THE IMPACT OF WORKING CAPITAL MANAGEMENT ON FIRM PROFITABILITY: EVIDENCE FROM AGRO PROCESSING IN HAWASSA CITY, ETHIOPIA

A Thesis Submitted to the School of Graduate Studies of Wolkite University in Partial Fulfillment of the Requirements for the Degree of Master of Science in Accounting and Finance

By

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COLLEGE OF BUSINESS AND ECONOMICS

DEPARTMENT OF ACCOUNTINGAND FINANCE

JUNE, 2023

WOLKITE, ETHIOPIA

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Declaration

I, **Aselefech Tekle**, hereby declare that the thesis titled "The Impact of Working Capital Management on Firm Profitability: Evidence from Agro processing's in Hawassa City, Ethiopia" is the result of my original research work. I assert that this work has not been submitted previously for any other academic qualification, degree, or diploma. Throughout this research, I have diligently followed the ethical guidelines and principles of academic integrity. All the information and data presented in this thesis are based on rigorous research, accurate analysis, and reliable sources. Any references, quotations, or citations from other works have been appropriately acknowledged and credited.

I take full responsibility for the content and findings presented in this thesis. The interpretations, conclusions, and recommendations provided are solely my own, based on the analysis and interpretation of the collected data. I acknowledge that any limitations or shortcomings in the study are my own, and I have made sincere efforts to address them to the best of my abilities. I further declare that the research conducted in this thesis adhered to the ethical standards outlined by Wolkite University. All necessary permissions and approvals were obtained for conducting the study, and confidentiality and privacy of participants' information were maintained throughout the research process.

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I, Main Advisor: Abdu M. (Ass Pro), Co Advisor: Mulualem M., Hereby Confirm That I have reviewed and approved the final version of the thesis titled ***"The Impact of Working Capital Management on Firm Profitability: Evidence from Hawassa City, Ethiopia"*** by Aselefech Tekle. I have carefully evaluated the content, methodology, analysis, and overall quality of the thesis and find it satisfactory for submission.

I confirm that I have no objection to the submission of this thesis to the examination committee for evaluation and defense. I believe that the findings and conclusions presented in this thesis contribute to the field of working capital management and firm profitability in the context of Hawassa City, Ethiopia. I acknowledge that my role as the thesis advisor was to provide academic guidance and supervision, and I have fulfilled my responsibilities to the best of my abilities.

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We, undersigned, members of the Board of Examiners of the final open defense by **Aselefech Tekle** have read and evaluated her thesis entitled ***"The Impact of Working Capital Management on Firm Profitability: Evidence from Hawassa City, Ethiopia",*** and examined the candidate. This is, therefore, to certify that the thesis has been accepted in partial fulfillment of the requirements for the **Degree of Masters of Accounting and Finance.**

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Lists of Acronyms and Abbreviations

AP	Accounts Payable
AR	Accounts Receivable
CAGR	Compound Annual Growth Rate
CCC	Cash Conversion Cycle
COGS	Cost of Goods Sold
DPO	Days Payable Outstanding
DSO	Days Sales Outstanding
EBIT	Earnings Before Interest and Taxes
EBITDA	Earnings Before Interest, Taxes, Depreciation, and Amortization
ERP	Enterprise Resource Planning
FIFO	First-In, First-Out
IRR	Internal Rate of Return
ITO	Inventory Turnover Ratio
KPI	Key Performance Indicator
LIFO	Last-In, First-Out
NPV	Net Present Value
ROI	Return on Investment
ROS	Return on Sales
SME	Small and Medium-sized Enterprises
WCM	Working Capital Management

Abstracts

Working capital management is one of the most important and challenging aspect of the overall financial management that needs a series consideration in firm's financial decision. Efficient management of working capital is a fundamental part of the overall corporate strategy in creating value. In light of this the purpose of this study was to examine the impact of working capital management on profitability of agro processing firm. In this study a sample of 10 agro processing firm was used. This sample was selected using purposive sampling technique. Document review was the data collection instruments. Data for this study was collected from the financial statements of the company listed on Hawassa for the year 2013-2022. Variables used in this study were inventory conversion period, accounts payable period, cash conversion cycle controlling for current ratio, firm leverage and sales growth. This study applied multiple linear regression analysis. The findings of the study revealed average payable period and inventory conversion period has significant impact and positive relation with profitability of firm and cash conversion cycle and current ratio have significant and negative relationship with the profitability. However, firm leverage and sales growth rate have not significant impact on the profitability of the firm. Thus, the study suggests that inventory conversion period direct relation with profitability may can be changed by reducing the rate of inflation.

Key Words: *profitability, working capital, panel model*

CHAPTER ONE
INTRODUCTION

1.1. Background of the Study

Working capital management is also one of the important parts of the financial management. It is concerned with short-term finance of the business concern which is a closely related trade-off between profitability and liquidity. Efficient working capital management leads to improve the operating performance of the business concern and it helps to meet the short-term liquidity. Hence, study of working capital management is not only an important part of financial management but also is overall management of the business concern. Working capital is described as the capital which is not fixed but the more common uses of the working capital is to consider it as the difference between the book value of current assets and current liabilities(C. Paramasivan and T. Subramian, 2009).

Working Capital mainly represents the current assets of a firm which is the portion of financial resources of business that changes from one type of resources to another during the day-today execution of business. Current assets mainly comprise of cash, prepaid expenses, short-term investments, accounts receivable, inventory and other current assets. Net working capital can be measured by deducting current liabilities of a firm from its current assets. If the value of current assets is less than that of current liabilities, then net working capital would have a negative value showing a deficit working capital. When a business entity takes the decisions regarding its current assets and current liabilities then it can be termed as working capital management. The management of working capital can be defined as an accounting approach that emphasize on maintaining proper levels of both current assets and current liabilities. It provides enough cash to meet the short-term obligations of a firm (Gitman, 2002).

Every business requires working capital for its survival. Working capital is a vital part of business investment which is essential for continuous business operations. It is required by a firm to maintain its liquidity, solvency and profitability (Mukhopadhyay, 2004). The

importance of managing working capital of a business efficiently cannot be denied (Filbeck& Krueger, 2005).

Working capital management and profitability certainly have some relation with each other. Profitability can also be termed as the rate of return on investment. If there will be an unjustifiable over investment in current assets then this would negatively affect the rate of return on investment (Vishnani& Shah, 2007). The basic purpose of managing working capital is controlling of current financial resources of a firm in such a way that a balance is created between profitability of the firm and risk associated with that profitability (Ricci & Vito, 2000).

Working Capital management explicitly impacts both the profitability and level of desired liquidity of a business (Raheman& Nasr, 2007). If a firm will invest heavily in working capital i.e. more than its needs, then the profits which can be generated by investing these resources in fixed or long term assets are diminished. Moreover, the firm has to endure the cost of storing inventory for longer periods as well as the cost of handling excessive inventory (Arnold, 2008).

Working capital management explicitly affects both the profitability and level of desired liquidity of a business. Hence, it has both negative and positive impact on firm's profitability, which in turn, affects the shareholders' wealth (Rahman&Nasr, 2007).

