

UNIVERSITY OF CAPE COAST

WORKING CAPITAL MANAGEMENT AND FIRM PERFORMANCE IN
GHANA

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GHANA

BY

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DECLARATION

Candidate's Declaration

I hereby declare that this dissertation is as a result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature Date

Name:

Supervisor's Declaration

I hereby declare that the preparation and presentation of the dissertation were supervised in accordance with the guidelines on supervision of dissertation laid down by the University of Cape Coast.

Supervisor's Signature Date

Name:

ABSTRACT

Working Capital Management is necessary to achieve success in the operation of businesses as a result of its important effect on profitability and liquidity. The purpose of this study is to examine the impact of the various components of working capital management on firm profitability of non-financial firms in Ghana during the period 2005-2015. Previous studies on working capital in Ghana examined the relationship between working capital management and profitability for only one industry (out of nine industries) for less than six years. This paper used secondary data collected from 21 non-financial firms in Ghana covering the period from 2005-2015. Using Pearson's correlation and regression analysis, the significant result of the study was that, profitability of non-financial firms in Ghana as measured by return on asset is influenced by firm age, current ratio and firm growth. These results imply that firms which hold adequate current assets will be able to kickoff their current liabilities leading to increase in profitability. Also, firms that have advanced in years of experience can adopt appropriate strategies to make them achieve higher profitability. Moreover, the ability to obtain an alternative or external source of funding can increase a firm's profitability. Besides, the study recommended that proper management of working capital by managers could ensure that firms survive since it enables firms to overcome liquidity crisis and boost their profitability. Non-financial firms in Ghana can explore the opportunities of increasing profitability through their firm age, firm growth and current ratio. Therefore, a prudent working capital policy by managers of firms is crucial.

KEY WORDS

Working capital management

Firm profitability

Non-financial firms

Cash conversion cycle

Current ratio

Firm age

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DEDICATION

To my children: George, Joseph, Emmanuel, Janet and Keziah and to the
memory of my late husband, Kennedy.

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LIST OF ACRONYMS

Age	Firm Age
APP	Average Payable Period
ARP	Average Receivable Period
CCC	Cash Conversion Cycle
CLTA	Current Liabilities
CR	Current Ratio
DR	Debit Ratio
FATA	Fixed Financial Ratio
GSE	Ghana Stock Exchange
ICP	Inventory Conversion Period
INV	Inventory
LEV	Leverage
LOG	Logarithm
NSCA	Net working Capital Turnover Ratio
OLS	Ordinary Least Square
ROA	Return on Asset
Size	Firm Size
SMEs	Small and Medium Size Enterprises
WCM	Working Capital Management
WLS	Weighted Least Squares

CHAPTER ONE

INTRODUCTION

Background of the study

Working capital management enables firms to produce great returns for their stakeholders. Notwithstanding its relevance, it has not attracted desired attention of practitioners and researchers (especially in Ghana). In instances where there exist improper management of working capital, allocating more than enough of it will render management non-efficient leading to reduction in the benefits of short term investments. On the contrary, keeping an inadequate level of working capital can lead to a firm losing so many profitable investment prospects or suffering from short term liquidity crisis. Under such circumstances, the firms may not be able to effectively respond to temporary capital requirements which can lead to ruin of the firms credit (Chemis, 2015).

For improved profitability of firms, working capital is key. By making the trade-off between profitability and liquidity, firms can achieve optimal management of working capital. The objective of working capital management is to stimulate a sustainable liquidity, profitability and shareholders' worth (Makori & Jagongo, 2013). An efficiently managed working capital stimulates a firm's wellbeing on the market in terms of liquidity. This also leads to growth of shareholders' value (Jeng-Ren, Li & Han-Wen, 2006).

Statement of the Problem

Although there are numerous studies on the subject (that is, working capital management and firm profitability) at the global level, there are very

few studies done domestically with respect to non-financial firms in Ghana. Research works undertaken in Ghana concentrated on either banks or manufacturing firms (with a sample of not more than seven companies against five years) which constitute only two of the nine categories of industries listed on the Ghana Stock Exchange. For example, Yeboah and Yeboah (2017) investigated whether working capital management of Ghanaian banks is associated with greater profitability. Akoto, Awunyo-Vitor and Angmor (2013) also investigated how profitable manufacturing firms manage their working capital in Ghana. The focus on working capital management is due to the fact that a lot of businesses (specifically in Ghana) have failed recently as a result of their inability to properly control current assets and current liabilities. Seeing the importance of working capital management, the researcher focused on analyzing relationship between working capital management and profitability.

Listed firms were considered in this study as a result of the fact that, since they are firms operating under strict corporate governance regulations, their financial and accounting disclosures are largely reliable. In this study, the sample of the population is broadened to include seven (7) categories of firms (with a sample of twenty-one companies for ten years) to enable the recommendations to be adopted or generalized by those categories of firms.

Purpose of the Study

This study sought to examine the relationship between the components of working capital management and profitability of non-financial firms in Ghana during the period 2005-2015.

The specific objectives of the study were:

1. To ascertain whether there is a significant relationship between average receivable period (ARP) and profitability of non-financial firms in Ghana.
2. To establish whether there is a significant relationship between inventory conversion period (ICP) and profitability of non-financial firms in Ghana.
3. To determine if there is a significant relationship between average payment period (APP) and profitability of non-financial firms in Ghana.
4. To determine if there is a significant relationship between cash conversion cycle (CCC) and profitability of non-financial firms in Ghana.
5. To test the impact of cash conversion cycle on profitability.
6. To test the impact of average payable period on profitability.
7. To test the impact of average receivable period on profitability.
8. To test the impact of inventory conversion period on profitability.

Research Questions

- i. What is the relationship between average receivable period (ARP) and profitability of non-financial firms in Ghana?
- ii. What is the relationship between inventory conversion period (ICP) and profitability of non-financial firms in Ghana?
- iii. What is the relationship between average payment period (APP) and profitability of non-financial firms in Ghana?
- iv. What is the relationship between cash conversion cycle (CCC) and profitability of non-financial firms in Ghana?
- v. What is the impact of cash conversion cycle on profitability?
- vi. What is the impact of average payable period on profitability?
- vii. What is the impact of average receivable period on profitability?

viii. What is the impact of inventory conversion period on profitability?

Significance of the Study

This paper contributed to working capital management works by offering evidence that firm age and firm growth, control variables, which have not been given much attention in research works in working capital management-profitability relationship, were significant.

Delimitation

My study excluded financial firms. This was done so that results of my findings could be generalized to non-financial firms in Ghana. The study concentrated on non-financial firms because financial firms have different composition of working capital. If the different compositions of working capital management of financial firms were mixed up with that of non-financial firms might lead to misleading results. The findings of the study may not be generalizable to all publicly traded firms.

Limitations

Limitations are barriers that might forbid researchers from acquiring representative data and generalizable findings. Limitations serve as precautions on the extent to which the readers can generalize the findings (Leedy & Ormrod, 2012).

My study employed panel data. Limitations of panel data design include the requirement of a large sample size, the risk of gathering data that is not hundred percent reliable as well as the huge amount of time needed to collect all the needed data.

Organisation of the Study

My study was structured as follows: Chapter one introduced the background, problem statement and objectives of the study; Chapter two discussed the literature review; the research questions, data and model were developed in Chapter three; Chapter four discussed the empirical results and Chapter five presented the conclusions and recommendations.

CHAPTER TWO

LITERATURE REVIEW

Introduction

The concept of working capital management reports companies' handling of their short-term capital and the goal of the management of working capital is to promote a satisfying liquidity, profitability and shareholders' value. Working Capital management has not been a major focus in business until recent decades (Makori and Jagongo, 2013).

Theoretical review of literature

The foundation for useful research is a thorough review of the literature of the subject matter (Turner et al., 2013). Allwood (2012) declared that a thorough examination of the literature enables researchers to develop appropriate research questions and strategies. The purpose of this study was to examine the relationship between the components of working capital management and profitability of non-financial firms in Ghana.

The cash conversion cycle guided the conceptualization, examination and operationalization of the research constructs and was the theoretical framework of this study. The main topics of review were working capital management and firm profitability. The study reviewed literature from online research databases and local libraries. Journal articles, seminal books and dissertations. The electronic databases included Emerald Management Journal. The study also used the Google Scholar search engine to locate journals and dissertations.

