KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI

SCHOOL OF BUSINESS

EFFECT OF WORKING CAPITAL MANAGEMENT ON THE PROFITABILITY OF LISTED MANUFACTURING COMPANIES IN GHANA

By

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DECLARATION

'I hereby declare that this submission is my work towards the "**Master of Business Administration in Accounting"** Degree and that, to the best of my knowledge and belief, it contains no material previously published by another person nor material which has been accepted for the award of any other degree of the University, except where due acknowledgment has been made in the text'.

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ABSTRACT

Effective control of working capital is thus vital to the profitability of companies, and it is wise for the management of firms to make available the correct quantity of resources to handle working capital. The key objective of the analysis was to create a statistical relationship between the profitability determined by the return on assets and the working capital components, such as the cash conversion time (CCC), the average account receivables (AAR), the average account payables (AAP) and the inventory turnover days (IT). Size and Growth have been established as control variables. Sample size of six (6) manufacturing firms listed on the Ghana Stock Exchange (GSE) for the financial years 2009 to 2019 was used for the study. The findings revealed a fairly negative relationship between the profitability and inventory turnover and cash conversion cycle, whiles a positive relationship between the average account receivables and the average account payables. This implies that a reduction in the periods for receiving cash, a decrease in the period for paying cash and a reduction in the cash conversion cycle will cause an increase in profit. All other control variables showed a positive relationship with profitability. Hence, the study recommends that trading companies should manage their working capital more efficiently to keep it in equilibrium.

DEDICATION

I dedicate this research undertaking to my dear mother Madam. Rebecca Ama Bonney for her support, encouragement, and contribution to seeing this work to completion and also the rest of my family who assisted me.

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LIST OF ABBREVIATIONS/ACRONYMS

WCM – Working Capital Management

WC – Working Capital

ACP – Average Collection Period

APP – Average Payment Period

IT – Inventory Turnover

CCC – Cash Conversion Cycle

CA – Current Assets

CL – Current Liabilities

OLS – Ordinary Least Square

GSE – Ghana Stock Exchange

ROA – Return on Assets

CHAPTER ONE

INTRODUCTION

1.0 Background of the study

Working Capital has been described as the lifeblood of all businesses and is the basics for the success of businesses. Most small and medium-sized enterprises (SMEs), and also large organizations acknowledge that it is the most stressed aspect in business growth. “The importance of working capital stems from the fact that it helps businesses to achieve their goals and remain profitable” (Deloof 2013). Every business entity strives to achieve its short, medium, and long-term goals. However, the achievement of the medium and long-term goals will become a mirage if the business is unable to achieve its short-term goals. The extent to which an organization can achieve its strategic goals and remain viable is dependent on how well it can achieve its short-term objectives.

Ukaebu (2014) describes the effect of working capital as real and immediate and therefore its mismanagement can depict a devastating downturn in a firm’s profit. In his view, monitoring, protecting, and controlling needs to be done and put to work. To be successful, “managers are supposed to control their working capital properly since effective working capital control is tied to the progress of the firm” (Brealey, Myers & Allen 2011). The working capital control aims at guaranteeing the running expenses of the corporation can be covered and still be in a better stand to settle short-term obligations when the need arises. Working capital mishandling could result in a liquidity crisis and a decrease in earnings, thereby impacting the company's capacity to continue to function as a going concern. Working capital is often defined as net working capital, reflecting the distinction between current assets (CA) and current liabilities (CL).

It is the portion of the current assets that must be funded by the corporation, whether from long-term funds or bank borrowings. Generally, it is necessary for the company's service and is measured as CA-CL. The manufacturing sector adds substantially to the Ghanaian economy's growth and development.

However, in recent years, the economic slowdown coupled with unstable power supply has affected the performance of most organizations. Association of Ghana Industries (2015) asserts that over 350 businesses (small, medium, and large) have collapsed as a result of the energy crises and the general slowdown in economic activities in the country. The profitability of most companies, especially manufacturing ones, has dwindled significantly since they have to spend so much to power their plants and facilities. The economic slowdown has also affected their sales and profitability (AGI 2015). These challenges coupled with competition from other countries have put manufacturing companies in Ghana in a very dicey situation. To remain competitive in the face of these difficult circumstances, manufacturing firms are expected to take the management of their working capital seriously.

"Accurate and favorable working capital management will no longer only help these organizations build their short-term goals, but also their long-term goals" Deloof 2013; Afza & Nazir (2017). “Short-term investment from a commercial enterprise is the current asset. There are those investments that are assumed to have a lifespan measured in a particular financial accounting cycle. Indeed, short-term assets and liabilities are essential components of overall assets and must be properly measured afterward.” Afza & Nazir (2017). “A careful and thorough investigation of these assets is very necessary because of their significance, provided that they play a vital role in the performance, risk, and valuation of businesses” Smith (2008).

"Efficient management of working capital entails monitoring and scheduling current assets and liabilities in a manner that eliminates the risk of failure to fulfill due short-term obligations and on the other hand, avoids immoderate investment in these assets" Eljelly (2004). Managers invest much time addressing issues dealing with assumptions on working capital. "One justification behind it is that current assets are short-lived investment opportunities that are being exchanged repeatedly into other types of assets" Rao (2009). “The organization is obliged to pay on an annual basis the existing obligations. Liquidity for a corporation is not dependent on the liquidation value of its assets, but on the operating cash flows from those assets” Soenen (2013).

Lazaridis & Tryfonidis (2006) "asserts that the performance of industries is greatly increased by closely examining the elements of the cash conversion cycle at a perfect setting. Latham & Cote (1999) “makes the point that account receivables, account payables, and inventory management have a tremendous increase in cash flows, which in adversely impacts financial performance.”

Mensah (2014), a Ghanaian writer, “argues that to hold in equilibrium, purchasing and selling businesses ought to control their working resources more effectively”. In general, the motive of WCM is to confirm that by retaining sufficient cash flows, businesses can monitor their operating costs and therefore satisfy their short-term debt obligations. Finance managers must also follow effective WCM methods to maximize the corporation's profit and to generate wealth for shareholders. Although performance is a key business priority, when companies rely too heavily on profitability at the expense of liquidity, insolvency issues can arise. “Insolvency and bankruptcy can arise from a lack of knowledge of the impacts of liquidity on performance and a failure of managers to prepare and control its elements.” Gil (2016)

1.1 Problem Statement

Generally, "WCM has gained a great deal of coverage in the corporate finance literature, with various studies focusing on the impact of controlling working capital to business performance." (Deloof 2013; Filbeck & Krueger 2015; Lazaridis & Tryfonidis 2016; Padachi 2016; Samiloglu & Demirgunes 2018; Tewodros 2019). Whilst some studies find a positive significant relationship between the efficient control of working capital and profitability (Kieschnick 2008; Luo 2009; Koperunthevi 2010; Alipour 2011; Usama 2012), significant negative association between effective control of working capital and company output is been concluded by other researchers (Deloof 2013; Samiloglue & Demirnes 2018; Mohamad & Noriza 2010; Ukaegbu 2014). Findings from the above studies even illustrate that it is inconclusive with the relationship between WCM and firms performance.

Moreover, even amid these findings, the majority of these studies have emphasized on companies operating within developed markets. Therefore, the generalization of results from these numerous studies to less developed economies becomes very difficult. This is because, in developing countries or markets, how firms obtain funds to finance their operations is significantly different from firms operating in the developed market. The ascertainment of how working capital impacts the productivity of industrial companies has restricted analysis with much of the substantial literature on the financial services market (Akoto, Awunyo-Vitor & Angmor 2013; Yakubu, Alhassan & Fuseini 2017). However, with the recent economic downturn currently prevailing in Ghana, managers of manufacturing firms in Ghana must find ways and means of remaining competitive and profitable. "This means that effectively controlling working capital can help minimize the impact of the economic crisis on their profitability" Almazari (2013). "The economic downturn has not always only affected the performance of the corporation but also the ability of the corporation to survive and remain competitive" Zariyawati, Annuar & Abdul (2016). "Meanwhile, the key aim of any company

is to increase the value of shareholders, and optimizing shareholder wealth requires maximizing company profit, and businesses that wish to increase profitability must strike a balance between current assets and current liabilities and therefore maintain with liquidity and profitability trade-offs." Nazir & Afza (2017). An important part of managing working capital is maintaining the liquidity in day-to-day operations to ensure smooth running and meeting its obligations (Eljelly, 2004). A common metric for the (WCM) is the cash conversion cycle, that is, the time lag between the spending on the procurement of raw materials and the collection from sales of finished products. The longer this time gap, the higher the spending in working capital. A longer cash conversion cycle could improve profitability because it contributes to better revenue. On the other hand, business profitability can also fall with the cash conversion cycle if the costs of higher investment in working capital increase more than the profits of holding inventories or offering more credit terms to consumers. Many scholars such as Shin & Soenen (1998) have emphasized the necessity of shortening the CCC, as managers maximize profit for their shareholders by decreasing the cycle to a fair minimum.