It is therefore a critical issue to know and understand the effects of working capital management and its influence on firm's profitability. Indeed, a lot of research has been conducted in different countries to show the impacts of working capital components on firms Profitability. However, in Ethiopia's situation, since there have not been organized policy and support systems that cater for the sector, MSEs have been confronted by serious marketing problems, shortage of supply of raw materials and lack of working capital which are considered the first most pressing problems facing micro and small enterprises for not expanding their businesses (Federal micro and small enterprises development agency).In addition to that there are only few studies with reference to Ethiopia (especially in south western part) on working capital management and firm profitability especially in the manufacturing sector. By looking on the importance of

working capital management, the researcher needs to determine the impacts of working capital management on the profitability of selected agro processing firms in Hawassa city Ethiopia.

1.2. Statement of the Problem

Working Capital Management is one of key aspects of corporate financial management, primarily focusing on decisions regarding the amount and structure of current assets and current liabilities (Deloof, 2003); (Sharma, 2011); Mansoori and Datin 2012). Many companies invest heavily in working capital, which requires them to monitor working capital and its components (inventories, receivables, payables) on a continuous basis because of the effect it has on the profitability and liquidity of their business (Deloof, 2003); (Gill, 2011); (Karaduman, I., Yalama, A., & Arslan, M., 2011). An excessive level of working capital inflates the costs of liquidity and therefore has an adverse impact on profitability. Conversely, if insufficient, working capital may result in increasing the risk of losing financial liquidity and in business disruptions (Horne, J.C. and Wachowicz, J.M., 2004). Therefore, efforts need to be made to optimize both the amount and sources of working capital.

Preceding researches on the relationship between working capital management and profitability have mainly been focused on broad-spectrum relationships, either for a market as a whole or in individual industries. (Shin, H. H., & Soenen, L., 1998)And (Kroes, J., & Manikas, A. S, 2014) are examples of such studies. The issue of size has mostly been used as a control variable or different segment of size have been studied independently (Ebben, J. J., & Johnson, A. C., 2011); (Garcia-Teruel, P. J., & Martinez-Solano, P.,2007); (Padachi, 2006). Moss & Stine's (1993) study looked at the relationship between company size and the length of the cash conversion cycle. However, they did not study how this impacted profitability. While comparisons have been made between different industries, none have been presented comparing different sized companies. By focusing on a single industry and separating the firms into different size classes, the intention is to be able to identify whether or not companies of different sizes respond or behave different within the same circumstances. In this instance, the wholesale industry is

selected, an industry which has been sparsely investigated and, to the best of the authors knowledge, never on its own. Furthermore, based on (Rehn) discussion regarding public versus private firms, there are reasons to believe that firms that are private might behave differently when it comes to working capital management, as compared to public firms. This is discussed by (Boot, A. W., Gopalan, R., & Thakor, A. V., 2006) (Brau, J. C., & Fawcett, S. E. , 2006) and (Wu, W. W., Chen, K. H., & Wei, C. C. , 2012), who all argue that non-listed firms are under less pressure from external sources. It is theorized that this will have an impact on short term financing decisions, which ultimately impacts' the working capital management profitability relationship that this thesis intends to scrutinize.

According to (Omo Aregbeyen, 2013), the author confirmed that Profitability was alternatively measured by gross operating profit, net operating income and return on assets. Likewise, he also found that working capital management was measured by the average collection period (ACP), average payable period (APP), and Inventory conversion period/inventory turnover days (ITID) and comprehensively by the cash conversion cycle (CCC).

Preceding researches focused on the relationship between working capital management and profitability, either for a market as a whole or in individual industries. (Kroes, J., & Manikas, A. S, 2014)Are examples of such studies? According to (Kroes, J., & Manikas, A. S, 2014) the issue of the firm size has mostly been used as a control variable or different segment of size have been studied independently, more over (Ebben, J. J., & Johnson, A. C., 2011); (Garcia-Teruel, P. J., & Martinez-Solano, P. , 2007); (Padachi, 2006) on their study looked at the relationship between business size and the length of the cash conversation cycle. However, they did not study how working capital management impacted profitability of manufacturing companies or firms.

Hence, the current study would try to and focusing on impact of working capital management on firm's profitability especially agro processing firms. Because different researchers focused on breweries companies, textile, manufacturing sector, Airline industry and telecommunication sector example Mulualem Mekonnen(2019)the impact of

working capital management on firms' profitability on manufacturing sector of share companies but the authors neglects bakery, flour mill sector which is an important part of the country's economy specifically hawassa city administration. Purpose of this study is to investigate the impact of working capital management on firm's profitability in overall agro processing sector of hawassa city administration. This sector is selected because management of working capital is essential for improving the daily operations which will result in increasing the profitability of this sector. In this study research the working capital management is positive or negative impact on the profitability of the firm. The main objective is to discover the impact of working capital management on profitability of firms in over all agro processing sectors because intense investments have been prepared in the working capital in this sector and agro processing sector is also neglected in research in the past in our country especially hawassa city. So it is very important to have knowledge and fill the gap of how different indicators of working capital affecting the profitability of agro processing sector firms and to know the basic short coming of not managing working capital in the efficient manner.

1.3 Objective of the Study

1.3.1 General Objective

The general objective of the study was to investigate the impacts of working capital management on profitability of firms, specifically focusing on agro processing firms in Hawassa, Ethiopia.

1.3.2 Specific Objectives

The specific objectives of this study are:

- To evaluate the impact of inventory conversion period on firm profitability of agro processing firms in Hawassa city.
- To evaluate the effect of cash conversion cycle on firm profitability of agro processing firms in Hawassa city.
- To examine the impact of average payment period on firm profitability of agro processing firms in Hawassa city.

- To evaluate the impact of sales growth on profitability of agro processing firms in Hasawa City.
- To examine effect of firm leverage on on profitability of agro processing firms in Hasawa City.
- To evaluate the impact of current ratio on profitability of agro processing firms in Hasawa City.

1.4 Hypotheses of the Study

In light of the above research objectives, the following hypotheses were tested:

- H_1: Inventory Conversion Period has a significant negative impact on profitability of the firm.
- H_2: Cash Conversion Cycle has a significant negative impact on profitability of the firm.
- H_3: Average Payment Period has a significant positive impact on profitability of the firm.
- H4: Sales Growth has a significant and positive impact on profitability of the firm.
- H5: Firm Leverage has a significant and negative impact on profitability of the firm.
- Current ratio has a significant and positive impact on profitability of the firm.

1.5 Significance of the Study

This study holds significance for private large agro processing firms in Hawassa, Ethiopia. It provides insights for management in making decisions regarding product distribution, customer attraction, and optimal working capital administration to maximize profitability. Additionally, it assists investors in identifying potential areas for investment by considering risk reduction and maximum profitability. Furthermore, this research contributes to the existing body of knowledge, serving as a reference for future researchers in the field of working capital management and profitability. The findings are valuable for company managers and policymakers in understanding the impact of

working capital management on firm performance and outlining profitability strategies for agro processing firms.

1.6 Scope of the Study

The study focused on working capital management and profitability of firms in Hawassa, Ethiopia, specifically within the agro processing sector. Data was collected from 10 selected agro processing firms, covering a period of ten years from 2013 to 2022.

The study covers only Agro processing firms those who provide financial statement. And also it was better in the study area. Finally, the study employed inventory holding period (ICP), average payment period (APP), and the cash conversion cycle (CCC) as independent variables. Whereas, ROA were used as a surrogate measure of profitability (dependent variables). Besides, current ratio (CR), leverage (FL) and sales growth (SG) have been used as control variables.

1.7 Limitation of the study

The research focused solely on firms in Hawassa City, Ethiopia, and the findings may not be generalizable to other regions or industries. Future studies could consider a broader sample and explore additional variables to further enrich the understanding of the impact of working capital management on firm profitability.