The theoretical review covered seven topics. The first two topics included the review of prior studies on the primary and rival theoretical

frameworks of this research. The third topic covered an analysis of the literature on the independent variables (working capital management). The fourth topic, which includes the literature on the dependent variable, provided insights on the theoretical conceptualization of the construct of profitability. The fifth topic covered the interrelationship among the various working capital management components. The seventh topic covered efficient and effective working capital management. The sixth topic covered the relevance and relationship between working capital management (assets and liability) and profitability.

Theoretical framework

A theoretical framework gives the environment for conducting research and interpreting results (Turner, Balmer & Coverdale, 2013). Cash conversion cycle (CCC) was the theoretical framework of this study. Richards and Laughlin (1980) formulated the CCC into a comprehensive model in 1980 even though Gitman (1974) introduced CCC as a concept. The CCC demonstrates the relationship between working capital management (WCM) and firm profitability, setting boundaries for the study. The CCC is a working capital measure that sets the time to convert a dollar of cash outflow back into a dollar of cash inflow (Richards & Laughlin, 1980). The CCC is the sum of accounts receivable period (ARP) and inventory conversion period (ICP) and then minus accounts payable period (APP).

An efficient working capital management could generate a shorter CCC, leading to higher profitability (Richard & Laughlin, 1980). CCC focuses on optimizing working capital management components. Sabri (2012) pointed out that firms could reduce the CCC and improve firm profitability by

following the right working capital policies. In this study CCC provided a coherent theoretical explanation of the relationship between the research variables.

Assumptions

Assumptions lay out essential information about the research methodology, design, conclusions, findings, and scope of the study. Leedy and Ormrod (2012) stated that assumption is a critical component of a viable research proposal. Assumptions assist to identify and understand unconfirmed facts that researchers view true without verification (Allwood, 2012). Assumptions are research issues that accept in faith without verification or researchers take for granted (Tabachnick & Fidell, 2013).

Leedy and Ormrod (2012) stated that assumptions are statements that help to reduce doubts with respect to the reliability and validity of the study. This study relied on three sets of assumptions about (a) research methodology, (b) the nature of data, and (c) significance of the study. The choice of research methodology and design included three assumptions. To start with, the theoretical framework, the CCC, was a true expression of the working capital management. Second, all the variables under research could be measured. Third, the independent variables did not have direct connections, and the dependent variable was not a collection of other independent variables. Lastly, the study assumed that the statistical analysis and the sample size were adequate to detect the magnitude and direction of the relationship between the variables if they exist in the population.

The next set of assumptions relates to the nature of the data. The study assumed that the data provided a valid and reliable metrics to measure all the

variables under investigation (Tasic & Feruh, 2012). It also assumed that the data met the assumption of normal distribution (Johnston, 2014). Thirdly, the study assumed that, the official financial statements complied with the generally accepted accounting principles (GAAP). The last assumption was that the financial reports contained all the measures to enable the constructs of profitability and working capital management to be operationalized.

The third assumption was about the significance of the study. The study assumed the findings of the study would be useful to firms, financial analysts, investors, creditors, and other stakeholders (Katchova & Enlow, 2013).

The cash conversion cycle (CCC) approach to working capital

Academic and professional review of literature showed that scholars did not completely synthesize their analyses of the relationship between aspects of working capital and profitability into a coherent theory (Falope & Ajilore, 2009). Nevertheless, the literature displayed coherence in the use of guiding concepts such as the operating cycle, static view, and cash conversion cycle. These concepts represent what Falope and Ajilore (2009) labeled as alternative working capital theoretical frameworks. CCC, the main theoretical framework of this study originated by Gitman in 1974 and further formulated by Richards and Laughlin in 1980. Gitman (1974) introduced the cash cycle.

The cash cycle is the number of days between obtaining inventory and collecting account receivables. By subtracting the number of days in account payables to get the CCC, Richards and Laughlin (1980) adjusted the cash cycle. The CCC is a dynamic measure of ongoing liquidity management that combines data from the balance sheet and income statement to make a time

dimension measurement (Jose, Lancaster, & Stevens, 1996; Muscettola, 2014). Shin and Soenen (1998) expressed that the CCC begins with the payment for raw materials and moves through the transformation process to the collection of outstanding credits sales. Mathuva (2014) recognized that the CCC is a dynamic theory in describing the effect of working capital on firm performance. Yazdanfar and Öhman (2014) argued that improvement of the CCC affects profitability and cash flow and influences the quantum of external finance needed for running day-to-day operations. The next section covers the key constructs and assumptions of the CCC.

The CCC constructs

The CCC composes the constructs of working capital management. The CCC is the sum of the inventory conversion period (ICP) and accounts receivable period (ARP) and minus accounts payable period (APP). An efficient working capital management can generate a shorter CCC, which leading to higher profitability. Firms with a shorter CCC convert their current assets into cash quickly and settle their current liabilities in time (Richard & Laughlin, 1980).

The CCC assumptions

The CCC relies on four assumptions. First, firms can improve profitability by reducing the CCC through efficient management of ARP, ICP, and APP (Bei & Wijewardana, 2012). Managers could also optimize the CCC by adopting aggressive or conservative working capital policies (WCP) that meets the firm's operational and market requirements (Weinraub & Visscher, 1998).

The second assumption is that, there is an optimal level of working capital management for firms. A longer or shorter than optimal CCC may reflect the ability or inability of business leaders to convert cash outflows into cash inflows quickly (Richards & Laughlin, 1980). The length of the cycle may also show the ability or inability of business leaders to formulate and implement appropriate policies (Weinraub & Visscher, 1998).

The static view of working capital

Basically, financial analysts use short-term liquidity measures such as the current or quick ratios to evaluate a firm's liquidity position (Jose, Lancaster & Stevens, 1996). Such ratios assess firms' ability to satisfy their obligations in the event of liquidation. They reflect only the balance sheet structure at a given point in time for determining short-term borrowing capacity (Richards & Laughlin, 1980). Bolek and Wolski (2012) recognized that these measures do not allow investors and lenders to distinguish between different liquidity sources. Bolek and Wolski also concluded that because these measures show only the firm's liquid assets for the immediate past period, they do not allow an estimate of future cash flow patterns.

According to Jose et al. (1996) these measures do not show the accurate and complete picture of firms' liquidity position because the measures exclude inventory from liquidity analysis. The static measures do not provide information about the causes of changes in the working capital cycle over time (Falope & Ajilore, 2009; Richard & Laughlin, 1980). Static measures do not produce finding on whether changes in cash flows are associated with performance changes (Kroes and Manikas (2014).

The operating cycle theory of working capital

The length of time between the cash outflow for the purchase of Input resources and the cash inflow from sales represents operating cycle (Richards & Laughlin, 1980). The operating cycle theory incorporates accounts receivable and inventories into working capital (Shin & Seonen, 1998). The operating cycle theory combines balance sheet and income statement measures unlike the static view, which focused on only balance sheet activities, (Richard & Laughlin, 1980). This theory allows researchers to consider firms as going concerns (Falope & Ajilore, 2009).

Unlike the CCC, the operating cycle eliminates accounts payable from liquidity analysis. Due to this reason, the operating cycle does not give the net working capital cycle (Richards & Laughlin, 1980). The CCC is a dominant theoretical framework to explain the association between working capital management and firm performance (Talonpoika, Monto, Pirttila, M., & Kärri, T, 2014; Yazdanfa & Öhman, 2014).

Measures of working capital management

Optimization of the firm's cash, receivables, inventories, and payables in a manner that maximizes firm profitability is what working capital management stands for (Kaur & Singh, 2013). For the sake of uncertain happenings, companies must maintain an adequate level of cash to meet running expenses, as well as reduce the cost of holding cash (Mateut & Zanchetti, 2013). According to Gill and Biger (2013) excessive credit sales affect the company's cash flows. From the perspective of an inventory management, owners and managers must find an optimal level that balances

the costs and benefits of keeping large and small inventory (Shockley & Turner, 2014).

Construct measurement

When the variables of interest cannot be observed, rigorous construct measurement is critical for the advance of science (Santos & Brito, 2012). The lack of measurement accuracy affects the quality of quantitative studies and masks real relationships between variables (Venkatraman & Ramanajum, 1987). A review of the measurement variables for the constructs of working capital management and firm profitability is covered in the next section.

Measures of working capital management

A lot of studies conceptualized the working capital management construct as consisted of an account receivables period (ARP), inventory conversion period (ICP) and account payables period (APP) and the CCC. For higher profitability, firms must strive for a shorter ARP, ICP, and CCC, and a longer APP (Richard & Laughlin, 1980). However, the optimal time length is determined by many factors that are both internal and external to the firm (Molina & Preve, 2012).