For the aforementioned purposes, managers need to consider how the control of liquidity impacts organizational efficiency. This study, therefore, adds to the limited literature by imparting the link between the control of cash flow and the overall success of manufacturing companies in particular those listed in Ghana.

1.2 General Objective

The focus of the study is to determine the effect of working capital management on the performance of listed manufacturing firms in Ghana.

1.3 Specific Objectives

Specifically, the current study intends to:

1. Determine the relationship between inventory management and profitability of listed manufacturing firms in Ghana.
2. Establish the relationship between account receivables management and profitability of listed manufacturing firms in Ghana.
3. Evaluate the relationship between accounts payables management and profitability of listed manufacturing firms in Ghana.
4. Examine the relationship between cash conversion cycle and profitability of listed manufacturing firms in Ghana.

1.4 Research Questions

The following questions are relevant to the study:

1. Does inventory management have a relationship with the profitability of listed manufacturing firms in Ghana?
2. What is the relationship between account receivables management and profitability of listed manufacturing firms in Ghana?
3. Is there any relationship between accounts payables management and profitability of listed manufacturing firms in Ghana?
4. What is the relationship between the cash conversion cycle and the profitability of listed manufacturing firms in Ghana?

1.5 Significance of the Study

First and foremost, the study covers the effect of working capital management on the profitability of listed manufacturing firms on the Ghana Stock Exchange. The study has three main stakeholders that are significantly addressed. These stakeholders are the management of manufacturing companies in Ghana, the government, and academicians. First, the result of the study helps managers of the selected manufacturing firms and other managers to understand

how working capital management can affect their performance. This can go a long way to enable them to take proper decisions to manage their working capital. Moreover, this study provides important financial management policy recommendations to managers in the manufacturing sector of Ghana. Second, the study could be of help to government agencies responsible for trade and industry. That is, the empirical results from the study could help government agencies to get the meaning and concept of WCM and the challenges associated thereof, to assist in adopting measures to sustain manufacturing industries in Ghana. Lastly, a study of working capital management in a developing country like Ghana helps to close the literature gap between developed and developing countries. Thus, the study serves as a guide to other researchers in furthering working capital management related studies.

1.6 Scope and Limitation of the Study

1.6.1 Scope

The study seeks to examine the relationship between working capital management and the performance of selected manufacturing firms. Geographically, the study concentrates on the listed manufacturing companies in Ghana. Meaning, all manufacturing companies that are not listed on the exchange are excluded. Even though the study considers all fourteen (14) listed manufacturing firms in Ghana, six (6) of them are conveniently sampled and observed within 11 years of observation between 2009-2019 due to the availability of data.

1.6.2 Limitation

This study is limited and covers the WCM on manufacturing firms listed on the GSE. The period under investigation is from 2009 to 2019.

1.7 Research Methodology

This section covers research design, population; sample size and sampling techniques, data sources, method of analysis, and model specification. Concerning the research design, the study

will employ an explanatory research design using Pooled Ordinary Least Square (OLS). Explanatory research design establishes the various relations between the variables under study. This study uses purely secondary data and is sourced from the firm's annual financial statements as the data set. The population of the analysis comprised all firms listed on the GSE. Due to the magnitude of the population, a sample of six (6) manufacturing companies is conveniently sampled based on the availability of the complete set of data observed from 2009 to 2019. The study uses Econometric Software (EViews). An ordinary least squares regression model will be the main model for the study. The dependent variable of the analysis is the return on assets (ROA) and is calculated as gain after-tax/total assets. Independent factors include the Cash Conversion Period (CCC) which is calculated as the inventory plus the receivable duration minus the payable period. Account payable period (APP) is also measured as (account payable x 360)/ cost of sales. Account receivable period (ACP) measured as (account receivables x 360)/cost of sales. Inventory Conversion Period (ICP) which is well measured as (inventory x 360) /cost of sales. Lastly, the control variables encompass the size of the firm which is proxied as total sales, and Sales Growth.

1.8 Organization of the Study

Five chapters are combined into the review. The study's background information, problem statement, general objective, specific objectives, research questions, study significance, scope, limitations, and finally, the study's organization fall under chapter one. In chapter two, theoretical analysis, conceptual review, empirical review, and conceptual framework are captured. The research methodology is discussed in Chapter three, while analysis and discussion of findings are addressed in the fourth chapter. Chapter five concludes with a thorough summary of the observations, conclusions, and recommendations.

CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This chapter encompasses conceptual review, theoretical review, conceptual framework, and as well as empirical literature review. The conceptual review presents various concepts and definitions under the study whilst the theoretical review covers theories that underpin the study. The conceptual framework presents the diagrammatic representation of the entire study. The empirical review presents the various studies that have been done in the literature.

2.1 Conceptual Review

This section presents the various definitions and concepts that underpin the current study. Some of the areas are an Overview of the manufacturing sector in Ghana, the definition of WC and WCM as components or elements of WC and controlling of WC components, working capital policy, sources of working capital, and as well as indicators of profitability of manufacturing companies.

2.1.1 Ghanaian Manufacturing Sector

Profit is considered as one of the most important objectives of any business entity that the management of every business strives to achieve in addition to secondary objectives such as increasing market share and increasing sales volume. Profit can serve as an indicator of the level of efficiency of a business. “A company’s ability to increase its profit, to survive, and be competitive is more of an issue nowadays due to market liberalization” Yazdanfar (2013). “Profit is the earnings from sales or revenue after all costs, including interest payments on debt and tax, have been deducted” Bashar & Islam (2014). Profitability is when a company can gain profit from its daily activities. Over the last decade, several significant changes have happened

in the Ghanaian manufacturing sector as a finding of trade liberalization, internationalization of competition (especially from the Asian countries), and the relatively high cost of production as compared to other countries. The manufacturing sector in Ghana has performed relatively poorly since 2007 with the sector recording negative growth for the years 2007, 2009, 2013, and 2014 with growth rates of -1.2%, -1.3%, -0.5%, and -0.8% respectively. The highest growth rate for the period between 2007 and 2016 was recorded in 2011 with a growth rate of 17%. The average growth rate for the period is 3.14% Ghana Statistical Service, (2017). The manufacturing industry serves a crucial part in the growth of every nation, and Ghana, as a developing economy that imports greater goods than it exports, is crucial for the nation to grow its industrialization. The manufacturing companies profit is, therefore, crucial for their survival. "It is common knowledge that the determinants of profitability of manufacturing companies are essential for their survival, thus, enhancing the economic development of the country which is adopting an export-oriented industrialization within an open economic policy" Pratheepan (2014). While there exists substantial literature analyzing the profitability determinants of the manufacturing sector in developed countries, empirical work on the impact of several elements of working capital on the profitability of manufacturing businesses in creating economies like Ghana is highly scarce. "Ghana is an import-based economy, hence, little attention is paid to scholarly works in the manufacturing sector" Prempeh, Sekyere & Asare (2016).

2.1.2 Working Capital Defined

Working capital is usually defined as the current assets less current liabilities. The most important factors of current assets are inventories, accounts receivables, and cash (in hand and at bank) at the same time as that of current liabilities are accounts payable and short term debts. WC is important to hold the smooth going of an enterprise. When a commercial enterprise has a good enough quantity of working capital to preserve daily cash flow, it can run effectively, and ultimately, make sure the survival of the company. WC has two ideas i.e. Gross and Net

Working Capital and the company's growth, profitability, and liquidity particularly rely upon it. "The Gross Working Capital refers to the company's funding in current assets whiles Net Working Capital refers to the difference between the current assets of the company and its current liabilities" Braley & Myers (2006).

Current assets are defined as those assets or valuables of an enterprise that maintain circulating. "The everyday time frame for circulating is the financial duration that is commonly twelve months" Sanjay Bulaki Borad (2009). It consists of inventories, account receivables, cash and cash equivalents, short-time period investments, and prepaid expenses, even as current liabilities are obligations due to mature within one operating cycle. Current liabilities are an organization's short-term financial obligations which can be due within 12 months and they encompass accounts payables, short-term borrowings, and accrued expenses.