1.8 Organization of the study

The thesis is structured as follows:

Chapter one provides the general introduction about the whole report. Chapter two describes the review of related literatures and Chapter three provides detail description of the methodology employed by the research. Chapter four contains data presentation, analysis and interpretation.Finally the last chapter concludes the total work of the research and gives relevant recommendations based on the findings.

CHAPTER TWO

2 RELATED LITERATURE REVIEW

The literature review covers the theoretical and empirical study review in the areas of capital structure and its effect on profitability. Furthermore, it also covers the study variable of empirical works conducted in the area together with the knowledge gap of the area and conceptual framework of the study.

2.1 Theoretical Literature Review

2.1.1 Concepts and Definition of Working Capital

One aspect that needs investigation is the management of working capital in manufacturing firms. Working capital is the difference between current assets and current liabilities. Current assets are the resources in cash or readily convertible into cash. Current assets include all those assets that in a normal course of business return to the form of cash within a short period of time, ordinarily within a year and such temporary investment as may readily be converted into cash upon needed (Raheman and Nasr, 2007). On the other hand, working capital meets the short term financial requirements of a business enterprise. It is a trading capital, not retained in the business in a particular form for longer than a year (Padachi, 2006). In the most common sense, working capital can be expressed as sum of owned assets and current assets. In other words, working capital is used to afford short-term expenses, such as, raw materials, labor, general administrative expenses, tax, maintenance and repair expenses, energy and insurance expenses emerged during the period starting from the establishment of a business to the extent of going into operation and maintaining its activities. Working capital, also known as business capital, exhibits great importance in order to afford company to work with full capacity, continue production uninterruptedly, decrease the risk of liquidity, and not being in difficult situations financially in crisis situations (Konak&Güner, 2016).

There are two major concepts of working capital: Gross working capital and Net working capital. The gross working capital is referred as working capital and it include the total

current assets of the firms. If the current assets manage efficiently by the firm, then it gives more growth and can increase the value of the firm in the market. Net working capital is the difference between current assets and current liabilities of a trade and financial nature. Net working capital (NWC) = Current assets - Current liabilities (Muhammad, 2013).

Working capital management is concerned with making sure firm has exactly the right amount of cash and lines of credit available to the business at all times (Deloof, 2003). Cash is the lifeline of a company. If this lifeline deteriorates, so does the company's ability to fund operations, reinvest and meet capital requirement and payments. Understanding a company's cash flow health is essential to making investment decision. An individual company's investment in working capital has been related to the type of industry in which it operates and the essential working capital policy each individual company adopts (Nyakundi, 2003).

2.1.2 Types of working capital

Working capital is the capital/funds required for day to day operations of the business. Working capital is invested usually in all types of inventories such as raw materials, spares, finished goods etc and credit extension to debtors and cash in hand (Mifta, 2016).
According to Paramasivan& Subramanian (2009), working capital is classified into different types and its classification is based on the following views:

1. Balance sheet view
2. Operating cycle view

On the basis of balance sheet view, working capital is described as follows:
Working capital most importantly discussed in terms of two things, gross working capital and net working capital. The investment that is needed for receivables, inventories, and cash is generally called working capital or gross working capital. It is simply called current assets in the balance sheet of a firm. A certain part of the investment in working capital is financed by short-term financing (current liabilities)-meaning payables, current maturities etc. The difference between the current assets and current liabilities is the net working capital. Net working capital indicates how much a company has to invest of its

long-term capital to finance its working capital. Net working capital can be negative, in which case the company has more current liabilities than assets.

Much on long-term financing (which may be costly) to finance its operations. Ideally, from a lenders point of view, the current liabilities should cover most of the financing for current assets, and the shareholders equity the rest (Strischek, 2011).

The profitability of any firm depends on the level of investment in current assets. However, over investment in working capital means a negative effect on profitability of the firm while a positive effect on the liquidity. Many studies have been carried out on the relationship between the level of investment in current assets and profitability but have been found to have inverse association in the research on both micro and macro levels (Odero, 2014). Thus, as many researchers(Mifta, 2016) made a separation between operational working capital and financial working capital, most importantly this research took, the operational working capital, the part that can be optimized and affected by the company's operations which are account receivable, inventories and accounts payable.The rest, i.e. cash, marketable securities, prepaid and all other current liabilities are a financial decision of the company, and has very little to do with the company's operations in itself. This research focuses solely on the operational net working capital. This can be defined as receivables plus inventories minus payables.

On the basis of operating cycle view, types of working capital are described below:

Permanent / fixed working capital: it refers to a minimum amount of investment in all working capital which is required at all times to carry out minimum level of business activities (Brigham & Houston, 2003). In other words, it represents the current assets required on a continuing basis over the entire year. Further, working capital has a limited life and usually not exceeding a year, in actual practice some part of the investment in that is always permanent. Since firms have relatively longer life and production does not stop at the end of a particular accounting period some investment is always locked up in the form of raw materials, work-in progress, and finished stocks. Investment in these components of working capital is simply carried forward to the next year. This minimum level of investment in current assets that is required to continue the business without interruptions referred to as permanent working capital (Fabozzi&Peterson, 2003).

Temporary working capital: it's also known as the circulating or transitory working capital. This is the amount of investment required to take care of the fluctuations in the business activity. Fabozzi& Peterson (2003) defined as a rises of working capital from seasonal fluctuations in a firm's business. Because firms do not have to maintain this form of working capital throughout in the year, or year after year, it may be better to use short-term (bank credit) rather than long-term sources of capital to satisfy temporary needs. In other words, it represents additional current assets required at different times during the operating year. For example, extra inventory has to be maintained to support sales during peak sales period (seasonal working capital). Similarly, receivable also increase and must be financed during period of high sales. On the other hand investment in inventories, receivables and the like will decrease in periods of depression (special working capital). Temporary working capital fluctuates over time with seasons and special needs of firm operations, whereas, permanent WC changes as firm sizes increases overtime. Further, temporary WC is financed by short term debt.

2.1.3 Working Capital Management

According to Smith K.V, (1980) "Working capital management is concerned with the problems that arise in attempting to manage the current asset, current liabilities and their interrelationship that exist between them". In other words, the main objective of working capital management is managing the current asset and current liabilities effectively and maintaining adequate amount of both current asset and current liabilities (Paramasivan&Subramanian, 2009).

Through working capital management, some issues such as, how much investment will be made for which entity, and through which resources these investments will be financed, are intended to be determined. In this context, it has been investigated and discussed for years that whether significant relationship between management of working capital and firm performance has existed. It is predictable that the companies aiming at expanding constantly and obtaining maximum profitability can accomplish their goals with a strong financing and quality management. Acceptance of effective and efficient management understanding in terms of management of working capital will no doubt

provide a positive contribution to the performance of company. An effective management of working capital will benefit not only to enterprise but also country's economy (Konak&Güner, (2016)).

Management of working capital at least once within the one accounting period of enterprise as the efficiently and effectively administration of the assets that are convertible to cash. These current assets consist of money, securities, stocks, receivables and other current assets. In terms of management of working capital, dormant business capital leads to reduction of profitability and accordingly working capital deficit leads to the risk of unpaid debts (Konak&Güner, 2016).