The first measure of working capital measurement is ARP. Account receivable refers to the total unpaid trade credits that the company offered to its customers (Yano & Shiraishi, 2012). The ARP is the magnitude of average accounts receivable to sales multiplied by 365 days and expresses the average number of days firms expect to collect unpaid credit sales back from customers (Yazdanfa and Öhman (2014). While a shorter ARP shows the ability of the company to collect receivables quickly, a longer ARP reflects a slow rate of collection of outstanding sales. Molina and Preve (2012)

suggested that firms must find ways of minimizing the time-lapse between completion of sales and receipt of payments.

The second measure of working capital management is ICP. The stock of physical goods for eventual sale stands for inventory (Pong & Mitchell, 2012). The proportion of stocks to costs of goods sold multiplied by 365 days represents an inventory conversion period (Shockley & Turner, 2014). A longer ICP implies that firms keep inventory in stock for a longer period while a shorter ICP show a quick inventory conversion (Kaur & Singh, 2013). Inventory level should neither be too small to affect output or sales nor too high to tie the funds unnecessarily. A large inventory minimizes the adverse effects of price fluctuations and compensates for inefficient management (Pong & Mitchell, 2012). Nevertheless, excess inventory may lead to liquidity difficulty because of high inventory costs. On the other hand, Mathuva (2014) argued that a high level of stocks might contribute to profitability by minimizing the likelihood of stock outs and disruption in operations whereas a small level of inventory reduces inventory costs.

The third measure of working capital management is the APP. Accounts payable is the cheapest source of short-term financing (Marttonen, Monto, & Karri, 2013). Nevertheless, excessive liability may lead to insolvency (Mateut & Zanchetti, 2013). As such, working capital management centers on aligning current assets and liabilities to the unstable market and operational requirements. Kaur and Singh (2013) expressed that working capital management is probably one of the most central and least studied aspects of corporate finance. The APP is the ratio of average accounts payable to the cost of goods sold multiplied by 365 days. A longer APP permits firms

to get over short-term financing constraints and commit available resources to other commitments (Tauringana & Afrifa, 2013). Nevertheless, while a delay of payments to suppliers intensify cash flows; late payments can bring the probability of paying penalties and loss of creditworthiness (Talonpoika et al., 2014). Moreover, failure to meet short-term obligations will pass a negative signal to the market. Molina and Preve (2012) argued that a lengthy APP will directly affect the share price and relationship with creditors and suppliers. The optimal APP indicates the extent of control over payments and trade credits from suppliers (Kroes & Manikas, 2014). Gill and Biger (2013) suggested that firms need to pay creditors in time so as to maximize profit and maintain creditworthiness, but as slowly as possible without damaging the firm's credit rating.

The CCC is a composite or additional measure of working capital management and gives a broad explanation for inter-firm profit differentials (Richard & Laughlin, 1980). A longer CCC denotes that it takes more time for a firm to change over its cash outflows into cash inflows (Mathuva, 2014). A shorter CCC may improve firm performance because firms turn their accounts receivable and inventories speedily (Marttonen et al., 2013). With the restricted access to external capital to finance business operations, a shorter CCC plays a vital role in improving the profitability of small firms. A shorter CCC is a sign of the efficient utilization of the firm's working capital (Marttonen et al., 2013). Previous studies by Farris and Hutchison (2003), Shin and Soenen (1998) and Jose et al. (1996) made use of the CCC to clarify inter-firm differences in performance.

Profitability: the dependent variable

Firm performance is one of the most striking concepts in business studies due to the fact that, the study of firm performance focuses on why certain companies outperform their competitors (Butler, Martin, Perryman & Upson, 2012). Steigenberger (2014) declared that firm performance is an imprecise, elusive and abstract concept to apply in a technological rigorous way. Steigenberger acknowledged that firm performance serves as the ultimate dependent variable of interest in strategic management.

Boyd, Bergh, Ireland, and Ketchen (2013) declared that the key problem regarding the measurement of firm performance is a misfit between construct specification in theory and operationalization of the construct in empirical analysis. While firm profitability specifications require a broad understanding of firm success, empirical studies often centers on one or a few distinct aspects of firm performance. Venkatraman and Ramanujam (1987) conceptualized firm performance as a multidimensional construct concerning primary and secondary sources of measurement as well as objective and subjective measures.

Likewise, Butler et al. (2012) conceptualized firm performance as consisted of the dimensions of operational, financial and business performance. Butler et al. also stated that profitability measure focuses on outcome-based objective indicators making it the narrowest conceptualization of economic performance. In theory, studies of firm performance should include financial and non-financial measures as well as objective and subjective measures (Venkatraman & Ramanujam, 1987). In addition, non-financial measures could indicate organizational effectiveness and efficiency,

although they admitted that these measures lack consistency and objectivity. Santos and Brito (2012) stated that subjective operational measures could provide valuable insights when researchers combine them with objective measures. As a result of these concerns, Butler et al. (2012) suggested that researchers should choose the dimensions most suitable to their research and judge the results of their choice.

The conceptualization and operationalization of the dependent variable is dictated by the theoretical frameworks, research designs, and research questions dictate (Steigenberger, 2014). The theoretical framework for this study which is CCC calls for the use of profitability as a dependent variable (Kroes & Manikas, 2014). The dependent variable represented by profitability fits with the research question, methodology, design, and secondary data sources (Venkatraman & Ramanujam, 1987).

Measure of profitability

Given that firm profitability is a multifaceted construct, the selection of performance measures may affect the research results and interpretations (Deng & Smyth, 2013). The accounting measures include return on asset, gross operating profit, return on investment, return on equity and earnings per share (Santos & Brito, 2012). Return on asset (ROA), gross operating profit (GOP) and Tobin's q (TBQ) measure profitability from different perspectives (Santos & Brito, 2012). This study uses the accounting measure of ROA. Evidence of the use of this proxy to operationalize the construct of profitability is presented below. Banos-Caballero, Garcia-Teruel and Martinez-Solano (2012) demonstrated that the ROA correlates to stock price

and accordingly implies that higher ROA yields a greater value for shareholders.

Yazdanfa and Öhman (2014) declared that the ROA is a helpful measure of profitability for companies with capital-intensive operations. Abuzayed (2012) stated that ROA is especially crucial for manufacturing companies because the operating activities of these companies account for a larger portion of their assets.

Interrelationship among the various working capital management components

Fundamentally, working capital decisions are those that relate to current assets and current liabilities. Working capital assets is made up of cash, accounts receivable and inventories. These assets are short life span, normally does not surpass one year. It is important to note that, these important components are interrelated; that is, each component can be quickly transformed into another form of asset. For instance, inventories are transformed into accounts receivable when sold, cash is used to buy inventories and accounts receivable can be collected and reversed to its original cash form. Working capital liabilities include accounts payable, tax payable and the current obligation of long-term debt. Although all the working capital liabilities stated are relevant and fall within the domain of working capital, tax payable and current obligation of long-term debt were not presented in this study since decisions concerning these two components often go beyond the working capital manager's authority (Byrne, 1984).

The transfer and the interrelationship that takes place or exists between the forms of asset is known as the cash cycle. This cycle connotes that

working capital management involves frequent and repetitive decisions. As such the planning, managerial functions, controlling and implementing must be incorporated. Decisions regarding a specific asset cannot be taken without simultaneously considering the other components of working capital. The concept of cash cycle calls for a close interaction among the various working capital components. The relevance of each of the working capital management components as well as how they relate to profitability is explained individually (Byrne, 1984).

Relevance and relationship between Working capital Assets and profitability

Cash conversion cycle

In the day to day activities of people, cash is an asset that many individuals deal with. As such, an average person has some concept of the cash management process. In recent years, efficient cash management has become increasingly important as a result of the opportunity cost of holding excess cash balances. A firm profits more by holding cash in another form since cash is a non-earning asset. Inflation increases the opportunity cost of idle cash for two reasons. Inflation reduces the purchasing power of cash and in addition, inflation is reflected in interest rates. The difference between the earning and non-earning asset becomes greater when a higher interest rate is introduced into the picture, thus providing a higher return on marketable securities (Byrne, 1984).