WC comprises a massive portion of the assets and liabilities of a corporation. "Medium and small enterprises tend to have a particularly higher level of capital tied to current assets and liabilities than larger enterprises" Pass & Pike (1984). Profitability is a proportion of the company's profits that is calculated in percentage terms. g. Sales percentage, investment percentage, asset percentage. "An excessive percentage of profitability plays a vital role in providing the company with external financing because creditors, investors, and suppliers do not hesitate to invest their cash in the type of company" Gitman (2012).

2.1.3 Working Capital Management

Kaur (2010) "deals with the management of working capital as managerial decisions and movement patterns that influence the dimensions and effectiveness of WC in general." "WC is the backbone of every corporation and if it is effectively controlled for ages, it becomes valuable to the firm as it has an enormous impact on the profitability of a company, but

inefficient management of working capital negatively affects the profitability of the business" Badoe (2011).

“Consequently, management measures must be made to recognize those adjustments and attempts made actively to curb them to ensure an appropriate degree of investment in working capital within the business environment” Atrill (2009). There are key factors for the handling of working capital and these are liquidity and profitability.

Liquidity focuses on the availability of funds to clear off the debts of a company while profitability is involved with making sure shareholders wealth is maximized. The ability to make good use of WC creates price for the shareholders with the aid of increasing inventory stage, account receivable, account payable, among others. The firms can reach competitive benefits with the aid of using effective and efficient usage of resources.

2.1.4 Importance of Working Capital Management

Seidman (2015) “Stresses that cash flow is a very necessary feature of any company and hence lacking it no business can function and stay productive.”. For instance, to operate efficiently, the firm needs some level of cash to meet expenses when they fall due. In addition to helping firms to maintain some minimum level of cash to reach daily expenditure, properly controlling working capital also helps to address cash shortfalls. Working capital is also an important ingredient to the firm to finance some of its activities before it generates revenue. For instance, a financial institution will need some funds to dispense as loans before it can generate income in the form of interest and processing fees. In the same way, manufacturing firms will need some cash to buy raw materials and other equipment for production before they can generate revenue. Thus, in such situations, firms will have to keep some level of cash to meet certain expenses, and such cash is needed until it is well-positioned to generate their cash. Seidman

(2015) “asserts that another important reason for the maintenance of working capital is that it provides liquidity”.

While waiting to collect its revenue, the firm may need sufficient working capital to operate. A business will run out of funds because there is a lack of working capital or it is not sufficiently funded, which will force it into bankruptcy. If it has not sufficiently covered its working capital needs and runs out of funds, even a successful company with attractive products or services will also be pushed into bankruptcy. The handling of working capital also allows the organization to increase its revenues. Seidman (2015) "suggests that there is a need to increase staff, inventory, and account receivables as the company grows."

Thus, as a firm grows, new facilities, infrastructure, and machinery may not be the only assets needed but also investment in working capital to support sales. Frimpong (2013) “provides four main reasons why firms need working capital”. First, working capital ensures that there is an adequate supply of raw materials to enable operations to move on smoothly. Second, it ensures that there is sufficient cash to meet the wage bill and other pressing needs. Third, working capital enables the firm to have the capacity to wait for the market for its finished goods. Finally, working capital enables the firm to grant credit to its customers.

2.1.5 Element of Working Capital Management

As explained earlier, current assets and current liabilities are the main components of working capital. Under current assets, the firm may have inventory, cash and cash equivalents, account receivables (deposits), and deposits. The firm’s current liabilities may include account payables, short-term borrowings, unearned revenues, and other accrued liabilities. The management of these components is generally categorized into receivables management, inventory management, and payables management. These are examined as follows:

2.1.5.1 Receivables management

Customers buy goods and services on loan in most industries. The company tracks other purchases as account receivables when products are acquired on credit (debtors). The account receivables will need to be collected to boost the operations of the firm. The term average collection period indicates the duration required by a corporation to recover its debts from clients. “The account receivables show the total amount of cash that needs to be paid to the firm by its debtors” Gill, Bigger, & Mathur (2010). Account receivables may include trade credit, consumer credit, or both.

Trade and consumer credits are offered by businesses to increase sales and improve their competitiveness. Despite the benefit of increasing sales and profitability from account receivables, it is sometimes difficult to evaluate the creditworthiness of customers. One important parameter of a firm’s accounts receivables is the credit policy. “The credit policy may consist of credit period, credit standard, cash discounts, and account collection period” Prasana (2000). The firm may have to decide the length of time that is taken to collect cash from debtors. A decision to lengthen the credit period will make it possible for debtors to have enough time to repay their debt, thereby reducing the rate of default. However, a longer debt collection period could affect the liquidity of the firm since it will have to wait for a long period to mobilize cash for its operations. The business may also provide a standard to provide consumers with loans. For example, the organization may opt to grant loans to chosen clients that it finds trustworthy.

2.1.5.2 Inventory Management

The inventory conversion period illustrates how long the business takes to turn its inventory into finished goods. It is important for any organization's activities” Brigham & Houston, (2007). For one, raw materials provide the input for manufacturing the finished product.

" Work-in-progress are items in the initial phases of production, whereas final goods are fully prepared goods to be sold. " Moles et al. (2011).

It is important to realize that two factors of inventory productivity are to understand the magnitude of the inventory order and the degree to which the order should be put. This decision is also based on a main model called the economic order quantity (EOQ). This model is based on empiricism, expressed by some theoretical assumptions geared at maintaining an equilibrium between revenue, fixed costs, carrying costs, and overall costs. This is expressed in the form of:

$$Q = \sqrt{\frac{2FU}{PC}}$$

Where:

U=annual sales

F= Fixed cost per order

C= total costs

P= Carrying cost

2.1.5.3 Payable Management

Account payables come into being when firms make a purchase of goods and services from other firms and decide to repay them later. Some businesses used accounts receivables as a means of financing their short-term operations. Using trade credit can be free or costly. Trade credit can also be used to promote the sale process and to compete in the industry as a marketing tool. Flexing the credit term positively is identical to lower rates, such as elongating the trade credit or raise the cash discount, thus allowing the firm to escape pricing restrictions. This subtle strategy also gives the vendor a more competitive approach to selling without fear of retribution by rivals. Cheng & Pike, (2003).

2.1.6 Measuring Working Capital Management

The account receivables, inventory, and accounts payables which are WCM elements can all be put together and measured using the Cash Conversion Cycle. “Cash Conversion Cycle has been described as a comprehensive measure of WCM” Deloof, 2003; Gill et al. (2010). Other studies on this subject have sought to link profitability and CCC in various countries. “Working capital is described as efficient if it seeks to shorten the CCC to optimize the levels that improve the profitability of the firm” Hager, (1976). When the firm has a short period for collecting its debts and a longer period of making payments to creditors it means there's a short CCC. Profitability is then optimized since it improves corporate efficiency in the use of WC.

Deloof (2003) emphasizes that low inventory costs, strict trade-credit strategies, and the use of acquired trade credit as a means of funding will increase inventory stock-out risks, minimize revenue stimulants, and increase the cost of payable accounts by forgoing cash discounts. Managers must ensure that the liquidity and profitability of the company are collaboratively accomplished. A negative correlation between the business viability of CCC is noticed by Deloof (2003), Wang (2002), and Gill et al. (2010).

2.1.7 Cash Conversion Cycle (CCC)

Ghosh (2010), “states that the length in between price taken for labor costs and material cost, and also sales paid is the emphasis of Cash Conversion Cycle." The more the CCC of a corporation, the higher profits achieve for output. "Therefore the rate of profit declines once the expense increased investment in WC accelerates at a fast pace than the benefits of keeping additional inventories or providing free extra credit" Raheman & Nasr (2007). More precisely, relative to the steps allotted by the production line, we can characterize the industrial sector as that of the timeframe of which raw material is preserved for production, considering the time for which completed goods are stored and distributed, and the necessary support by debt

holders to meet their obligations, excluding the settlement date of the account payable. From this theory, it is very clear that longer CCCs require more money in current assets. To assess the viciousness of working capital regulation, the CCC is often used as an indicator. “The prolonging of the cash conversion cycle is assumed to correlate to a defensive working capital policy and a quicker cash conversion cycle correlates to an effective working capital policy” Arnold (2008). Therefore, in an equation such as Inventory Turnover Days (ITP) + Average Collection Time (ACP) - Average Payment Period (APP) = Cash Conversion Cycle, the cash conversion cycle is given (CCC).