Failing to manage the working capital effectively leads to some negative consequences; these are as follows: The current asset of every company has a cost. In case the current assets are very much, and company finances these assets with foreign resources, financing costs of company will be increased. If company finances these costs using its equities, then it will not be able to benefit alternative use of equity. In other words, regardless of a company's financing way; either using foreign resources or equities; having excessive working capital will result in a negative impact on profitability of company; another negative result is the lack of sufficient level of working capital. A company aims to use its capacity fully to profit and provide its continuity, so it needs sufficient working capital. Usage of full capacity requires continuity of production at a company to be ensured. As a result of failing to provide continuity of production; some problems, such as, customer losses, cost increase, failing to timely delivery of orders will occur; If companies don't take necessary precautions in terms of lack of working capital and to compensate their faults in the management of working capital, they can even take decision of clarification of company. Banks, credit sales vendors, stock or bond investors need to have necessary working capital to avoid losing their status in the market and reducing their credit rating. Otherwise, they can fail coping with these problems in future, and they may have to face big losses (Konak&Güner, 2016).

In respect to fixes assets, working capital is short-term and its liquidity is higher and can be divided, working capital decisions is renewable in short time and working capital elements are interrelated and active. In this context, an effective management of working

capital is realized by planning and keeping short-term debt and current assets under control, preventing the risk occurrence of nonpayment and avoiding unnecessary investment in current assets (Konak&Güner, 2016).

According to Mawhiraju (1999), working capital management involves administration of current assets and current liabilities which consists of optimizing the level of current assets in partial equilibrium context. Working capital management involves the relationship between firms' short –term assets and its short- term liabilities. Working capital management also refers to the decisions relating to working capital and short term financing and it involves managing the relationship between a firm's short-term assets and its short-term liabilities. The goal of working capital management is to ensure that the firm is able to continue its operations and that it has sufficient cash flow to satisfy both maturing short-term debt and upcoming operational expenses. Working capital entails short-term decisions generally relating to the next one-year period which are "reversible". These decisions are therefore not taken on the same basis as Capital Investment Decision (CID) rather they has been based on cash flow and or profitability. Every running business needs working capital. Even a business which is fully equipped with all types of fixed assets required is bound to collapse without (i) adequate supply of raw materials for processing; (ii) cash to pay for wages, power and other costs; (iii) creating a stock of finished goods to feed the market demand regularly; and, (iv) the ability to grant credit to its customers. All these require working capital. Working capital is thus like the lifeblood of a business. The business will not be able to carry on day-to-day activities without the availability of adequate working capital (Mifta, 2016)

Khan& Jain (2007) also stress that working capital management is concerned with the problems that arise in attempting to manage the current assets, the current liabilities and the interrelationship that exists between them. Working capital management also refers to the decisions relating to working capital and short term financing and it involves managing the relationship between a firm's short-term assets and its short-term liabilities. The goal of working capital management is to ensure that the firm is able to continue its operations and that it has sufficient cash flow to satisfy both maturing short-term debt and upcoming operational expenses. Working capital entails short-term decisions generally

relating to the next one year period which are “reversible”. These decisions are therefore not taken on the same basis as Capital Investment Decision (CID) rather they have been based on cash flow and or profitability.

2.1.4 Components of the Working Capital

The working capital can be disaggregated into three major components and it is recurrent to measure these components in periods of time, normally days. The current assets can be framed into: Number of Days of Accounts Receivable (DAR), Number of Days of Inventory (DINV) and on the side of the current liabilities, the Number of Days of Accounts Payable (DAP) and cash conversion cycle can be found.

1. **Accounts Receivable**

The delay between sales and the correspondent cash-inflow, originate the accounts receivable. Accounts receivable stands for the amount the clients have to pay to the firm on a current basis and are related with the operating activities. A higher figure of accounts receivable, means higher short-term loans given by the firm to the customers. Companies which facilitate trade credit to customers have more number of days of accounts receivable (DAR) meaning higher investment in working capital, but companies which receive the payments from the customers close to the moment on which they deliver the product/service, have less cash invested in working capital (ceteris paribus). Commonly, the level of investment in working capital depends on the type of strategy of the firms which is driven by the advantages and disadvantages of the cash tied up to the receivables.

When suppliers are allowing the customers to pay later, they usually are providing lower cost loans to customers than they can get from other creditors. This is also consistent with the fact that suppliers can usually conduct better credit evaluation of the customers than, say, financial institutions.

2. **Accounts Payable**

Accounts payable stand for an obligation to pay in a short-term period. Normally they refer to transactions to suppliers in the operational activities which were not already paid. They correspond to the amount due to suppliers starting from the moment the company

receives the material and ending in the exact moment the company pays for these materials. Fishman & Love (2001) found "firms in countries with less developed financial markets use informal credit provided by their suppliers to finance growth".

The numbers of days accounts payable (DAP) increase as debt to supplier's increases. Since companies can get cheap financing by delaying payments, they can engage in deliberately delaying the payment to suppliers as far as they can, using this financial opportunity to invest in other activities and get higher returns

3. Inventory

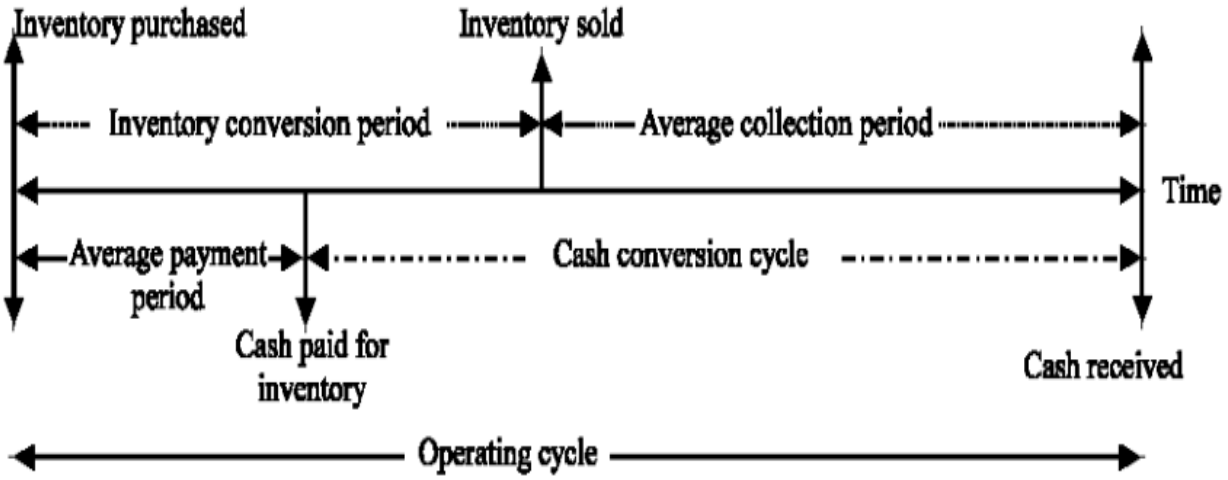
Inventories are goods or materials waiting to be sold and to be converted in cash in the short run. More investment in inventories means more cash tied up waiting to generate returns. Inventory management deals with a variety of risks which can increase costs and impact on the short-term management. The relevant costs are commonly classified as physical storage costs and management costs. The physical storages costs depend essentially in the nature of the product and the stage of the product. The inventory management costs can also be related to coordination and control, and may include costs related to theft, depletion and shrinkage of goods, order size, length of the production process and the availability credit from the suppliers.(source)

Inventory increases lead to higher number of days of inventory (DINV). Normally, companies try to mitigate as much as possible the cash tied up in inventories but sometimes, as part of the business, companies have a lot of cash invested in inventories since the product need to mature long periods to be finished and ready to be sold.

