind this finding is that when firms collect receivables as rapidly and as quick as possible, it means the firms did not tie down their resources as receivables, and so when the receivables are collected sooner, the money can be used to fund their operations repeatedly to increase profitability and generate income. While H2a indicates that the profitability of the firm and the day-to-day inventory retained has a negative relationship. Based on this finding, firms can increase their profitability by shortening their inventory conversion period. Henceforth, the faster this conversion occurs, the greater the volume

of sales and, consequently, the greater the increase in company profitability. This finding is consistent with numerous studies such as Deloof (2003), Padachi (2006), Mathuva (2010) and Alipour (2011). The outcome of the regression is consistent with H1a and H1b. However, H3a indicates that there is a substantial adversely between ROA and AP, with a positive significant result. Therefore, H3a is rejected. The hypothesis for Model 2 (H4a) indicates that there is a negative relationship between the profitability of the firm and the CCC. The conclusion is consistent with the outcome of the regression, thus, H4 is accepted. All analyses for four independent factors examined in the construction industry indicate significant results. This indicates that the variables have a close connection to the company's profitability.

#### **5.4 Implications of study**

Working capital is utilized to bridge the time gap between the outflow of money for the purchase of raw materials for manufacturing and the inflow of money from product sales. Since working capital management in the construction business are significant, they might be expected to have a major impact on a company's profitability. As a result, businesses strive to maximize their working capital levels, often by paying invoices as late as feasible, turning over inventories as early as possible, and collecting receivables as rapidly as possible. However, the appropriate level of working capital may vary depending on business situations. This study looked at the link between working capital and profitability in the construction sector.

Larger businesses want to be able to attract more new clients to the market while also improving their liquidity by paying off loans with longer maturities. In the last stage of this paper, we aimed which WCM tactics had an impact on business profitability at the end of this study. First, CCC and ROS have a positive and substantial relationship. As a result, companies with a longer CCC strategy may be able to increase their sales performance. Indeed, businesses that sold more items on credit and extended the maturity of their receivables had higher operational profit margins. Strong evidence also showed that companies with a current asset structure that included greater receivables and short-term investments had better sales returns. Furthermore, sales returns are much lower for businesses operating in large, highly populated cities.

The negative link between days' accounts receivable and return on asset benefits organization in establishing credit guidelines for the company in overall for the construction sector in Malaysia. Since a shorter cash conversion cycle has a beneficial influence on firm profitability. Working capital management has a substantial influence on corporate profitability and is critical to the generation of shareholder value. The good connections between inventory days and the cost of a potential interruption in the manufacturing process shows that organizations with sufficient inventory can decrease the cost of a disruption. A positive link between day accounts payable and profitability shows that as a result of the outstanding reputation developed by suppliers where the longer the accounts payable, the healthier the profitability. The vendors would not interrupt the firm's supply, resulting in a timely delivery throughout the year.

### **5.5 Contribution of the Study**

This research helps to understand how working capital management influences a company's profits and how managers may use working capital techniques to increase an organization's value on the market. Additionally, this research focuses on the influence on corporate profitability of working capital management and provides managers with a more detailed understanding of how to increase corporate profitability by managing working capital efficiently. In theory, this analysis adds knowledge to the organization by assessing the consequences of managing working capital for profitability in Malaysian companies.

### **5.6 Recommendation for future research**

Since the study's coverage is limited to only 70 publicly traded construction firms in Malaysia, the findings may not be applicable to other industries. The following is a recommendation for future research: broaden the scope of this analysis to include all sectors specified on Bursa Malaysia.

### **5.7 Conclusion**

The objective of this research is to analyse the association between company return on asset (ROA) and days account receivables (AR), days inventory held (INV), days account payables (AP), and the cash conversion cycle (CCC). The dependent variable, ROA, indicates a company's performance, whereas the independent variables, AR, INV, AP, and CCC, assess working capital. The study was conducted in Malaysia with

construction industries that were chosen based on the highest number of firms. Working capital components are linked to corporate profitability, according to the research. Cash conversion cycle remain adversely associated to the business profitability in the construction sector. It implies that extending the time it takes to turn money into cash has a negative influence on a business's profitability. Shortening the CCC will improve earnings for the industry. Less time is spent transforming capital inputs into cash flow when the CCC is lower. This may be accomplished by reducing the time it takes to collect receivables and reduce the time it takes to convert inventories. Finally, working capital management has an effect on a company's profitability. Each component of working capital has a significant influence on the company's profitability. The profitability of the firm is significantly affected by each work capital component. To ensure maximum efficiency, a company should be able to identify and manage the components correctly. Working capital management is essential for guaranteeing the firm's liquidity. Coordinated working capital requirements, are crucial to verifying a growth in company market value and profitability according to Mohamad and Saad (2010).

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