2.1.8 Working Capital Policy

"Working capital policy can be defined as concepts and planning processes setting out a course of action to handle current assets and liabilities" Brian (2009). “The company has more than enough unused capital if the level of liquidity is too excessive and it has to withstand the burden of these unused resources, but if the liquidity is only too small, it will face the scarcity of funds to satisfy its existing financial liabilities” Vishnani & Shah (2007). “In specific, it is possible to group working capital policies into three major classes: aggressive policy, defensive policy, and conservative policy” Arnold (2008).

2.1.8.1 Aggressive Policy

It is considered to be an active working capital approach where a company decides to use fewer CA instead of the percentage of total assets or uses a high amount of CL to reflect the percentage of overall liabilities. Afza and Nazir (2009) "clearly state that the company's smooth activities can be disturbed as the company using a reduced amount of current assets can cause the company to have a low degree of cash flow and inventory scarcity when the aggressive policy of working capital is implemented." Arnold (2008) "depicts the aggressive policy as being somehow likely to happen in organizations involved in a setting with reasonable

confidence about their future cash flows and activities, allowing them to keep their WCs at a reduced level." Higher cost and return may also be correlated with this policy. Among sectors and even within sectors, the advantages of implementing an active strategy vary. Belt (2009) mentions some corporate features where it is likely to benefit from an active working capital policy. Firstly, current assets that are a high percentage of overall assets, furthermore, high percentages of current liability finance, additionally higher than average operating margins, and lastly if inventory turnover is above average. If smaller existing assets are unable to satisfy the upcoming short-term commitments, which are significant current liabilities, as well as the elevated likelihood of loss and bankruptcy, this form of strategy is exposed to risk.

2.1.8. 2 Defensive Policy

With the defensive working capital policy, current liabilities are lower than the current assets i.e. the firm has a huge sum of cash balance in hand or at the bank, a higher number of inventories, and also some customer credit that can meet obligations of the firm. This type of policy helps firms that work within an unforeseen circumstance where extra inventory is needed to avoid the risk involved in the opportunity cost of losing sales due to stock-outs or production stoppages. Afza and Nazir (2009) note that “compared to the aggressive policy,' defensive strategy against WCM is related to reduced risk and return, the larger number invested in current assets decreases the company's risk but can result in lower productivity.'” "This policy seems as if a company may have customers who require a longer loan than distributors can provide, so they'll have to retain more inventories required to address the credit needs of the customers" Arnold (2008).

2.1.8.3 Conservative Policy

The conservative policy mixes the aggressive and defensive and is also known as the moderate approach. There is an indication that companies that apply this policy tries to balance the merits

and demerits of both policies and this is done as a way of increasing the profitability of their business. “Also with this policy, current assets i.e. Assets that show on the financial position statement for a limited period will be funded by short-term loans and long-term debt, which will be used to fund non-current assets and current permanent assets. Conservative view on working capital also moderates cost and benefit Andrew & Gallagher (1999).

2.1.9 Sources of Working Capital

“Several strategies are employing which firms may additionally exercise to elevate funds to fulfill the working capital inadequacy due to the fact of its various uses” Horne & Wachowicz (2010). If practices are profitable, WC would rise by using the proposed amount of net profits including all costs accrued which does not require the use of cash or working capital products at present. Depreciation, amortization, and other losses on disposal of non-current properties are those costs, because they no more impact working capital, although they've been excluded from the balance sheet. If net earnings are applied to them the amount of WC obtained from activities may be reduced. Secondly, long-term borrowing is another form of working capital. Additional shares could be issued and sold, which increases shareholder equity, providing an upward drive from the cash raised to increased WC. Similarly, to boost its working capital efficiency, the company will invest in long-term loans. The final source is one of non-current asset transactions. Although reasonably rare, the selling of non-current properties such as machinery and vehicles is another WC supply. As a means of working capital, the net cash inflow on the disposal of non-current assets is proven.

2.2 Theoretical Review

Several theories have been propounded to explain working capital management in firms, especially manufacturing companies and other organizations at large. The main theories that

are relevant to this study include agency theory, the risk-return trade-off, operations, and cash conversion cycle theory, and the resource-based view theory.

2.2.1 The Agency Theory

The agency relationship, according to Jensen & Mecking (1976), "is defined as a situation where a person or group of persons (principal), engages another person or group of persons (agents) to render services on their behalf for some form of compensation". Thus, agency theory can be described as one that describes the contractual relationship between two parties, where one party is mandated to act on behalf of the other. This theory has been described as one of the most important theories in accounting and finance due to its ability to explain how managers (agents) attempt to maximize the profit of shareholders (principals).

It is clear from the point of view of managers taking actions to boost the organization's efficiency, and therefore the company's worth, that this theory is suitable for controlling working capital. Managers make decisions on behalf of shareholders regarding issues that have to do with short-term assets and liabilities of the business. Issues concerning payables, receivables, inventories, and the liabilities of the entity are tackled by managers on behalf of the shareholders, the extent to which these decisions improve the performance and profitability of the organizations is explained by the agency theory.

Aside from the relationship between managers and shareholders, the application of the relationship between managers and employees is also important since managers and employees work together to achieve the objectives of the firm. Buyers still give the businesses the basis of sales and hope to get in return meaning for their resources and sufficient services in return. Distributors are sources of input to the business, and so deserve similar pricing and trustworthy customers. In terms of their stake size in corporations, stakeholders generally vary. "The level

of an individual's stake shows the extent to which the company is based on precise asset investments in its sharing of relationships and responsibilities." Williamson (1984)

2.2.2 Risk Return Theory

“The theory has particularly been applied extensively by researchers in the area of business, finance, and economics” Mukherji, Desai & Wright, (2008). “This theory is very important in the business environment since most of the decisions taken in the business environment bothers on investment, which is subject to risk”. Richard, Stewart & Franklin, (2008). This theory is linked to working capital management in the sense that the decisions to invest in working capital involve risks and opportunities.

While some of the decisions regarding working capital management may help improve the performance or profitability of the firm, others may go wrong and affect the fortunes of the organization. To properly understand how this theory is linked to working capital management, it is important to understand that the core of working capital management is the tradeoff between profitability and liquidity. If the organization decides to maintain high liquidity, it will do so at the expense of profitability and vice-versa.

Both of these two contradictory decisions can end in either a surplus or a shortfall of the components of working capital and the current assets of a firm. E.g., retaining surplus cash is called non-profitable since it does not produce any form of income. However, not-maintaining adequate cash or shortage of cash may lead to liquidity challenges which will lead to disruptions in payment, business operations, and subsequently the profitability of the firm. Again, excess receivables may lead to high collection costs and default risks which may influence the firm's output. However, a shortage of receivables may cause a low turnover and hence low profitability. In the same way, excess inventory is associated with high storage and

carrying costs which may harm profitability. However, when there is low inventory, there is limited suppliers and interrupted production which could manipulate the firm's profit.

2.2.3 Operations and Cash Conversion Cycle (CCC) Theory

The Operations and Cash Conversion Cycle (CCC) was developed by Richards and Laughlin (1980) with the "view of examining the components of working capital management within a firm". The authors argue that though substantial time and effort of the financial manager are spent on keeping working capital going with little attention given, and therefore there is the need to explain profit of a company is been influenced by working capital. Accordingly, the authors describe inventories, payables, and receivables of an organization that constitutes the cash conversion cycle model.

The theory seeks to explain the beginning of the manufacturing cycle, where payment is made for the procurement of raw materials through to conversion and the creation of new goods, to the receivables from consumers, and for future borrowers of the connection resulting from the selling on credit. Thus, based on its ability to explain the components of working capital, it is usually described as the most important theory that has a direct relationship with working capital management as it explains the purchase of raw materials, inventory levels, account receivables, and account payables.

2.2.4 Resource-Based Theory

Businesses survive mainly on the use of resources, be it human, capital, and financial resources. These resources enable businesses to survive and remain profitable. Although potential is seen as the skill or ability of a resource unit to perform such activities or projects, resources are what are spent on meeting the organization's goals. "Therefore the origins of the capacity of a particular organization are tacit resources" Grant (2001).

"In this sense, resource-based philosophy is used to involve the cognitive capacity of particular company leaders to guarantee efficient control of the company's short-term resources" Alvarez & Busenitz (2001).

2.3 Empirical Review

There have been several studies of the impact of working capital on business sustainability which have been carried out in various countries and sectors. The conclusions from these experiments were very distinct.