4. The Cash conversion cycle

Bigeret al (2010) proclaim that a popular measure of working capital management is the 'cash conversion cycle' which is calculated as 'days of sales in receivables', plus 'day's sales in inventory' minus 'day's payable outstanding'. This cycle essentially denotes the number of days a company's cash is tied up by its current operating cycle (Fried et al, 2003). The various interrelationships among working capital components are shown in

figure



Source: Jordan *et al*, 2003.

Figure 1: Operating and cash conversion cycles

The cash conversion cycle depicted in figure 1 above captures the interrelationship of sales, cash collections, and trade credit in a manner that the individual numbers may not. To the extent a firm uses credit, the length of the cash (operating) cycle is reduced.

2.1.5 Impact of working capital management on firm's profitability

Raheman& Nasr (2007) studied the effect of different variables of working capital management including average collection period, inventory turnover in days, average payment period, cash conversion cycle, and current ratio on the net operating profitability. They found a strong negative relationship between variables of working capital management and profitability of the firm. They found that as the cash conversion cycle increases, it leads to decreasing profitability of the firm and managers can create a positive value for the shareholders by reducing the cash conversion cycle to a possible minimum level.

Mathuva (2009) pointed out that there exists a highly significant negative relationship between the time it takes for firms to collect cash from their customers (accounts collection period) and profitability, there exists a highly significant positive relationship

between the period taken to convert inventories into sales (the inventory conversion period) and profitability, and there exists a highly significant positive relationship between the time it takes the firm to pay its creditors (average payment period) and Profitability.

2.2 Review of Empirical Studies

Many researchers have studied on issues related to working capital management on profitability in different ways in many countries. In this study some of the empirical results are presented below.

Mobeen&Naveed(2013) studied on the determination of the impact of working capital management on profitability of Pakistan cement sector by outlining the main factors that basically determine the working capital in the financials. They collected firm's liquid assets from annual reports and sample consist of ten Pakistan cement companies listed from 2003 – 2008. They obtained the association between working capital management and profitability employing correlation and also the regression analysis. Result showed inverse and positive association between working capital management and profitability.

Mathuva (2009) examined the influence of working capital management components on corporate profitability by using a sample of 30 firms listed on the Nairobi Stock Exchange (NSE) for the periods 1993 to 2008. He used Pearson and Spearman's correlations, the pooled ordinary least square (OLS), and the fixed effects regression models to conduct data analysis. The key findings of his study were that: there exists a highly significant negative relationship between the time it takes for firms to collect cash from their customers (accounts collection period) and profitability, there exists a highly significant positive relationship between the period taken to convert inventories into sales (the inventory conversion period) and profitability, and there exists a highly significant positive relationship between the time it takes the firm to pay its creditors (average payment period) and Profitability.

In Saudi Arabia, Abuzar (2004) conducted an empirical investigation to examine the relation between profitability and liquidity, as measured by current ratio and cash gap (cash conversion cycle) on a sample of joint stock companies using correlation and

regression analysis. The study found that, significant negative relation between the firm's profitability and its liquidity level, as measured by current ratio. This relationship was more evident in firms with high current ratios and longer cash conversion cycles. At the industry level, however, the study found that the cash conversion cycle or the cash gap was of more importance as a measure of liquidity than current ratio that affects profitability. The size variable was also found to have significant effect on profitability at the industry level.

Gakure et al. (2012) analyzed the relationship between working capital management and performance of fifteen manufacturing firms at the Nairobi from 2006 – 2010 and for a total of 75 firms year observations and in addition they used secondary data from a sample of 18 companies at the NSE. Pearson's correlation and regression analysis were used for the analysis. Their results indicated that there was a strong negative relationship between performance and liquidity of the firm, a negative relationship between accounts collection period, average payment period, inventory holding period and profitability while the cash conversion cycle was found to be positively correlated with profitability. However, the effects of the independent variables except the average payment period were no statistically significant though the overall model was statistically significant.

Sharma & Kumar (2011) investigated the effect of working capital on profitability of Indian firms. They collected data from a sample 263 non – financial Bombay Stock Exchange from 2000 to 2008 and evaluated the data using OLS multiple regression. The results revealed that working capital management and profitability was positively correlated in Indian companies. The study further revealed that inventory of number of days and numbers of day's accounts payable were 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 et al. (2010) analyzed the impact of working capital management on firm's performance in Pakistan for the period 1998 – 2007.98 to 2007. For this purpose, they took balanced panel data of 204 manufacturing which were listed on Karachi Stock Exchange. The results indicate that the cash conversion cycle, net trade cycle and inventory turnover in days are significantly affecting the performance of the firms. They

concluded that manufacturing firms were in general facing problems with their collection and payment policies. Moreover, financial leverage, sales growth and firm size also had significant effect on the firm's profitability. They recommended that effective policies must be formulated for the individual components of working capital.

Mathuva (2010) in his study on the influence of working capital management on corporate profitability found that the existence of a highly significant negative relationship between the time it took for firms to collect cash from their customers and profitability. In other words, as he further explained, the more profitable firms took the short test time to collect cash from the customers, the higher their profit. The study further revealed the existence of a highly significant positive relationship between the inventory conversion period and profitability. Meaning, firms that maintained sufficiently high inventory levels reduce costs of possible interruptions in the production process and loss of business due to scarcity and products. The study also found out the existence of a highly significant positive relationship between the average payment period and profitability. That is the longer a firm took to pay its creditors, the more profitable it was. After all, in this study, a sample of thirty firms listed in the Nairobi Stock Exchange for the periods 1993 to 2008. Both the ported OLS and the fixed effects regression models were used.

Gill et al.(2010) analyzed the relationship between working capital management and profitability of 88 American firms listed on New York Stock Exchange for a period of years from 2005 to 2007 (3 years) was selected. The data was analyzed using Pearson bivariate correlation analysis and weighted least squares regression analysis. They found statistically significant relationship between the cash conversion cycle and profitability, measured through gross operating profit. It followed that managers can create profits for their companies by handling correctly the cash conversion cycle and by keeping accounts receivables at an optimal level.

In Nigeria as well, Owolabi et al. (2011)have employed investigative and empirical analysis approach to examine the relationship between liquidity and profitability in selected quoted companies, banking, processing, and manufacturing companies and also to examine the nature and extent of the relationship between liquidity and profitability in

profit-driven quoted companies. Liquidity measure, from a comparative static dimension, consider current assets- liabilities ratio while profitability measure was operating profit turnover ratio. Correlation and regression analysis were employed on data extracted from annual reports and accounts of the companies for the period (2003 – 2009).Their findings showed that a trade-off existed between liquidity and profitability in the banking company and the two variables were positively correlated and also reinforced each other in the other companies. The performance measures exerted negative but insignificant effect on, and exhibited weak explanatory power in explaining changes in, each other. They exerted significant positive effect on, and strongly explained changes in, each other in processing firm. In the manufacturing firm, they exerted positive but insignificant effect on, and exhibited weak explanatory power in explaining changes in, each other. Consequently, they recommended that, among other things, banks should always strike a balance between liquidity and profitability to satisfy regulatory requirements as well as shareholders' wealth aspirations; manufacturing outfits should pursue profit maximization since so doing simultaneously enhances liquidity; while processing outfits should always ensure adequate liquidity, especially raw material inputs, since it seemed necessary to remain in operation.