Accounts receivable period

Accounts receivable is an asset that symbolizes an obligation of one firm to make payment to another. The management of accounts receivable

consists of collection and credit-granting activities. The shorter the accounts receivable period, the sooner the firm has the opportunity to reinvest the cash into an earning asset so as to make profit. Account receivable represents a cost to the granting company since it cannot utilize the asset until it is collected. Accounts receivable management revolves around what level of receivables is required in a firm. The effect accounts receivable has on sales and profitability needs to be incorporated in analysis so as to determine the optimal level of receivables. It is necessary to find out to what extent can time lag of credit increase sales or to what extent will the absence of credit reduce sales. The risk that accompanies receivables is relevant as reflected in delinquent accounts (Byrne, 1984).

Inventory conversion period

Decisions regarding the production of goods affect the investment in inventory. As the financial manager usually is not in charge of production or purchasing for the firm, it is difficult to implement financial analysis to such decisions. Based on capacity utilization, projected demand, availability of materials, etc such decisions are often made. These factors should not prevent the application of financial analysis; due to the fact that inventory involves allocation of financial resources. Financial analysis guides the determination of amount of inventory a firm should carry considering with respect to inventory costs, production cost, sales lost, lead time and demand rates (Byrne, 1984).

Relevance and relationship between Working capital liability and profitability

Accounts payable

Accounts payable is a method of financing that can be considered as a type of loan. For most firms, accounts payable is the most important current liability. It is a spontaneous source of short-term financing used to acquire materials and supplies. In terms of acceptance of trade credit, the most important consideration is the cost. Finance officers are often faced with the decision of choosing the optimal financing alternatives. Working capital decision making techniques is a very vital and popular discussion topic of corporate executives. Financial officers work tirelessly to improve their understanding of the relationship between working capital accounts (payable) and their importance in the firm's profitability (Byrne, 1984).

Efficient and effective working capital management

Working capital management is the power to control efficiently and effectively current assets and current liabilities in a way that gives the firm maximum return on its assets and minimizes payments for its liabilities. The capital that companies employ in their daily operation which companies' current assets and current liabilities is short-term capital. Working capital acts in the favor for the growth of shareholders worth and the firm's well-being when it is properly managed (Jeng-Ren, Li & Han-Wen, 2006). The substance of working capital management efficiency is undeniable (Filbeck & Krueger, 2005).

Working capital is considered to be among the most important function of corporate management and also known as life giving force for any

economic unit and its management. The most crucial factor for maintaining liquidity, survival, solvency and profitability of business is working capital (Mukhopadhyay, 2004). The risk of running out of cash is low when the relative proportion of liquid assets is greater, all other things being equal. All individual components of working capital including cash, marketable securities, account receivables and inventory management play essential role in the profitability of any firm. Efficient management of working capital plays crucial role of overall corporate strategy in order to create shareholders' worth. The way of managing working capital can have a significant impact on both the liquidity and profitability of the company (Shin & Soenen, 1998). The difficulty is that growing profits at the cost of liquidity can bring serious problems to the firm. Therefore, a firm needs to maintain a balance between profitability and liquidity. Perplexity in working capital management is to achieve desirable tradeoff between liquidity and profitability (Smith, 1980; Raheman & Nasr, 2007).

With reference to theory of risk and return, investment that is accompanied by high risk will result to high return. As such, companies with high liquidity of working capital may have low risk and low profitability. On the other hand, a firm that has low liquidity of working capital faces high risk which results to high profitability.

Empirical Review of Literature

Many studies have considered the relationship between working capital management (WCM) and firm profitability in several markets. Although majority of the studies conclude on a negative relationship between firm profitability and working capital management, the results are quite mixed. The

papers reviewed have used different variables to analyze the, with different methodology. This section gives account of some of the major studies related to this study.

Gul, Khan, Rehman, Khan, Khan and Khan (2013) examined the influence of working capital management on performance of small and medium size enterprises (SMEs) in Pakistan for seven years from 2006 to 2012. The dependent variable of the study was Return on Assets (ROA). The independent variables included Number of Day's Inventory (INV), Cash Conversion Cycle (CCC), Number of Days Account Receivable (ARP) and Number of Days Account Payable (APP). In addition to these variables some other variables used were: Firm Size (SIZE), Debit Ratio (DR) and Growth (GROWTH). Using regression analysis, their results suggested that APP, GROWTH and SIZE have positive association with profitability, whereas ARP, INV, CCC and DR have negative relation with profitability.

Oladipupo and Okafor (2013) examined the extent of the effects of working capital management on the profitability and dividend payout ratio. Using both the Pearson product moment correlation technique and ordinary least square (OLS) regression technique, they found out that shorter net trade cycle and debt ratio stimulate high corporate profitability. While the level of leverage has negative significant impact on corporate profitability, the effects of working capital management on corporate profitability were found to be statistically insignificant. In contrast, they discovered that dividend payout ratio was influenced positively by profitability and net trade cycle but negatively by growth rate in earnings.

Karaduman, Akbas, Ozsozgun and Durer (2010) examined the influence of working capital management practices on the profitability of companies in Istanbul from 2005-2008. Their findings indicated a statistically significant negative association between firm profitability and accounts receivable and inventory days. Their study revealed that there is a positive relationship between accounts payable days and firm profitability.

Omesa, Maniagi, Musiega and Makori (2013) observed the relations between Working Capital Management and Corporate Performance of manufacturing firms in Nairobi from 2007-2011. Using Principal components analysis and multiple regression, working capital proxies Cash Conversion Cycle (CCC), Average Receivable Period (ARP) and control variables, Current Liabilities (CLTA), Net Working Capital Turnover Ratio (NSCA) and Fixed Financial Ratio (FATA) were significant.

Gakure, Cheluget, Onyango and Keraro (2012) assessed the relationship between working capital management and performance of 15 manufacturing firms in Nairobi from 2006 to 2010. The results of Pearson's correlation and regression analysis indicated that there is a significant negative relationship between firm's performance and liquidity of the selected firms. The study also concluded that there is a negative coefficient relationship between accounts collection period, average payment period, inventory holding period and profitability whilst the cash conversion cycle was found to be positively correlated with profitability.

Sharma and Kumar (2011) studied the impact of working capital on profitability of Indian firms from 2000 to 2008. They appraised the data using OLS multiple regression. The finding was that, working capital management

and profitability is positively correlated in Indian companies. The study further reveals that inventory of number of days and numbers of day's accounts payable are negatively correlated with a firm's profitability, whereas number of days' accounts receivables and cash conversion period exhibit a positive relationship with corporate profitability.

Raheman, Afza, Qayyum and Bodla (2010) studied the influence of working capital management on firms' performance in Pakistan for the period 1998 to 2007. They found out that the cash conversion cycle, net trade cycle and inventory turnover in days are significantly affecting the performance of the firms. They concluded that generally, manufacturing firms face problems with their collection and payment policies. Moreover, financial leverage, sales growth and firm size also had significant effect on the firm's profitability.

Mathuva (2010) conducted a research on the influence of working capital management on corporate profitability and found that there exists a highly significant negative relationship between the time it takes for firms to collect cash from their customers and profitability. More profitable firms take the shortest time to collect cash from the customers. Also, there exist a highly significant positive relationship between the inventory conversion period and profitability. According to Mathuva, firms which maintain sufficiently high inventory levels reduce costs of possible interruptions in the production process and loss of business due to scarcity of products.

Gill, Biger and Mathur (2010) examined the link between working capital management and profitability in New York for a period of 3 years from 2005 to 2007. Using Pearson Bi-variate Correlation Analysis and Weighted Least Squares (WLS) regression techniques they discovered a statistically significant relationship between the cash conversion cycle and profitability.

Dong and Su (2010) studied the effect of working capital management on firms' profitability in Vietnam from 2006-2008. The result of the study was that there exists a significantly negative relationship between profitability and the components of cash conversion cycle (inventory days, and receivable days). Also, there is a significant positive association between profitability and accounts payable days.

Falope and Ajilore (2009) studied the effects of working capital management on the profitability of non-financial Nigerian firms from 1996-2005. Using panel data methodology, the result disclosed a significantly negative relationship between net operating profit and working capital management variables (cash conversion cycle, inventory days, and average receivable period).

Akoto, Awunyo-Vitor and Angmor (2013) studied the connection between working capital management practices and profitability of listed manufacturing firms in Ghana covering the period from 2005-2009. The study found a negative relationship between profitability and Accounts Receivable days using panel data methodology and regression analysis. On the other hand, the firms' Cash Conversion Cycle, Current Asset Ratio, Size, and Current Asset Turnover positively influence profitability.