Prempeh K.B., and Peprah-Amankona, G., 2020 examines the link between working capital management and profitability using dynamic panel regression (Arellano-Bond Estimation) technique consisting of eleven (11) manufacturing firms listed on the Ghana Stock Exchange covering the period of 2011-2017. The study revealed that there is a significant positive linear relationship between working capital management and firms' profitability and also the existence of a concave quadratic relationship between working capital management and firms' profitability. There is an optimal level at which working capital management maximizes a firm's profitability.

Akomeah, J. and Frimpong, S., 2019 analyzes the impact of the management of working capital on the profitability of listed manufacturing firms in Ghana with secondary data obtained from seven (7) manufacturing firms listed on the Ghana Stock Exchange for a span of ten years (2005-2014). Data was evaluated using the Fixed-Effects model of the data regression panel and the regression findings showed that the receivables duration and the inventory conversion period days had a statistically important negative impact on profitability, while the payable period days had insignificant positive effects on profitability. On the other hand, the analysis showed that the cash conversion period, current ratio, and firm size (LOS) had a substantial positive effect on profitability. The study proposed that manufacturing companies should

implement reliable and effective methods of handling these components of the management of working capital.

Amponsah-Kwatiah, K. and Asiamah, M., 2020 study examines the impact of working capital management on the profitability of listed manufacturing firms in Ghana, using a quantitative analysis methodology in the causal research design using a balanced panel of 20 listed manufacturing firms from 2015 to 2019. The study indicates that inventory management, accounts receivable, accounts payable, capital turnover period, current asset, current ratio, and firm size have positive impacts on return on assets (ROA) and return on return on equity (ROE) while leverage negatively affects them. The results support manufacturing companies and countries intending to improve the efficiency of businesses and the well-being of citizens through direct and indirect chain effects of rising investment, remuneration, and scales of output.

Yakubu, I.N., 2019 investigates the impact of (WCM) on dividend policy of listed non-financial firms in Ghana using more recent data spanning 2007-2016. The study employed the ordinary least squares (OLS) analytical technique to assess the effect of cash conversion cycle (CCC), days inventory outstanding (DIO), profitability, and firm growth on dividend policy where the findings reported that working capital management (in terms of cash conversion cycle and days inventory outstanding) and dividend policy are positively related, with days inventory outstanding having a significant effect on dividend policy. The results also established a positive association between the control variables (profitability and firm growth) and dividend policy albeit insignificantly. Based on the findings, the study concludes that working capital management in terms of days inventory outstanding (DIO) is a critical factor influencing firms' dividend policy decisions.

Bamfo-Debrah, Y., 2019 analyzed the quadratic connection that exists between working capital administration and profitability and determine the ideal working capital policies that would

guarantee the greatest profitability using manufacturing companies listed on the GSE. The study considered the audited annual financial statements of these entities from 2006 to 2015. The results of the investigation revealed that there is a quadratic connection between working capital management and profitability and that there is an optimum cash conversion cycle period, receivables collection period, inventory turnover period, and payables payment period that would have maximum positive impact on profitability measured by net profit margin.

Akey, A.B.I.G.A.I.L., 2019 examined the impact of working capital management on the performance of 10 selected listed manufacturing companies in Ghana with an annual financial report for a period of Nine (9) years from 2009-2017 as the data source. The panel regression model was used for the analysis. The study found the average collection period, cash conversion cycle, and liquidity independent variables to have significant implications on the return on asset. The average collection period and cash conversion cycle were found to have a negative and significant relationship with return on asset while liquidity has a positive and significant relationship with return on asset. Also, the average collection period, net trading cycle, and business size were found to have a significant impact on return on equity. The average collection period and net trading cycle were found to have a positive and significant relationship with return on equity while the business size had a negative and significant relationship. It is recommended that firms should strive to have a shorter cash conversion cycle to make manufacturing firms more efficient in managing the cash flow. Manufacturing firms need to collect accounts receivables more quickly, by improving the efficiency of the collection processes, offering discounts, and charging interest on overdue accounts.

Pakdel, M. and Ashrafi, M., 2019 access the relationship between working capital management and the performance of firms in different business cycles with a sample consist of 80 companies listed in Tehran Stock Exchange from 2002 to 2013. The cash conversion cycle was considered as a measure of working capital management, which consists of days account receivable, days

inventory, and days account payable. Hypotheses of this study were analyzed using panel method data and the results show that there is a significant negative relationship between the management of working capital and firm performance. Among the components of the cash conversion cycle, only day's account receivable has a negative and significant relationship with firm performance. The results also showed that the various business cycles do not modify the relationship between working capital management and the performance of companies.

Tauringana and Afrifa (2013), "investigate the importance of working capital control for corporate profitability in the UK for the span of 2005-2009 using 133 SMEs". Their results revealed that the performance of SMEs was substantially influenced by estimated receivable days and estimated payable days by using a panel data regression study. There was an irrelevant link between the period of cash conversion (CCC) and profitability, however.

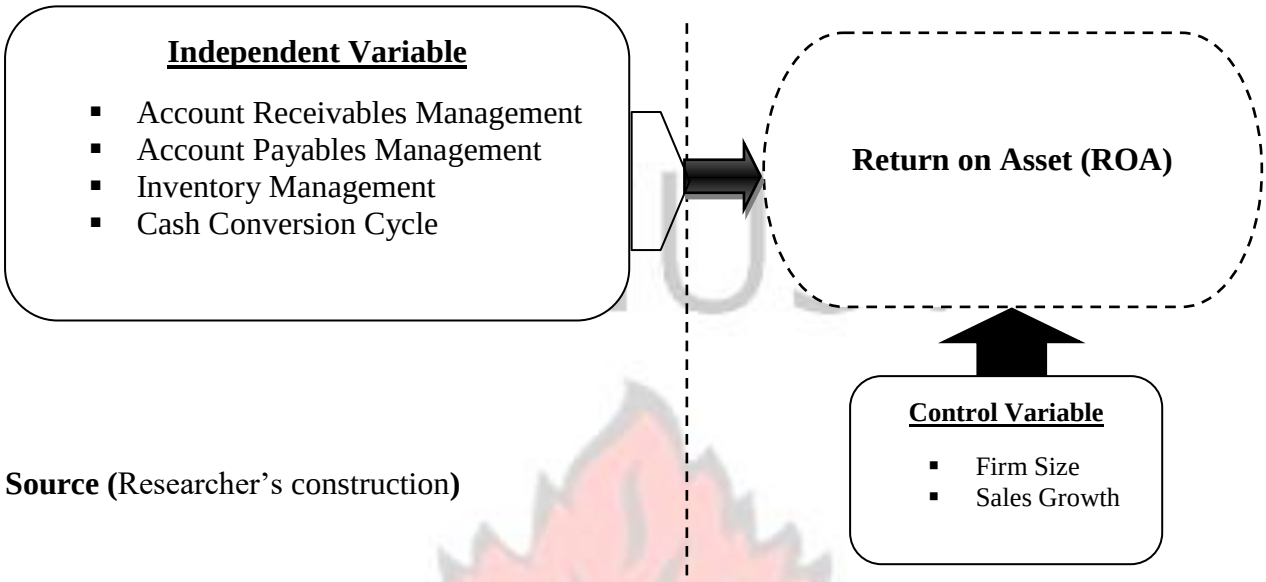
Ahmed (2012) uses a selection of 253 non-financial listed companies from the Karachi Stock Exchange (KSE), Pakistan, to examine the effect of working capital management on the output of corporations. The research used secondary data from the Stock Market Firms Balance Sheet Review on KSE released by the State Bank of Pakistan. The findings were tested using the methods of Logistic Regression, OLS Regression, and Pearson Correlation. The finding indicates that only current assets over gross revenue demonstrated a substantial negative association with all the success proxies, i.e. return on equity and return on assets. Although the current asset over overall asset (CATA), turnover of the inventory, turnover of the debtor, and current ratio demonstrated a significant positive performance relationship. The findings of the logistic regression indicated that CATA, CATS, and CR are largely controlled by the likelihood of a business being in benefit.

Mathias B. Baveld (2012) explores how the working capital of publicly traded firms in the Netherlands is regulated. A trend of 37 businesses, which are among the fifty largest corporations in the Netherlands, has once been included. The working capital strategies were

contrasted at some point in the 2004-2006 non-crisis era and in the 2008 and 2009 financial crises. This comparison questioned why, as the banking market was once in decline, businesses had to swap their non-crisis working capital plans. The statistical analysis reveals that there are corporations that do not have to trade their working capital policies on account payables and inventory in disaster times if they expect to increase profits, although it was once one of a kind of receivables. This was once attributed to the fact that receivables from a recession account had a positive impact on the profits of the following year of a business at some stage. These observations were based on a short-term basis. The rewards of helping customers over the span of catastrophe intervals are expected to improve in the long run, because potential sales will already be there. The risks of these supporting businesses were also fantastically minimal, and it was also exceptionally inexpensive for big specialist firms.