Fayaz&Wajid (2012) in a case of Pakistan Textile Industry, conducted a research in order to examine the impact of working capital and its components on return the assets of Pakistan Textile Industry. Return on assets(as a dependent variable) was used as a proxy for firm profitability and number of days account receivable, number of days inventory, number of days account payable and cash conversion cycle were taken as independent variables. They used annual data in panel form of 46 listed companies from textile industry as a sample for a period of (2003 -2009). Employing the ordinary least square method, theyobtained that all the independent variables, number of day's account receivable, number of day's inventory, number of day's account payable and cash conversion cycle negatively affected the dependent variable return on assets. They concluded that shorten the period from sales to cash receipt, the higher the firm's ability to generate profits.

In Ghana, Ebenezer&Asiedu (2013) researched the effect of working capital management on the profitability of companies within the Accra Metropolis in Ghana. Secondary data were taken from the annual financial statements of the manufacturing companies listed on the Ghana Stock Exchange (GSE) from the period 2007 to 2011.The study used three measures of working capital such as inventory days, account payable and cash conversion cycle to test whether they have significant effect on profitability or not. Panel data regression analysis of cross-sectional and time series data was employed. The study found out that, all the three measures of working capital management had insignificant effect on profitability of the manufacturing firms in the Accra Metropolis. But one of the three measures, cash conversion cycle had positive effect, whereas, the other two, account payable days and inventory days had negative effect. The conclusion indicated that managers of manufacturing companies must employ efficient and effective working capital management practices to ensure the survival of the business. Furthermore, they observed negative relationship between accounts payable days and profitability might be due to lower gross operating profit was associated with an increase in the accounts payable days. Meaning, as they pointed out, the lessprofitablefirms to pay their bills taking advantage of credit periods, the granted their suppliers become. Finally, they recommended that, manufacturing companies should adopt efficient and effective working capital management policies to keep working capital at optimal level. It looks like working capital management had not been effective and efficient for the manufacturing industry in Ghana.

Kabethi (2013) on the effect of working capital management practices on the financial performance of small and medium enterprises indicated that 62.9% of the SME's in Kenya did not have a written policy on WCM. However, they were informally adopting some of the WCM practices. Moreover, his study indicated that there was a significant positive relationship between WCM components (APP, ACP and ICP) and financial performance of SMEs in Kenya. A positive correlation coefficient of 0.833 was established between ROA and the ACP indicating a significant positive relationship between ACP and ROA. A positive correlation coefficient of 0.869 was also established between ROA and ICP indicating a significant positive relationship between ROA and ACP. Finally a positive correlation coefficient was established between ROA and APP

indicating a significant positive relationship between ROA and APP. While conducting the research, he used a cross sectional survey to establish whether SMEs in Kenya carry out WCM practices. A sample of 89 SMEs for a period of two years, 2009 and 2010 was used. The study relied on both primary data, collected through a questionnaire, and secondary data collected from annual reports and financial statements of SMEs.The study employed a regression analysis and the Pearson correlation analysis to test the significance relationship between WCM and financial performance of SMEs.

In Kenya, where manufacturing sector is the second most important sector after agriculture, Ndirangu (2015) conducted a research to determine the effects of working capital management on profitability of manufacturing firms in Kenya. The study had five objectives: to determine whether credit policy influences, establish the degree to which accounts payable practices influence, examine how inventory control practices influence, establish whether liquidity management practices influence and investigate whether working capital levels influence profitability of manufacturing firms in Kenya. The target population was 413 manufacturing firms in Nairobi industrial area and its environs. These firms were registered with Kenya association of manufacturers and were in the KAM 2011 directory. A sample of 81 chief finance officers filled in the questionnaire. Both descriptive and inferential analyses such as Karl Pearson's correlation, regression and ANOVA analyses were used.The results of the study showed that there was positive linear relationship between all the independent variables (credit policy, accounts payable practices, inventory control practices, liquidity management practices and working capital levels) and profitability and all the models were significant. The findings of the analysis revealed that all the independent variables had a significant combined effect (R2 = 0.933) on profitability of manufacturing firms in Kenya and can be used to predict profitability.The study made the following recommendations; manufacturing firms to regularly review their credit policies, make early payments to their suppliers to enjoy good relationship with their suppliers, install and maintain modern inventory control systems, establish optimal cash targets, lower and upper limits and employ accountants with adequate knowledge in financial matters.

Lawal, Abiola, &Oyewole (2015) Studied by taking six selected companies in Nigeria covering the period between 2006 and 2013 was used for the study. Purposive sampling technique was adopted and data collected was analyzed using panel data least square method of regression. The study found a significant negative relationship between the components of working capital (ARP, APP and IHP) and profitability (ROI) it concluded that working capital management has significant impact on profitability of manufacturing companies.

In Ethiopian Context, there are studies with reference to working capital management and firm profitability, especially in small and medium enterprises on the manufacturing sector and companies.

Ephrem (2011) examined the impact of working capital management on profitability of the selected small and medium enterprises which are found in Addis Ababa. He took sample of 30 small micro enterprises from the two sub cities of Addis Ababa namely Nifas-Silk-Lafto and Kirkos. The analysis was done for five years from 2005-2009 using Pearson correlation, regression analysis and pooled ordinary least squares. His results indicated that cash conversion cycle and average collection period had negative impact on net operating profitability of the firms. Finally, he concluded that a good working capital management practices can boost the profitability of small businesses.

Tringo(2013) conducted a research to examine the impact of working capital management on profitability of micro and small enterprises in Ethiopia the Case of Bahir Dar City Administration. She used a sample of 67 micro and small enterprises and secondary data was collected from the financial statements of the enterprises listed on Bahir Dar City micro and small enterprises agency for the year 2003. The study used number of days account receivable, number of days inventory, number of days account payable, and cash conversion cycle as independent variables controlling for CATA ratio, CLTA ratio GEAR and enterprise size. The study applied Pearson's correlation and OLS regression with a cross sectional analysis. The finding of the study indicated that there was a strong positive relationship between number of days account payable and enterprises profitability. But number of days accounts receivable, number of days inventory and cash conversion cycle had significant negative impact on profitability.

Finally, the study suggested that by shortening cash conversion cycle an enterprise's profitability could be increased.

Wubishet (2014) conducted a research to examine the impact of working capital management on firms' performance by using audited financial statements of a sample of 11 metal manufacturing private limited companies in Addis Ababa, Ethiopia for the period of 2008 to 2012. In the study, performance of the firms were measured in terms of return on total assets and return on investment capital as profitability and Cash conversion period, Accounts receivable period, inventory conversion period and accounts payable period were used as independent working capital variables. Moreover, current ratio was used as liquidity indicators, firm size as measured by logarithm of sales, firm growth rate as measured by change in annual sales and financial leverage as control variables. The data was analyzed by correlation analysis and pooled panel data regression models of cross-sectional and time series. The finding of the study showed that there exists significant negative relationship between cash conversion cycle and profitability measures of the sampled firms. No significant relationship between cash conversion cycle, account receivable period, inventory conversion period and account payable period with return on investment capital. Furthermore, the findings showed that a highly significant negative relationship between account receivable period, inventory conversion period and account payable period with return on asset. The study concluded that cash conversion cycle had significant negative relationship with return on asset and pointed out that paying suppliers longer and collecting payments from customers earlier, and keeping product in stock less time, were all associated with an increase in the firms performance. Thus, managers, can increase firms' profitability by improving the performance of management of working capital components.