Eljelly (2004) concluded that the effect of cash conversion cycle on profitability is stronger than the effect of current ratio on it. Managing cash flow and cash conversion cycle is a critical component of overall financial management for all firms, especially those who are capital constrained and more reliant on short term sources of finance (Walkar & Petty, 1978).

Earlier studies on working capital have tried to establish a link between the components of working capital and the functioning characteristics of the firm. It measured the quality of working capital based on the Cash Conversion Cycle (CCC) (Soenen, 1993; Padachi, 2006). The CCC is a metric of net operating working capital measured in the number of days. The longer the cycle, the larger the funds locked up in the working capital.

According to Lazaridis and Tryfonidis (2006) as well as Deloof (2003), there is a negative relationship that exists between corporate profitability and working capital management. Deloof and Jegers (1996) as well as Petersen and Rajan (1997) find a positive relationship between firms trade credit and profitability through improved sales. The level of inventory and sales has a positive correlation. Subsequently, the same relationship holds true between the level of inventory and profitability.

However, Ng, Smith and Smith, (1999) and Wilner (2000) show that profitability and the accounts payable are negatively correlated. A firm may maintain a low level of accounts payable by paying early and can avail trade discounts to increase the profitability.

A company with steadily high profitability shows less financial constraints. The company soon emerges as an industry leader and gains larger negotiating power with customers and suppliers. The companies that

experience increasing profitability have greater access to credit from suppliers (Petersen & Rajan, 1997). This implies that, unprofitable firms cannot successfully operate with a lower level of net working capital.

Relationship between working capital management and profitability

According to Altaf and Shah (2017), earlier studies on this subject assume a linear relationship between these concepts and provide a strong statistical support for its significance. Due to the way in which the measures of working capital management influence a company's profitability, these studies can be divided into two groups: those more numerous, which point out the negative impact of working capital management and support an aggressive strategy of working capital management, and those that point out the positive impact of working capital management on companies' profitability, thus supporting a conservative strategy.

Contrary to the initial assumption of linearity one can assume that the relationship between working capital investments and a company's profitability is non-monotonic and non-linear with regard to the costs and benefits related to aggressive and conservative strategies of working capital management, as well as both positive and negative effects of working capital investments (Baños-Caballero, García-Teruel, & Martínez-Solano, 2012; Baños-Caballero, García-Teruel, & Martínez-Solano, 2014).

According to Altaf and Shah (2017), if both positive and negative effects are strong enough, the relationship between working capital investments and profitability can be better described by a concave quadratic function. Whilst a lot of studies on the impact of working capital management on a firm's profitability, which discuss the existence of an optimal level of

working capital but nevertheless assume a linear relationship between the studied concepts, few recent studies (Baños-Caballero, García-Teruel, & Martínez-Solano, 2012; Baños-Caballero, García-Teruel, & Martínez-Solano, 2014; Gomes, 2013; Afrifa, 2015; Pais & Gama, 2015) on the aforementioned relationship assume and suggest its non-linearity. The results of these studies, except the one conducted by (Pais & Gama, 2015), imply the existence of an optimal level of working capital which maximizes a company's profitability.

Working Capital management is vital to the financial health of businesses of all sizes. The flow of funds is very necessary to maintain businesses in as much as the transmission of blood is very crucial in the human body. If it becomes weak, the business can hardly prosper and survive. The need for maintaining an adequate Working Capital can hardly be questioned. Working capital undernourishment is generally seen as the major cause of small business failure in many developed and developing countries (Rafuse, 1996). The success of a firm depends ultimately, on its ability to generate cash receipts in excess of disbursement. Given these peculiarities, efficient management of Working Capital and more recently good credit management practice is pivotal to the health and performance of the small firm sector (Peel & Wilson, 1996). According to Peel and Wilson, 60% of enterprises suffer from cash flow problems.

Conceptual Framework

Control variables

A lot of studies on working capital management used the control variables alongside with the main variables of working capital (Atlaf and Shah 2017; Makori & Jagongo 2013; Delof, 2003; Eljelly, 2004; and Lazaridis and

Tryfonidis, 2006). In likewise manner, along with working capital variables, the present study took into consideration some control variables relating to firms such as the size of the firm, the growth in its sales, current ratio, age of the firm and its leverage.

Relationship between working capital and firm size

Firm size usually shows a positive association with the level of working capital (Chiou, Cheng & Wu, 2006). Whist larger firms tend to be more diversified, have better access to capital markets, and can adventure these advantages to ensure more trade credits (Niskanen & Niskanen, 2006), smaller firms face more financial constraints in the form of higher cost of credit and lack of credit facilities. Smaller firms try to use more trade credits and reduce the level of inventories, which translates to lower CCC (Fazzari & Petersen, 1993; Petersen & Rajan, 1997). Contrary to these results, Baños-Caballero, García-Teruel and Martínez-Solano, (2010) report that size does not have any material influence on CCC.

Relationship between working capital and firm growth

Even though growth prospects add value, the firm cannot use growth prospects as security for lenders (Titman & Wessels, 1988). According to the pecking order arguments, growing firms place a greater demand on their internally generated funds. Firms with high growth most often look to external funds to finance the growth.

According to Blazenko and Vandezande, 2003, the current level of inventories increases proportionately to support the higher sales when firms expect the growth in future sales. As a result of unavailability of alternative sources of finance, firms experience slower growth when they face more

financial constraints, hence, use their trade credit as a source of finance. Thus, there seems to be a positive relationship between growth opportunities and level of working capital (Cunat, 2007).

A schematic conceptual framework of the relationship between Firm profitability and Working Capital Management components is displayed in Figure 1 below:

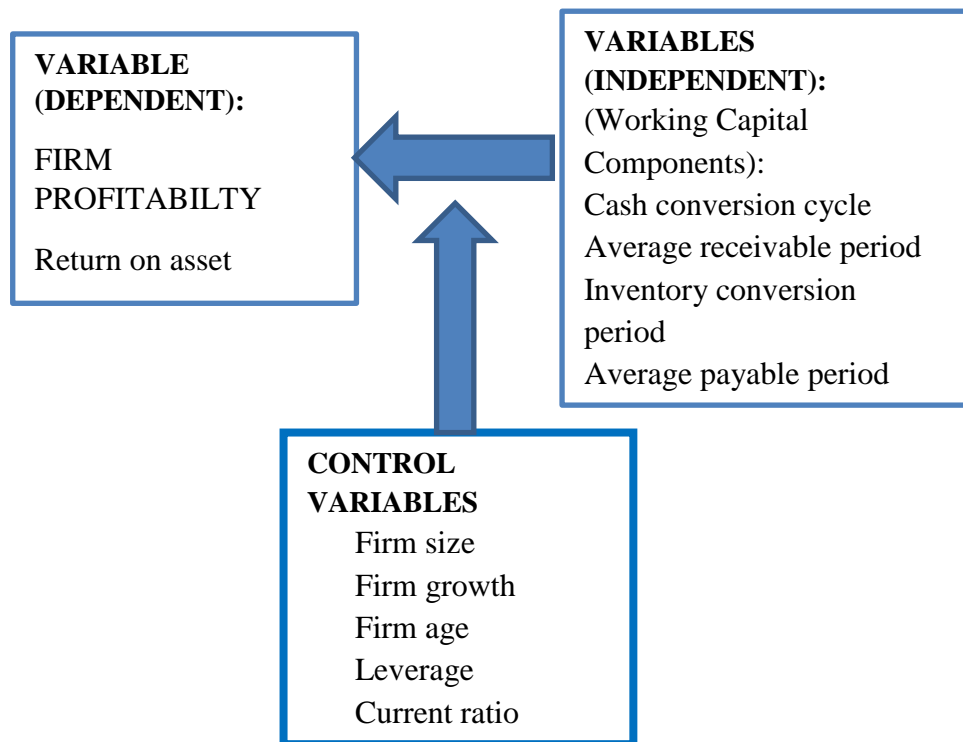


Figure 1: Schematic Conceptual Framework of the relationship between firm profitability and working capital management components
Source: Author (2019)

Conclusion

In conclusion it can be noted that, the theoretical framework, the CCC, was a true expression of the working capital management.

Chapter Summary

This Chapter discussed the theory underpinning the study by undertaking a theoretical review. Secondly it covered the empirical review and thirdly the conceptual framework of the study.

CHAPTER THREE

RESEARCH METHODS

Introduction

This section is an outline of the methodology used to attain answers to research questions or objectives. The research methodology is presented in this order: research design, data sources, data collection instrument, data collection procedures and data analysis.