The OLS econometric mannequin on panel data was used by Akoto, Awunyo-Vitor, and Angmor (2013) to examine the relationship between the management of working capital and the profitability of manufacturing enterprises in Ghana for the period 2005-2009. Account Receivable Day (ARD), Cash Conversion Cycle (CCC), Current Asset Ratio (CAR), and Current Asset Turnover (CAT) were adopted as the elements of working capital management that had a significant effect on the profitability of manufacturing firms in Ghana. Again, Boadi (2015) "explores in Ghana the effect of both internal and external variables that use the ordinary least square regression model to assess the productivity of Ghanaian banks". The results of the observation indicated that there is a huge relationship between profitability, capital structure, and the ratio of capital to asset.

2.4 Conceptual Framework



Source (Researcher's construction**)**

2.5 Chapter Summary

The management of working capital has been identified in the accounting and finance literature as contributing to the performance of the organization. Because of this, the chapter examined previous studies on working capital and how it contributed to the performance of firms. The chapter began by examining some conceptual reviews which encompasses various definition and explanation of various concepts related to working capital management.

An effort is being made to analyze the working capital components and analysis of the industrial sector in Ghana and the components of the CCC. The relevance of working capital management is also examined as well as theories associated with working capital management. Theories include risk-return tradeoff, CCC theory, resource-based theory, and agency theory are illustrated by linking these theories to the relevancy of the study. The chapter is concluded by examining some of the major empirical studies on the subject. The major authors included Deloof (2003); Ugeibu (2014); Lazaridis & Tryfonidis (2006); Nuru & Mohammed (2011).

CHAPTER THREE

RESEARCH METHODOLOGY

3.0 Introduction

This chapter covers research design, population of the study, sample size and sampling technique, data source and collecting procedure, method of analysis, model estimation. It begins by providing working definitions of the various terms in the study and then the research design adopted.

3.1 Research Design

The analysis follows an explanatory approach that allows the study to establish various relationships between or among the chosen variables. The study uses a panel data set which combines cross-section overtime period. The panel data set has two main types, namely; the balanced and unbalanced panel data set. With a balanced panel, the same unit appears in each period whiles some units do not appear in each period often due to attrition with unbalanced panel, Wooldridge (2006). Balanced Panel data are used for the research purposes. An ordinary least square (OLS) regression model is what the study uses. This model has three main different types of models which include pooled OLS regression, fixed-effect model, and random effect model. For robustness checks, Hausman Test is conducted to evaluate if a fixed or random effect model can be used correctly.

3.2 Population of the Study

"A clearly defined group of people or things with familiar, bonding behaviors or traits indicates the population of the study." Polit et al (2006). Therefore, the population of the study comprised all listed manufacturing companies in Ghana. However, firms with available annual financial statements are captured under this current study.

3.3 Sample Size and Sampling Techniques

"The sampling technique offers a range of techniques that assist a researcher to minimize the quantity of data needed to collect by way of thinking about only data from a sub-group as a substitute than all feasible cases" Saunders et al (1997). Though the population for the study consists of all the manufacturing firms in Ghana, six (6) of them are conveniently sampled from the population with observation from 2009-2019. Specifically, manufacturing companies such as Fanmilk, Guinness Ghana Breweries, Cocoa Processing Company, PZ Cussons Ghana, Benso Oil Palm Plantation, and Unilever Ghana.

3.4 Sources of Data Collection Procedure

The study uses a secondary source of data in carrying out the research. Secondary data is one type of quantitative data that has already been collected by someone else for a different purpose. For example, this could mean using data collected by a bank on its performance or customers. The annual reports from 2009 to 2019 (11years) financial years are considered. The variables are extracted from the annual financial statement.

3.5 Data Analysis Techniques

This study employs Econometric View Software, popularly known as E-Views. Before data is analyzed, the data goes through a series of robustness which includes; stationarity and multicollinearity, and the Hausman Test. The Hausman test is run to establish the appropriateness of the three main tests namely, the pooled OLS regression model, fixed effect regression model, and random effect regression model.

3.6 Description of Variables

Table 1: Description of Variables and Expected Signs

Category	Variable	Expected Sign
Dependent	Return on Asset (ROA)	
Independent	Internal Determinants ▪ Account Receivables (AR) ▪ Account Payables (AP) ▪ Inventory (INV) ▪ Cash Conversion Cycle (CCC) External Determinants ▪ Firm Size (Fsiz) ▪ Sales Growth	(±) (±) (±) (±) (±) (±)

Source (Researcher's Construction)

3.6.1 Dependent Variables

"The majority of previous profitability research often used two primary proxies to calculate profitability, ROA and ROE, concerning dependent variables" Athanasoglou et al. (2018); Garcia & Guerreiro (2016); Naeem et al., (2017); Tabash, (2018). This study, however, uses ROA as a proxy for manufacturing firms' profitability. The ROA is calculated as the percentage ratio of net profits to total assets. It represents the capacity of a company's management to produce income from the company's holding properties. "It shows the income earned per GH of assets and shows how well the assets of the company are used to generate sales" Dietrich & Wanzenried (2014).

"In literature, it is the most common indicator of company profitability" Golin (2015). Better efficiency is seen by the greater value of ROA.

$$\textbf{ROA} = \frac{\textbf{Operating Profit before Interest \& Tax}}{\textbf{Total Asset}} \textbf{ X 100\%}$$

3.6.2 Independent Variables

Average Collection Period

This component calculates the average number of days normally taken to make payments by consumers who owe a company. It is assumed that higher profits benefit from a long time of accumulation of account receivables or longer credit terms provided by the company, and more sales earn the company more profitable.

A long time between the selling and recovery of invoice receivables, on the other hand, requires a higher commitment in current assets that are perceived as unused capital and have their own cost of opportunity. Weetman (2016) demonstrates that a corporation is causing cash flow issues is as a result of improvement in this metric, while an effort to shorten the permissible credit period might attract consumers and encourage them to search for a rival that has a longer credit period. The average collection period for trade receivables is determined:

$$\frac{\textbf{Average Trade Receivables}}{\textbf{Credit sales}} \textbf{ X 365}$$

Average Payment Period

This percentage denotes the number of days it takes for a business to pay off credit transactions. It calculates the total period of credit received from goods and services suppliers. There is a time between the purchase and payment of goods, Arnold (2008). If the corporation is unable to pay its account payables on time, it demonstrates to the public that the company has a financial crisis and could go bankrupt, resulting in its goodwill being destroyed and the value of its stock going down. So in a manner that does not cause any trouble for it, the organization must handle the day's account payables. For a company, a shorter span of day's invoice payables may be advantageous because it has some savings associated with it but at the same time, it can push a corporation to shorten the collection cycle and can cause profits to decline. So when

agreeing on the length of the day's account payables, firms have to be very cautious. “For the researcher, a company should have a larger duration of payment period than the collection period” Atrill (2009). Atrill (2009) gives the average payout period as:

Average Trade Payables X 365
Credit purchase

Inventory Turnover of Days

The days of inventory turnover calculate the average time over which stocks of products are kept until they are sold or used in the firm's activities. It also relies on the approach followed by an organization towards WC. An active working capital program has a low cost of inventory and a few days on which inventory is kept. One point of view says that the cheaper it is for the consumer, the shorter the time for retaining inventory. "The opposite point of view is that too short a period can create a higher risk of finding that a stock item is short for the company" Weetman, (2006). Inventory Turnover days is given by Atrill (2009) as;

Average Inventories Held X 365
Cost of sales

Cash Conversion Cycle

This represents the amount of time a business needs to turn its funds into cash flows. CCC is determined by summing the receivable days of accounts and the days of inventory minus the days payable accounts. The longer cash conversion cycle is associated with defensive working capital policies and the shorter cash conversion cycle is consistent with aggressive working capital policies (Arnold 2008). The cash conversion cycle is hence given in an equation as:

Cash Conversion Cycle (CCC) = Inventory Turnover Days + Average Collection Period - Average Payment Period.