Mifta(2016) conducted a study to examine the impact of working capital management on profitability of manufacturing share companies in Ethiopia with special reference to large tax payers using quantitative approaches to test a series of research hypotheses. The financial statements of a sample of sixteen (16) manufacturing share companies were used for a period of seven years (2008-2014) with the total of 112 observations. Data was analyzed using descriptive and regression analysis (Ordinary Least Square) method. It

examined the components in working capital such as accounts receivable period, inventory holding period, accounts payable period, and cash conversion cycle in relation to return on asset (ROA) as a dependent variable. In addition the study used current ratio, used as liquidity indicator; firm size, as measured by logarithm of sales; firm growth rate as measured by change in annual sales and financial leverage, as control variables. The main findings of the study were a significant negative relationship between average collection period and profitability indicating that an increase in the number of days a firm receives payment from sales affects the profitability of the firm negatively; a negative relationship between inventory holding period with profitability and positive relationship between accounts payable period and profitability. But, both inventory holding period and accounts payable period was found to be insignificant in affecting profitability of the firms, and anegativerelationship between cash conversion cycle and profitability of the firm. Meaning, as the cash conversion cycle decreases, it leads to an increase in profitability of the firm, and so that managers can increase profitability of their firms by shortening the time lag between a firm's expenditure for purchases of raw materials and the collection of sales of finished goods. Finally, positive relationships between liquidity and profitability measures were observed. In general the study recommended that firms should minimize working capital management components in order to maximize profitability.

Summary of Literature Review and Empirical Studies and Research Gaps

As the related literature reviews and the empirical studies mentioned above indicated that working capital management has impacts on the profitability, liquidity and performance of a firm. But even if the literature reviews and empirical studies pointed out the impact of working capital management on the profitability, liquidity and performance of a firm, there is still vagueness regarding the appropriate variables – independent and control variables, in setting hypotheses and in size measures that might serve as proxies for working capital management as a whole.

From the empirical studies raised above, it could be described that working capital has an impact on profitability. Some of the researchers (Mathuva, 2009) found out that

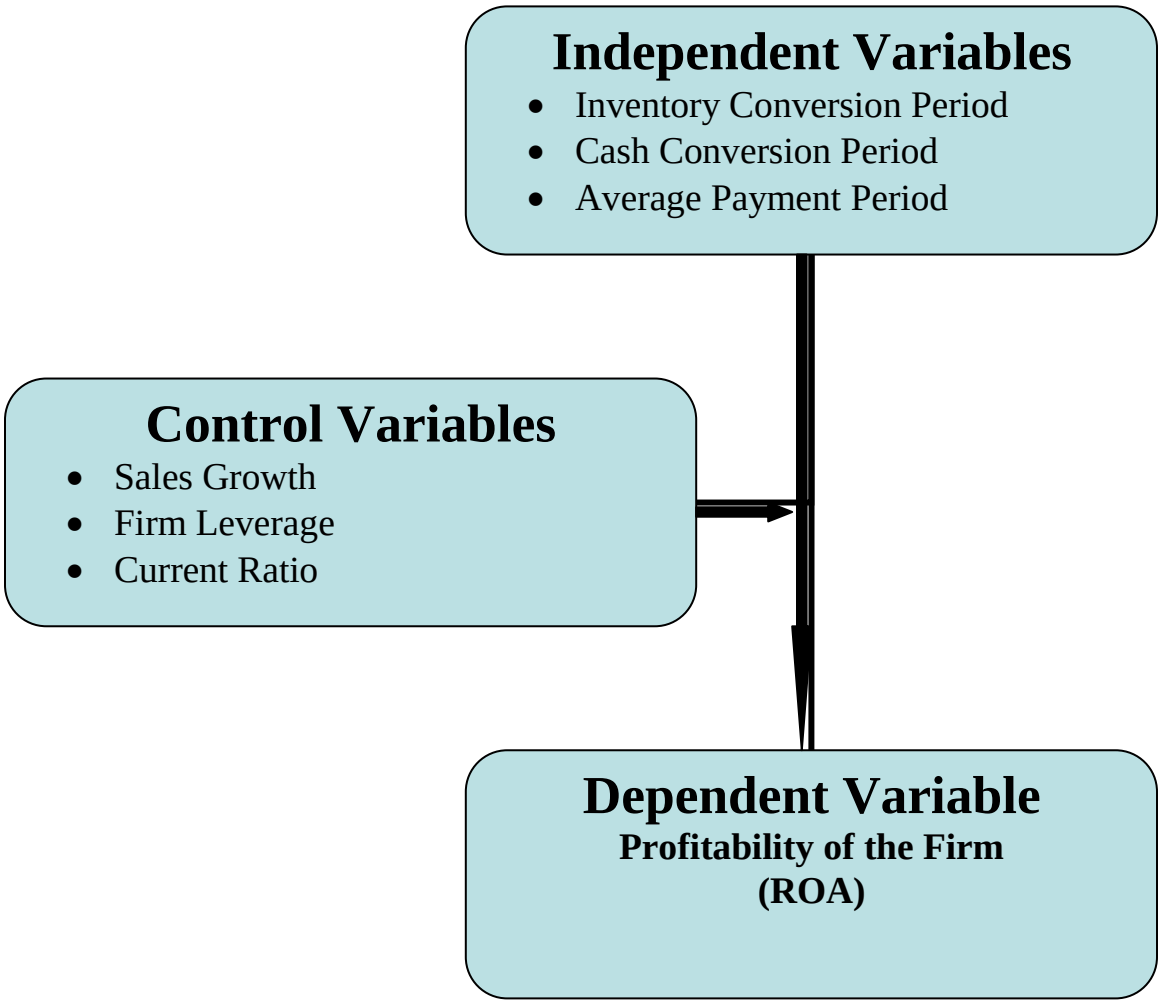
shortening days in collection period would result in increase on profitability and they further noted firms with shorter accounts payable period are less profitable and quick turnover of inventory would increase profitability. In contrast with this, few of the empirical results showed that account receivables period and cash conversion cycle exhibited a positive relationship with profitability and on the other hand days account payable and inventory holding days are negatively correlated with firms profitability. Regarding this, some researchers(Theodros, 2010) suggested that reduction of cash conversion cycle and quick turnover of inventory would increase profitability and others (Tiringo, 2013) suggested that firms with shorter account payable period are less profitable.

As to independent variables and control variables selection, some researchers used only the four working capital components – ARP, IHP, APP, and CCC to study the impact/relation of working capital management on profitability/performance of firms(company level)(Sharma and Kumar, 2011;Gakure et al., 2012; Fayaz&Wajid, 2012), on the other hand some of them used three components of working capital (Mathuva, 2010; Ebenezer &Asiedu, 2013; Kabethi, 2013,; Raheman et al., 2010). The other approach, taking the four components of working capital and control variables - credit ratio, firm leverage, firm size, and sales growth in order to investigate the effect of working capital management on the profitability of firms on small and medium enterprises(Tringo, 2013; Wubishet, 2014; Mifta, 2016).

It is clear that from the aforementioned empirical evidences, there have been different results on the impact of working capital management on profitability. This is may be due to the lack of incorporating all relevant independent and control variables appropriately to measure both working capital and profitability or suitable method of inferential analysis. Therefore, this study attempted to include the major important variables and provides useful support for better understanding of the impact of working capital management on profitability of agro processing firms in hawassa city Ethiopia.

2.3 Conceptual Framework of the Study

The following figure presents schematic conceptual framework of the relationship between working capital management measures and profitability of firms.