Research Design

The study is directed at identifying the impact of the various working capital management components on profitability of non-financial companies in Ghana over a ten-year period; the study used panel data. Panel data allow researchers to obtain reliable estimates and to find and estimate effects that pure cross-sections and time-series data cannot detect. In addition, panel data do not require restrictive assumptions.

Data Sources

The target population of the study is non-financial firms listed on the Ghana Stock Exchange (GSE). Since these are firms operating under strict corporate governance regulations, their financial and accounting disclosures are largely reliable. The data was obtained from financial reports/statements of companies from 2005 to 2015. Secondary data enabled the researcher to collect reliable information from the target population. Moreover, it helped to save time in data collection; it is cost effective and most importantly, contains the required information.

Data Collection Instruments

The data for the study originated from financial statements of twenty-one (21) GSE listed non-financial firms. I collected the financial information of these firms for a period of ten years (2005-2015). The data was downloaded from the following websites: Annual Reports Ghana, African Financials, Ghana Stock Exchange and African Markets.

Data Collection Procedures

I employed a panel data set of forty (40) companies listed on the GSE from nine (9) industries, namely Health care, Consumer goods, Oil and Gas, Services, Basic materials, Telecommunications, Financial, Technology and Industrial.

I chose the final sample of my study by dropping financial industries. Out of the twenty-four non-financial companies listed on the Ghana Stock Exchange, three companies (MTN Ghana, Meridian-Marshalls Holdings and Digicut Advertising and Production Limited) did not have financial statement (data) at all from 2005 to 2015 and so were not included in the study. The study included the following firms: Guinness Ghana Breweries Ltd, Fan Milk, Unilever Ghana, PZ Cussons Ghana Ltd, Benso Oil Palm Plantation, Cocoa Processing Company, AngloGold Ashanti Ltd, African Champion Industries Ltd, Aluworks Ltd, Ayton Drugs Manufacturing Company Ltd, Clydestone (Ghana) Limited, Camelot Ghana Ltd, Ghana Oil Company Limited, Golden Star Resources Ltd, Mechanical Lloyd Company Plc, Sam Wood Ltd, Tullow Oil Plc, Total Petroleum Ghana Ltd, Pioneer Kitchenware Ltd, Samba Foods Ltd and Starwin Products Limited.

Data Analysis

The data was analyzed using the Correlation analysis and Linear multiple regression model. Correlation analysis was used to establish the strength of relation between the dependent and independent variables, whilst the regression analysis was used to assess the impact of the predictor variables on the response variables. Statistical packages that were used were Statistical Package for Social Science (SPSS) and STATA 14.

Model specification

To examine the impact of the various components of working capital management on firm profitability, the model used in previous studies (Zariyawati, Annuar, Taufiq, & Rahim, 2008; Altaf & Shah, 2017; Chemis, 2015; Nazir & Afza, 2009; Makori & Jagongo 2013; Garcia-Teruel & Martinez-Solano, 2007) has been adopted and adapted. The firm's performance is modeled as a function of the four fundamental working capital management methods (Cash Conversion Cycle, Average Receivable Period, Average Payable Period and Inventory Conversion Period) whereby other firm characteristics were included.

(Specific objective)

The specific objective used in order to accomplish the purpose of study was to test the impact of Working Capital Management components on profitability.

Model specification for specific objectives:

ROA = f (CCC, ARP, APP, ICP, GROWTH, LEV, CR, SIZE, AGE)

Model 1: $ROA_{i,t} = \beta_0 + \beta_1 CCC_{i,t} + \beta_2 Size_{i,t} + \beta_3 Growth_{i,t} + \beta_4 Age_{i,t} + \beta_5 Lev_{i,t} + \beta_6 CR_{i,t} + \varepsilon$

Model 2: $ROA_{i,t} = \beta_0 + \beta_1 APP_{i,t} + \beta_2 Size_{i,t} + \beta_3 Growth_{i,t} + \beta_4 Age_{i,t} + \beta_5 Lev_{i,t} + \beta_6 CR_{i,t} + \varepsilon$

Model 3: $ROA_{i,t} = \beta_0 + \beta_1 ARP_{i,t} + \beta_2 Size_{i,t} + \beta_3 Growth_{i,t} + \beta_4 Age_{i,t} + \beta_5 Lev_{i,t} + \beta_6 CR_{i,t} + \varepsilon$

Model 4: $ROA_{i,t} = \beta_0 + \beta_1 ICP_{i,t} + \beta_2 Size_{i,t} + \beta_3 Growth_{i,t} + \beta_4 Age_{i,t} + \beta_5 Lev_{i,t} + \beta_6 CR_{i,t} + \varepsilon$

Model 5: $ROA_{i,t} = \beta_0 + \beta_1 CCC_{i,t} + \beta_2 ARP_{i,t} + \beta_3 APP_{i,t} + \beta_4 ICP_{i,t} + \beta_5 Size_{i,t} + \beta_6 Growth_{i,t} + \beta_7 Age_{i,t} + \beta_8 Lev_{i,t} + \beta_9 CR_{i,t} + \varepsilon$

Where:

β_0 : The intercept of equation

β^i : Coefficients of the independent variables

i: Manufacturing firms= 1,2,3,4,5,6...21 firms

t: Time= 1,2,3,4,5,6,7,8,9,10 years

ε : The error term

Control variables: Firm growth, Current ratio, Firm size and Firm age.

Measurement of variables

As a measure of the level of investment in working capital, I will use Cash Conversion Cycle (CCC). It is debated that the shorter the CCC, the lesser the amount of investment in working capital and vice versa. In order to examine the non-linear relationship between CCC and firm performance, I

integrate CCC squared as a variable in all the models. To reduce the potential bias that may arise on account of omitted variables, I control for other general firm characteristics by incorporating firm size, growth, firm age, leverage and current ratio as control variables in my second model for the third specific objective.

Dependent variable

Return on assets (ROA) = Net profit/total assets

Independent variables

Measurement of independent variables

Variable	Measurement	Expected Sign
Cash conversion cycle (CCC)	ARP+ ICP-APP	(-)
Average receivable period (ARP)	Average receivables \times 365/sales	(-)
Inventory conversion period (ICP)	Average inventories \times 365/cost of goods sold	(-)
Average payable period(APP)	Average payables \times 365/cost of goods sold	(-)
Firm size (Size)	Natural logarithm of total assets	(+/-)
Growth (Growth)	(Current year sales/previous year sales) -1	(+)
Firm age (Age)	The number of years from the time the company was incorporated	(+/-)
Leverage (Lev)	The ratio of total debt to total assets.	(-/+)
Current ratio (CR)	Total current assets/total current liabilities	(-/+)

Source: Altaf & Shah (2017)

Chapter Summary

This Chapter covered the Research design used by the study. The second section covered data Collection Instruments. The third section covered data collection procedures. The last section covered data analysis.

CHAPTER FOUR

RESULTS AND DISCUSSION

Introduction

Findings of my study as well as discussions of those findings are shown in this chapter. My study targeted twenty-one Ghanaian non-financial firms listed on the Ghana Stock Exchange for a period of ten years from 2005-2015. The next section provides the descriptive statistics followed by the correlation analysis and then multiple regression analysis.

Descriptive Statistics

Through descriptive statistics, the average and standard deviation of Return on Assets, Cash conversion cycle, Average receivable period, Inventory conversion period, Average payable period as well as the control variables in the study are shown in Table 1. In addition, the descriptive statistics presents the minimum and maximum values of the variables which give a picture about the maximum and minimum values a variable can attain.

Table 1 provides the descriptive statistics for twenty-one (21) Ghanaian non-financial companies for a period of ten years from 2005 to 2015 and for a total of 167 firms-year observations.

From Table 1, the average value of Return on Asset (ROA) which is the net operating profitability is 5.8% of total assets, and standard deviation is 14.2%. This means that the value of profitability can deviate from mean to both sides by 14.2%.

The average current ratio for non-financial companies in Ghana is 1.60 with a standard deviation of 1.48. The highest current ratio for a company in a particular year is 9.81 times. Likewise, the minimum ratio for a company in a

year is 0.11. This suggests that on average the firms always keep enough current assets to offset their current liabilities.