3.6.3 Control Variables

3.6.3.1 Firm Size

A control variable such as the size of the corporation is calculated by the natural logarithm of total assets. This variable is covered in the regression as a proxy of size to address the feasible cost advantages related to size (economies of scale). In the literature, combined relationships are located between size and profitability, while in some instances a U-shaped relationship is observed. Firm size is additionally used to manipulate for cost variations associated with firm size and for the larger ability of large companies to diversify. In essence, company size might also have a positive effect on a manufacturing company's profitability if there are full-size economies of scale. On the other hand, if expanded diversification leads to higher risks, the variable can also showcase negative effects.

3.6.3.2 Sales Growth

This ratio is fairly simple and reflects an increase or reduction in annual revenue calculated as a percentage. The positive effect of revenue growth on output evaluation is believed in this report. Control component is added as the growth of the company's revenue. Sales Growth is determined by the following:

$$\frac{\text{Current Sales} - \text{Previous Sales}}{\text{Previous Sales}}$$

3.7 Diagnostic Test

Diagnostic tests are performed to check whether the dataset achieved all the necessary assumptions of the regression analysis. The tests this study to be performed are; correlation matrix test, and correlated random effects - Hausman Test. This Hausman test is used to select between the fixed effects model and the random effect model.

3.8 Panel Data Analysis

Panel data is used for this analysis because of its numerous benefits. “Thus, panel data, where the same companies (n) are studied over several years (t) has the potential to offer a more accurate version than cross-section evaluations, which are based on just one year of observation” Smith et al., (2006). The improvement in the number of measurements based on (n x t) tends to boost the reliability of the estimators, since the greater the sample size, the smaller the bias found in the estimates. Furthermore, the use of panel data allows to minimize the multi-collinearity issue posed by time-series studies.

“Again the panel offers more insightful results, more variability, less collinearity between variables, more independence and performance” Hsiao (2003). Moulton (1987) “states that time-series and cross-section analyses do not monitor human variation and run the risk of a bias”. In this regard, the Analytical Framework for Panel Data distinguishes between residual variation correlated with shifts over time (period effects) and across companies (group effects). A variety of techniques may be used to approximate the specific model of panel data based on the behavior of the error word. As already suggested, the analysis focuses on a pooled OLS.

3.8.1 Pooled Regression Model

The Pool Regression Model concerns with aggregating all observations together and performing the regression model as used by Nazir and Afza (2009), Zariyawati et al. (2008), Samiloglu, and Demirgunes (2008), and Garcia-Teruel and Martinez-Solano (2007). The following OLS regression equations were used to obtain the estimates:

$ROA_{it} = \beta_0 + \beta_1 GROWTH_{it} + \beta_2 SIZE_{it} + \beta_3 INV_{it} + e_{it}$……..(1)

$ROA_{it} = \beta_0 + \beta_1 GROWTH_{it} + \beta_2 SIZE_{it} + \beta_3 AR_{it} + e_{it}$……... (2)

$ROA_{it} = \beta_0 + \beta_1 GROWTH_{it} + \beta_2 SIZE_{it} + \beta_3 AP_{it} + e_{it}$……... (3)

$ROA_{it} = \beta_0 + \beta_1 GROWTH_{it} + \beta_2 SIZE_{it} + \beta_3 CCC_{it} + e_{it}$……..(4)

Where

ROA= return on asset

AR=account receivables

AP= Account Payables

INV=inventory

CCC=cash conversion cycle

SIZE=firm size

GROWTH=Sales Growth

ε = error term, i & t represent cross-section unit and at time t respectively, and β represents the coefficient of the variables.

3.9 Justification of the Model

Generally, the OLS method of estimation is used because of its possibility to capture not only the variation of what emerges through time or space but also the variation of those two dimensions simultaneously. “This is because instead of testing a cross-section model for all firms understudy at one point in time or testing a time series model for one firm using time series data, a pooled model is tested for all firm years through time” Podestà (2002).

3.10 Ethical Consideration

The main ethical issue involved in this study is to use the data obtained for academic purposes only.

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION, AND DISCUSSION

4.1 Introduction

This chapter presents the data analysis, presentation, and discussion of the study. The study employs regression analysis to explain the relationship between the WCM components and the firm profitability of the study. The chapter begins with the descriptive statistics of the variables under study.

4.2 Descriptive Statistics

The descriptive statistics of six (6) firms listed on the Ghana stock exchange for the 2009-2019 financial years as seen in Table 1 below and there were a total of 66 observations. The ROA has an estimated value of -30.84% (0.3084) of the total assets and a standard deviation of 1.586, and the company's highest and minimum values are 0.3986 and -8.4347 per year, respectively. 51.33 days and a standard deviation of 46.77 days is the mean value of the average receivables. For the same reason, a corporation uses a minimum of 1.98 days to obtain receivables and a maximum duration of 213.96 days. However, it takes the businesses an average of 213.87 days and a standard deviation of 351.68 days for their debt to be paid off. The company uses a minimum of 16.15 days and a maximum of 1719.82 days to pay its creditors. With a standard deviation of 47.79 days, inventories are sold at an average of 93.39 days. There is a comparatively high maximum period of 256.7 days required by a business to turn inventory into revenue and a minimum period of 30.44 days for the same purpose. On average, the cash conversion cycle used as a proxy to validate the performance of working capital management was -69.15 days and the standard deviation was 317.15 days. Here the minimum value was -1481.85 days and the highest value was 225.18 days for this purpose. The natural logarithm of total assets was used as a control variable to verify the firm size and its association with

profitability. The mean size value was 14.16, while 3.19 was the standard deviation. The minimum size value for an organization in a year was 10.00 and the maximum was 19.13. Also, Sales Growth was used as one of the control variables with a mean value of 0.16 and a standard deviation of 0.30. The maximum sales growth rate was 91.58% (0.9158) whiles the minimum was -87.99% (-0.8799).

Table 2 Descriptive Statistics

Variables	Observations	Mean	Std. Dev.	Median	Maximum	Minimum
ROA	66	-0.308395	1.586214	0.103011	0.398638	-8.4347
AR	66	51.3292	46.76505	33.225	213.9639	1.975397
INV	66	93.3896	47.78626	79.14	256.7	30.44
AP	66	213.8691	351.6785	104.435	1719.822	16.15
CCC	66	-69.15033	317.1456	11.65766	225.1842	-1481.845
LSIZE	66	14.15692	3.191713	12.73788	19.12584	10.00604
GROWTH	66	0.115229	0.303155	0.116254	0.91575	-0.879988

Source: EViews output.
Notes: ROA-return on assets; AR-number of days accounts receivables; INV-number of days inventory; AP-number of
days accounts payable; CCC-cash conversion cycle; SIZE-natural logarithm of assets; GROWTH-sales growth.

4.3 Correlation Analysis

For data analysis, the correlation matrix analysis was used to establish and check the significance of the model. For all factors under review, Table 4.2 below describes the correlation matrix coefficients. The investigator began evaluating the effects of the association between average receivables (AR) and return on assets (ROA). A negative coefficient of -0.3271 is indicated from the findings of the correlation study. This is equivalent to other factors that also display a negative coefficient of -0.4629, -0.5018, and -0.4335 along with inventory kept (IH), average payables (AP), and size. The variables predictor displaying a positive

coefficient of return on assets are cash conversion cycle and sales growth with coefficients of 0.4385 and 0.3998 respectively. The coefficients of correlation cannot cause the multicollinearity problem in the regressions.

Table 3 Correlation matrix for the dependent and independent variables

	ROA	AR	INV	AP	CCC	SIZE	GROWTH
ROA	1	-0.327108	-0.462985	-0.501816**	0.438462	-0.433531	0.399794*
AR	-0.327108	1	0.482933*	0.504451**	-0.339157	0.726397**	-0.321178
INV	-0.462985	0.482933*	1	0.390728*	-0.211385	0.749362**	-0.199015
AP	-0.501816**	0.504451**	0.390728*	1	-0.975629	0.560723	-0.17497
CCC	0.438462	-0.339157	-0.211385	-0.975629	1	-0.401755	0.116***
LSIZE	-0.433531	0.726397**	0.749362**	0.560723	-0.401755	1	-0.165035
GROWTH	0.399794*	-0.321178	-0.199015	-0.17497	0.116***	-0.165035	1

Source: EViews output. **Note:** ***, **, and * represent significance at 1%, 5% and 10% respectively

Notes: ROA-return on assets; AR-number of days accounts receivables; INV-number of days inventory; AP-number of days accounts payable; CCC-cash conversion cycle; SIZE-natural logarithm of assets; GROWTH-sales growth.

4.4 Research Model Results

In assessing the effect of working capital management on the profitability of listed manufacturing firms in Ghana, the researcher run a pooled OLS model for the variables as indicated below.

Working capital metrics are the average payables (AP), average receivables (AR), inventory kept (IH), and cash conversion cycle (CCC), while size is the control variable throughout the

regression models. For each of the predicted regression coefficients, the t values and their corresponding p-values measure the significance. A meaningful coefficient means that in describing the changes in the dependent variable, the attached independent variable largely adds to the importance of the overall regression model.

Tables 3 to 6 present the results obtained after regressing equation (1), (2), (3), and (4) was run.

Table 4. Summary of Pooled OLS Regression Result of Equation (1) for the Period 2009–19

Parameters	SIZE	GROWTH	INV
Coefficient	0.060792	1.578022	-0.007477
Std. Error	0.317212	0.50782	0.005643
t-Statistic	0.191644	3.107441	-1.325123
Prob. Significance	0.8487	0.0029	0.1904
R-squared	0.516568		
Adjusted R-squared	0.448718		
F-statistic	7.613382		
Prob(F-statistic)	0.000001		

Source: EViews output.

Table 5. Summary of Pooled OLS Regression Result of Equation (2) for the Period 2009–19

Parameters	SIZE	GROWTH	AR
Coefficient	0.078823	1.902419	0.00619
Std. Error	0.318089	0.525212	0.005517
t-Statistic	0.247802	3.622191	1.122039
Prob. Significance	0.8052	0.0006	0.2666
R-squared	0.512444		
Adjusted R-squared	0.444016		
F-statistic	7.488719		
Prob(F-statistic)	0.000001		

Source: EViews output.

Table 6. Summary of Pooled OLS Regression Result of Equation (3) for the Period 2009–19

Parameters	SIZE	GROWTH	AP
Coefficient	0.176829	1.730897	0.000144
Std. Error	0.314936	0.507866	0.000685
t-Statistic	0.561475	3.408178	0.209497
Prob. Significance	0.5767	0.0012	0.8348
R-squared	0.502059		
Adjusted R-squared	0.432173		
F-statistic	7.183927		
Prob(F-statistic)	0.000002		

Source: EViews output.

Table 7. Summary of Pooled OLS Regression Result of Equation (4) for the Period 2009–19

Parameters	SIZE	GROWTH	CCC
Coefficient	0.177184	1.724148	-0.000149
Std. Error	0.31474	0.504843	0.000666
t-Statistic	0.562954	3.415214	-0.223054
Prob. Significance	0.5757	0.0012	0.8243
R-squared	0.50211		
Adjusted R-squared	0.432231		
F-statistic	7.185398		
Prob(F-statistic)	0.000002		

Source: EViews output.

Firm Profitability and Number of Days Inventory

Table 3 displays the regression equation description statistics (1). The inventory has a negative relationship with the dependent variable, while the control variables indicate a positive relationship for the regression analysis. The regression coefficient of the number of days of inventory (INV) was found to be negative (–0.007) with a p-value of 0.1904, the standard error of 0.0056, and the t-statistics of-1.325. This means that a rise in the number of inventory days by one day is correlated with a reduction in profitability (as calculated by the return on assets) of 0.007 percent. The company's performance is smaller according to the principle of corporate finance than the number of inventory keeping days. This means a reduction of inventory days kept in the business that will enhance the performance of the firm. The findings of this analysis were in line with Akomeah, J., and Frimpong, S., 2019, as the results of his study revealed a strong negative relationship between business profitability and the conversion period for inventory and the collection period for receivables. The risk-return theory proves that there are risks involved in holding inventory. Thus, excess inventory is associated with high storage and carrying costs which may harm profitability. However, when there is low inventory, there is limited suppliers and interrupted production which could manipulate the firm’s profit.

Firm Profitability and Number of Days Accounts Receivables

For the duration between 2009 and 2019 Table 4 provides the outcome of the regression equation (2). A positive significant link exists between profitability and the number of days of accounts receivable, as well as the size and growth of the control variables. If the number of days of accounts due is lowered in Corporate Finance philosophy, the performance of the business will rise more. The coefficient value of the number of days of account receivables (AR), by chosen manufacturing firms, indicates an increase of 0.0062 percent in the number of days of the accounts receivable by a day.

This conflicts with the philosophy of effective working capital management. The findings are substantially different from the ones carried out by Garcia-Teruel and Martinez-Solano, Deloof, (2003), Lazaridis and Tryfonidis (2006), Raheman and Nasr (2007). "This shows that in selected manufacturing companies listed on the Ghana Stock Exchange, managers can significantly boost profit through the raising of credit term given to their clients." As account receivables are short-term resources of a firm, it is always important to manage them well as the resource-based theory suggests.

Firm Profitability and Number of Days Accounts Payables

Table 5 displays the regression equation (3) analysis. Positive coefficients suggest a positive association with firm profitability in the number of days a firm is required to pay its suppliers (creditors). It exhibits a positive 0.00014 coefficient with a 0.83 p-value, 0.8348 standard error and 0.209 t-statistics. In contrast to less profitable, more profitable businesses are paying their creditors, thereby affecting the company's profitability. The regression results show a positive relationship between days of accounts payables (AP) and firm profitability as measured by return on assets. The implication of this report is in contradiction by Pakdel, M. and Ashrafi,

M., (2019) as its findings have also demonstrated that there is a negative statistical significance between profitability and the length of days it takes for businesses to pay off their debt. A small firm's profitability may be compromised when it seeks to settle creditors on time. This is supported by the risk-return theory.

Firm Profitability and Cash Conversion Cycle

In the relationship between profitability and the cash conversion period, the total influence of all three variables used in (1, (2), and (3) has been evaluated. It was shown that a reduction in the cash conversion cycle will lead to higher profitability for a company that complies with the assumption, that a lower CCC would generate more profits for the company. The coefficient value of CCC was observed negative (-0.00015) and t-Statistics of -0.223. Theoretically, cutting the cash conversion time adds to the company's profitability, because a longer cash conversion cycle adversely affects the company's profitability. It can be argued that the control variables have a positive statistical impact on performance. The results agree with the Tauringana and Afrifa (2013) studies as the CCC was insignificantly correlated with profitability. Operations and Cash Conversion Cycle (CCC) Theory shows that a firm needs to take a critical look at the elements of WCM because the profitability of the firm is affected by it.

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION, AND RECOMMENDATIONS

5.1 Introduction

This chapter includes the research summary and conclusion, as well as the study recommendation.

5.2 Summary of Findings

The control of working capital is an integral factor of financial management and its major position is to fit asset and liability actions over time. The analysis focused on the effects of the WCM on the sustainability of the organization, with a unique emphasis on some manufacturing organizations listed on the GSE. The study explores the correlation between the return on asset and variables in the management of working capital.

The analysis used multiple regression models of pooled OLS between WCM and profitability. The study showed a negative relationship between profitability and the number of days of inventory(IT), but a favorable relationship between profitability and the number of days of accounts receivable(ACP) and the number of days of accounts payable(APP). Concerning the integrated review of the number of days of accounts receivable, the days of inventory, and the days of accounts receivable as determined by the cash conversion duration(CCC), our research reveals different findings relative to several studies performed in different countries in the past as it shows a negative association with profitability.

The cash conversion cycle which was found to have a negative and significant relationship with return on asset is inversely related such that the longer the cash conversion cycles the lesser the profitability (return on asset).

5.3 Conclusion

The WCM and profitability demonstrate a negative association [as calculated by the cash conversion period, a detailed indicator of working capital] as shown by the theoretical base. The current study showed that the reduction of the cash conversion period has a positive impact on the profitability of Indian firms.

The study concludes that industrial companies should consider reducing the cash conversion time and total inventory turnover days. Manufacturers ought to consider discussing better rates of service with their suppliers and shortened days to recover their debts.

5.4 Recommendations

The following recommendations can be made from the study; First, manufacturing companies should adopt measures to ensure that to increase their profitability rate, the number of days of account receivables is be shortened. Second, to be creditworthy, manufacturing companies should aim to pay their debt obligations on time, while avoiding sending bad signals to the market that can impact their operations. This can be achieved by ensuring that the companies have sufficient liquid assets that can be turned to cash when the need arises. Finally, managers can produce income for their firms using the cash conversion cycle efficiently and maintaining the equilibrium of each different variable (accounts receivable, accounts payable, inventory).

5.4.1 Recommendation for further studies

To examine the relationship between the management of working capital and the profitability of the firm, more research using other profitability metrics should be carried out.

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