Table 1: Descriptive Statistics of variables of non-financial firms

Variables	Observations	Mean	Std. Dev.	Min	Max
ROA	167	0.058394	0.141493	-0.37	0.59
Growth	167	0.235104	0.810601	-0.99	9.46
Age	167	32.7485	14.72999	1	67
Leverage	167	0.569153	0.274115	0.049	1.73
Size	167	9.215554	4.829935	0.73	33.4
CR	167	1.598081	1.476251	0.11	9.81
log_APP	167	2.024971	0.384752	1.113943	3.254306
log_ICP	167	1.843015	0.416327	0.687529	2.826334
log_ARP	167	1.578325	0.440757	-0.13668	2.4387
CCC	167	33.52683	195.9828	-1706.7	677.5

Source: Field survey, (2019)

The average value of record of sales is 9.22 while the standard deviation is 4.83. The maximum value of log of sales for a company in a year is 33.4 and the minimum is 0.73

The cash conversion cycle used as a representation to find out the efficiency in managing working capital is on average 33 days and standard deviation is 196 days. This implies that on an average, non-financial firms in Ghana take 33 days for the period under investigation to convert their input resources (CCC) into cash. However, some of the firms could take as long as 677 days to achieve this. Some of the values for CCC were negative and as

such Log of a negative number cannot be calculated. A negative CCC implies that for those particular years, the companies were generating revenue from customers before they have to pay their suppliers for inventory, among other things. In other words, a negative CCC is an interest free way to finance operations through borrowing from suppliers.

Non-financial companies receive payment against sales after an average of 1.6 days and standard deviation is 0.4 day(s). This implies that on average listed non-financial firms in Ghana do not extend credit to their customers beyond 1.6 days. Minimum time taken by a firm to collect cash from receivables is not up to a day (-0.1 days) while the maximum time for this purpose is 2.4days.

Firms take an average of 1.8 days to sell inventory with standard deviation of 0.4 days. Here, maximum time taken by a company is 2.8 days and minimum is less than a day (0.6 day).

The non-financial firms wait an average of 2 days to pay their purchases with standard deviation of 0.4 day. Minimum time taken by a firm is 1.1 days and maximum time taken for this purpose is 3.3 days.

Correlation Analysis

To test the relationship between variables representing working capital management and profitability, the researcher used Pearson's Correlation analysis. The researcher's choice of Pearson Correlation analysis is due to the fact that it is a technique for investigating the relationship between two quantitative, continuous variables. In other words, Pearson's correlation coefficient is the test statistics that measures the statistical relationship, or association, between two continuous variables.

The specific objectives were:

- i. To ascertain whether there is a significant relationship between Average Receivable Period (ARP) and profitability of non-financial firms in Ghana.
- ii. To establish whether there is a significant relationship between Inventory Conversion Period (ICP) and profitability of non-financial firms in Ghana.
- iii. To determine if there is a significant relationship between Average Payment Period (APP) and profitability of non-financial firms in Ghana.
- iv. To determine if there is a significant relationship between Cash Conversion Cycle (CCC) and profitability of non-financial firms in Ghana.

If efficient working capital management causes a rise in profitability, I expect a negative relationship between the components of working capital management and profitability as a variable. The results are displayed in Table 2. With reference to Table 2, although ROA is negatively related to APP, ICP and leverage, it was only the relationship between ROA and leverage that was significant.

Table 2: Pearson Correlations

	Growth	Age	Leverage	Size	Cr	ROA	Log_APP	Log_ICP	Log_ARP	CCC
Growth	1									
Age	-0.040	1								
Leverage	0.113	-0.025	1							
Size	0.017	0.093	-0.129	1						
Cr	0.000	0.030	-.618**	0.120	1					
ROA	0.115	.300**	-.300**	0.129	.359**	1				
Log_APP	0.023	-0.107	.501**	-0.010	-.490**	-0.142	1			
Log_ICP	-0.021	-.430**	-0.114	.214**	0.135	-0.034	.273**	1		
Log_ARP	0.092	0.006	.206**	0.084	-0.017	0.000	.367**	0.132	1	
CCC	-0.058	-.167*	-.238**	0.108	.204**	0.033	-.323**	.361**	0.047	1

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

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

Field Survey, (2019)

The relationship between ROA and ARP is characterized by an insignificantly very weak coefficient of 0.00. This is inconsistent with the findings of Akoto et al (2013); Falope and Ajilore (2009); Mathuva (2010) and Karaduman, et al (2010) whilst Sharma and Kumar (2011).

The correlation results between ROA and APP also indicate a weak negative insignificant relationship as there was a negative coefficient of -0.1470. This implies that, a decrease in the number of day's accounts payable by one day is associated with an increase in profitability. That is, the more profitable firms usually delay longer to pay their bills. This is similar to the result of Ng et al (1999); Wilner (2000); Sharma and Kumar (2011) which revealed that numbers of day's accounts payable are negatively correlated with a firm's profitability. Opposing view to this position was held by Raheman and Nasr (2007), Deloof (2003), Padachi (2006) as well as Sharma and Kumar (2011). As such, to take advantage of the available cash to cater for their working capital needs, firms withhold their payment to suppliers.

From Table 2, profitability is insignificantly negatively related to ICP. The correlation results between ROA and ICP indicated a very weak negative relationship with a coefficient of -0.034. This finding is consistent with studies undertaken by Gakure et al (2012); Sharma and Kumar (2011) and Dong and Su (2010). However, Deloof and Jegers (1996); Petersen and Rajan (1997); Falope and Ajilore (2009) and Mathuva (2010) held contrary views. That is, when firms keep high levels of inventory, it reduces the cost of possible disruptions in the production process which affects the cost of supplying the products as well as protecting the firm against price fluctuations.

The cash conversion cycle (CCC), a comprehensive measure of working capital management also has a positive coefficient of 0.033. This implies that, if the firm is able to increase this time period known as cash conversion cycle, it can increase its profitability. This is consistent with the conclusion drawn by Akoto et al (2013) as well as Sharma and Kumar (2011). According to Akoto et al, one main contributing influence to this observation may be the fondness of imported products by most Ghanaian to locally produced products. As such, this phenomenon has the propensity to cause demand for locally produced goods to fall which will also lead to a fall in profitability in the short run. Falope and Ajilore (2009) hold an opposing view.

An old measure of checking firm liquidity is Current ratio. In the researcher's analysis, the current ratio has a significant positive weak relationship with profitability (Return on Assets). The coefficient is 0.359. Therefore, non-financial companies need to increase liquidity in order to increase profitability. This result is in line with the results arrived at by Akoto et al (2013) although Gakure et al (2012) hold a contrary view.

The relationship between profitability and firm size is insignificantly positive. The coefficient is 0.129. It shows that as the size of the firm increases, the firm will experience an increase in profitability. With this result, I can state that larger firms report higher profits compared to smaller firms. Reason for this result could be due to larger firm's ability to enjoy the economies of scale. This is consistent to the result drawn by Akoto et al (2013) as well as Niskanen and Niskanen, (2006). According to Niskanen and Niskanen, whilst larger firms tend to be more diversified, have better access to capital markets, and can adventure these advantages to ensure more trade

credits; smaller firms face more financial constraints in the form of higher cost of credit and lack of credit facilities.

Firm age significantly relates to profitability positively with a coefficient of 0.300. This implies that as firms' advances in age of operation, they experience increase in profitability. How long a firm stays in business enables it to gain knowledge of the strategies that best fits it in its quest for higher profitability. It learns lessons from mistakes committed in the past.

Leverage also significantly relates to profitability negatively with a coefficient of -0.300. It shows that profitable firms are able to generate enough internal finance and therefore will depend less on external sources of finance. Also, if the market for corporate control is inefficient, managers of profitable firms will use more retained earnings in order to avoid the disciplinary role of external finance. This is consistent with studies undertaken by Titman and Wessels, (1988).

In summary, the correlation coefficients of firm age, current ratio and leverage are significant while the correlation coefficients of Average Receivable Period, Average Payable Period, Inventory Conversion Cycle, Growth, Firm size, Cash Conversion Cycle and Cash Conversion Cycle squared are not significant.

Regression Analysis

In order to test the specific objective stated in chapter 3, pooled OLS regression analysis was conducted to determine whether there is an impact of the fundamental working capital management on profitability. To check the presence of autocorrelation and multicollinearity in the data, Durbin Watson (D-W) and Variance Inflation Factor (VIF) statistics was analyzed

respectively. Outputs in Table 3 and 4 provide results for the models tested in the present study.

(Specific objective):

- i. To test the impact of Cash Conversion Cycle on profitability.
- ii. To test the impact of Average Payable Period on profitability.
- iii. To test the impact of Average Receivable Period on profitability.
- iv. To test the impact of Inventory Conversion Period on profitability.

Table 3: Regression Output

Dependent Variable: Return on Assets					
Parameter	Model 1	Model 2	Model 3	Model 4	Model 5
Intercept	-0.0482588 (0.305)	-0.134263 (0.072)	-0.0542295 (0.307)	-0.0787598 (0.280)	-0.1345043 (0.107)
Growth	0.0247449 (0.043)*	0.0251846 (0.038)*	0.0246154 (0.044)*	0.0250774 (0.04)*	0.0258507 (0.036)*
Age	0.0027802 (0.000)*	0.0028997 (0.000)*	0.0027849 (0.000)*	0.0029756 (0.000)*	0.0028886 (0.000)*
Leverage	-0.0753816 (0.104)	-0.0959637 (0.045)*	-0.0777235 (0.101)	-0.0745504 (0.105)	-0.0938394 (0.057)
Size	0.0015029 (0.465)	0.0012185 (0.55)	0.0014465 (0.482)	0.0011885 (0.575)	0.0013193 (0.536)
CR	0.0243485 (0.004)*	0.0277327 (0.002)*	0.0240715 (0.005)*	0.0238943 (0.005)*	0.029371 (0.002)*
CCC	-2.06e-06 (0.969)				0.0000339 (0.589)
log_APP		0.0448622 (0.142)			0.0606164 (0.140)
log_ICP				0.0147068 (0.590)	-0.010445 (0.757)
log_ARP			0.0051137 (0.824)		-0.0114653 (0.062)
Adjusted R-sq	0.216	0.227	0.217	0.218	0.214
D-W Statistic	1.758	1.747	1.762	1.769	1.769

Field Survey, (2019)

* Significant at 0.05 significance level

From Table 3, it can be deduced that in the presence of the control variables, the r-squared was 22.8%. Thus the independent variables in the model together explain about 22.8% of the variance in return on assets. From Table 3, APP, Firm age, and CR were significant (p -value < 0.05) in the model.

Model 1: to test whether there is a significant relationship between Cash Conversion Cycle and profitability. The regression coefficient indicates an insignificant positive relation between CCC and ROA as depicted in the coefficient of 0.969. It is concluded that CCC is statistically insignificant ($p > 0.1$).

Model 2: to test whether there exist a significant relationship between Average Payment Period and Profitability. The coefficient of APP shows an insignificant positive relation between ROA and APP of 0.142. The positive sign suggests that the longer it takes non-financial firms to settle their debts, the more capital they maintain for their activities, thereby increasing profits. This proposes that, an increase in the number of day's accounts payable by one day is accompanied by an increase in profitability. This outcome holds that more profitable firms wait longer to pay their bills. Therefore, in order to take advantage of the cash available for their working capital needs non-financial firms in Ghana withhold their payment to suppliers. Also, this outcome imply that if non-financial firms increases their inventory and receivable days it will lead to a decreasing profit while significant financial success can be attained when they increase payable days.

Model 3: to test whether there is a significant relationship between Average Collection Period and profitability. The regression result indicates that the coefficient of ARP is insignificantly positive (0.824). This suggests

that, ARP is not a good variable for explaining the financial success of non-financial firms in Ghana.

Model 4: to test whether there is a significant relationship between Inventory Conversion Period and profitability. The regression result indicates that the coefficient of ICP is insignificantly positive (0.590). This suggests that, ICPP is not a good variable for explaining the financial success of non-financial firms in Ghana.

Model 5: As control model for the variables under study this model was run so as to provide a signal as to the most significant variables that affected the study. The model showed that the variables that are highly significant at 5% level include firm growth, firm age and current ratio. In this model, the firm age, firm growth and current ratio are positively related with the firm's profitability while all the other variables did not exhibit any significant relationship. The adjusted R^2 in the model was 21%.

The regression results in Table 3 indicate a positive and statistically significant relationship between profitability (ROA) and current ratio (CR). This implies that profitable non-financial firms in Ghana need to hold more current assets to aid them repay their current liabilities. Nevertheless, this finding is inconsistent with a number of previous studies like that of Raheman and Nasr (2007) and Eljelly (2004).

In addition, a positive and statistically significant relationship between profitability (ROA) and firm age is observed in table 3. This implies that for non-financial firms in Ghana to be profitable, they need to take note and draw lessons from the results of certain strategies they adopted in the past. In that, how long a firm is exposed to its production line is crucial. The greater

number of years that a firm has been in existence contains a lot of lessons which when followed, leads to higher productivity or profitability.

Furthermore, in table 3, the positive and statistically significant relationship between profitability and firm growth in view those firms with high growth most often look at external funds to finance the growth. This is consistent with previous studies undertaken by Blazendo and Vandezande (2003) and Cunat (2007) who found out that unavailability of alternative source of finance slows down the pace of growth of firms

Table 4: Variance inflation factor

Parameter	Model 1	Model 2	Model 3	Model 4	Model 5
Growth	1.03	1.02	1.03	1.03	1.03
Age	1.05	1.02	1.01	1.30	1.31
Leverage	1.69	1.82	1.77	1.66	1.90
Size	1.04	1.04	1.04	1.11	1.12
CR	1.64	1.76	1.66	1.65	2.00
CCC	1.11				1.59
log_APP		1.47			2.61
log_ICP				1.36	2.08
log_ARP			1.08		1.32

Source: Field Survey, Sagoe (2019)

Clearly, the statistics are within the limit, therefore, it can be concluded that there is no presence of autocorrelation and multicollinearity in the data. The highest value of VIF statistics obtained is 2.03. A reason for concern is when VIF is 10 or higher. A commonly given rule of thumb is that VIF's should be less than 10 (Gujarati & Sangeetha, 2008). D-W statistics value was found to be 1.769 in model 4 and 5, which was highest in all five models. Durbin-Watson statistic ranges in value from 0 to 4 with an ideal value of 2

indicating that errors are not correlated, although values from 1.75 to 2.25 may be considered acceptable.

Chapter Summary

In summary, the key findings of the study was that, profitability of non-financial firms in Ghana as measured by return on asset is influenced by firm age, current ratio and firm growth.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

A summary of my study, findings, conclusion and recommendations are presented in this chapter. This chapter places emphasis on the summary of the key findings as well as the link between Working Capital Management and profitability. Based on my findings and discussion, the conclusions are then drawn.

Summary of Findings

Previous studies on working capital and profitability in Ghana limited their sample to only one industry that is manufacturing industries (out of nine industries) for less than six years. My study employed panel data regression analysis of cross-sectional data.

My study used four measures of working capital, that is, Cash Conversion Cycle (CCC), Average Receivable Period (ARP), Average Payable Period (APP) and Inventory Conversion Period (ICP) to test whether working capital management has a significant effect on profitability.

The major outcome of my study was that, profitability of non-financial firms in Ghana as measured by return on asset is influenced by firm age, current ratio and firm growth after making adjustment for the impact of control variables. Thus:

- ◆ Firm age has a positive and statistically significant association with profitability.
- ◆ Current ratio has a positive and statistically significant association with profitability.

- ◆ Firm growth has a positive and statistically significant association with profitability.

Conclusions

Based on the above findings, the following conclusions are drawn. Firms which hold adequate current assets will be able to kickoff their current liabilities leading to increase in profitability. Also, Firms that have advanced in years of experience will adopt appropriate strategies to make it achieve higher profitability. Moreover, the ability to obtain an alternative or external source of funding can increase a firm's profitability.

Recommendations

- ◆ With respect to current ratio, non-financial companies need to increase liquidity reasonably. This suggests that on average the firms always keep enough current assets to offset their current liabilities. That is, profitable non-financial firms in Ghana need to hold more current assets to aid them repay their current liabilities.
- ◆ The significance of firm age suggests that for non-financial firms in Ghana to be profitable, they need to note and draw lessons from the results of certain strategies they adopted in the past. Long years of experience contains a lot of lessons which when followed meticulously will lead to higher productivity or profitability.
- ◆ Profitability is contributed to through firm growth when there exist easy access to alternative sources of finance.

Based on the findings of my study, I conclude that proper management of working capital by managers will ensure that firms survive since it enables

firms to overcome liquidity crisis and boost their profitability. With respect non-financial firms in Ghana, firms can explore the opportunities of increasing profitability through their firm age, firm growth and current ratio. Therefore, a prudent working capital policy by managers of firms is crucial.

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