Source: *Researcher's Formulation, 2023*

Figure 2. Schematic conceptual frameworks

CHAPTER THREE

3. METHODOLOGY OF THE RESEARCH

Research methodology is the procedures by which researchers go about their work of describing, explaining and predicting phenomena (Rajasekar et al. 2013). Under this section the researcher see source and method of data collection, target population and sampling frame, sampling techniques and sample size, method of data analysis, variable definition and model specification.

3.2 Research Design

Research design was the plan and structure of investigation so conceived as to obtain answers to research questions. The plan would be the overall scheme or program of the research. The main purpose of the research was to determine the impact of working capital management on the profitability of agro processing firms in Hawassa city Ethiopia for the period 2013 - 2022. The study was adopting an explanatory research that used a quantitative research approach through the use of secondary data. The explanatory research design was useful especially when a study needs to measure the cause and effect relationships evident between pre-selected and discrete variables.

Schindler and Cooper (2001) discussed that explanatory studies unlike descriptive studies, go beyond observing and describing the condition and tries to explain the reasons of the phenomenon. According to Grover (2003) explanatory research is devoted to finding causal relationships among dependent and independent variables. It does so from theory-based expectations on how and why variables should be related. Hypotheses could be basic (i.e., relationships exist) or could be directional (i.e., positive or negative). The quantitative data gathering methods are useful especially when a study needs to measure the cause and effect relationships evident between pre-selected and discrete variables (Addisu, 2011).

The justification for the use of this method is it enables the researcher in explaining the impact of working capital management on the profitability of agro processing firms in Hawassa city Ethiopia. Furthermore, as the research design goes beyond description of

the phenomena was enables the researcher to use theory based expectations on how and why the variables associate**.**

3.3 Research Approach

As stated in (Creswell, 2009) interms of research study there are three familiar types of research approaches to business and social science researches namely: quantitative research approaches. Therefore, the following discussion briefly presents the basic nature of quantitative research approaches along with their respective merits and demerits.The strategy adopted in the study contains diverse methods and tools that are relevant to achieve the desired research outcome. Accordingly, the research strategy employed in this study using quantitative approach. The use of quantitative strategy of inquiry is necessary when the researcher want to deeply investigate and analyze an event.In doing so, the study intends to describe, the existing facts in relation to various variables, which will help to understand the issue and analysis.

3.4 Target Population of the Study

The target populations of the study areagro processing firm presented in Hawasa that established before end of 2013. According to Hawasa City investment and industry office (2022) agro processing firm can classified in three categories. These are including agro industry, textile and wood processing companies. Based on report of Hawasa City investment office there are 100 large manufacturing companies found in Hawasa City. Among these in current year of 2022 data the number of agro industry are 44, textile are 29 and wood processing companies are 27.

3.5 Sample Size and Sampling Technique

Sampling is the process of selecting a few (a sample) from a bigger group (the sampling population) to become the basis for estimating or predicting the prevalence of an unknown piece of information, situation or outcome regarding the bigger group. A sample is a subgroup of the population you are interested in (Kumar, 2011).

The target population of the study in agro processing firm presented in Hawasa, Ethiopia. But ten (10) agro processing firm would be selected in Hawasa. To select a Sample of agro processing firmused a purposive sampling techniques a specifically convenient sampling for collecting information from members of the population who is conveniently available to provide it. Because of all, the agro processing firmis still under a construction. The study consists of ten (10) agro processing firm.this studdy used a purposive sampling technique to determine sample respondents of agro processing companies depending up on new technology usage, number of employees created by the firm and capital utilized in the firms project of the criteria's ranked from 1-10 selected.

3.6 Data Type and Source

In this study the researcher used secondary data. The study examined the impact of working capital management on the firm profitability of large agro processing firm in Hawasa City. To achieve the research objective and to test the hypotheses, the study adopted quantitative research approach. Accordingly to the nature of research, the data for the study used companies' audit financial statement (especially balance sheet and income statement) in general from the period of 2013 up to 2022. The reason for selecting to this period is due to the latest data for the investigation available for these periods.

3.7 Data Collection Method

To achieve the objectives of the study,used secondary data. The secondary data obtained from the selected companies annual reports or audited financial statements consequently begin 2013 – 2022 G.C. the justification limiting to this period the most recent information for examination accessible for these periods. The study used quantitative data to perform quantitative research to examine the phenomena by analyzing the numerical data; would be used mathematically based methods, particularly statistics. The quantitative data is secondary data collecting from yearly fiscal reports of the firms for a consecutive ten years period from 2013 to 2022 G.C.

3.8 Method of Data Analysis

In this study the researcher would be used secondary data. The study examined the effect of working capital management on the firm profitability of agro processing firm in Hawasa City. To achieve the research objective and to test the hypotheses, the study adopted quantitative research approach. Accordingly to the nature of research, the data for the study used companies' audit financial statement (especially annual reports and income statement) in general from the period of 2013 up to 2022. The reason for selecting to this period is due to the latest data for the investigation available for these periods.

Under these sections of the methodology, quantitative data analysis methods, econometrics model is applied on the panel data that collected from companies financial statement specifically annual report and income statement different industries over a period of time, and regressed as control (supportive) variable, independent and dependent variables. STATA-12 software would be used to analysis the data. To test the proposed hypotheses, statisticalanalyses carried out using the following methods. Firstly, descriptive statistics are calculated over the sample period. This is in line with Malhotra (2007) which states using descriptive statistics methods helps the researcher in picturing the existing situation and allows relevant information. At this stage, mean, standard deviation, maximum and minimum values of the required variables have been computed. Then, correlation analyses between dependent and independent variables would betested.

3.9 Model Specification

According to Brooks (2008) it is very easy to generalize the simple model to one with k regressors (independent variables). In this respect, the study examined the impact of working capital management on profitability of agro processing firms in Hawassa, Ethiopia by employing a multiple regression model which has the following general form.

The study is adopted a quantitative approach to examining capital structure, profitability in manufacturing companies in the case of Hawassa. Multiple linear regression analysis

was captured existence of simultaneous relationships between dependent and independent variables and worked best in identifying effects that each explanatory variable has on each of the profitability. For the purpose of analysis the study were applied STATA-12 econometric software used for data analysis. The multiple linear regression models were as follows:

$$\mathbf{Y_t = \beta_0 + \beta X_t + \mu_t}$$

Where:

- $\mathbf{Y_t}$ = is the dependent variable.
- $\boldsymbol{\beta_0}$= is the intercept
- $\mathbf{X_t}$ = is the independent variable.
- $\boldsymbol{\mu_t}$=are the error terms.
- $\boldsymbol{\beta_1, \beta_2, \beta_3, \beta_4 \ldots\ldots\ldots \beta_n}$= Slopes of the equation in the model

Therefore, the general models which incorporate all of the variables to test the hypotheses of the study are specified as:

$$\boldsymbol{ROA_{it} = \beta_0 + \beta_1 ICP_{it} + \beta_2 APP_{it} + \beta_3 CCC_{it} + \beta_4 SG_{it} + \beta_5 FL_{it} + \beta_6 CR_{it} + \mu}$$

Where;

- R**OA** = Profitability
- $\boldsymbol{ICP}$= Inventory conversion period
- **APP=** Average payable period
- **CCC** = Cash conversion period
- **CR** = Current ratio
- FL = Firm Leverage
- SG = Sales Growth
- **U** =Error terms

3.10 Description of Variables

As aforementioned in the specific objectives, this study undertook the issue of identifying variables that can have potential impact on working capital management on profitability of Agro processing firms in hawassa city. Regarding this, the study employed a number of variables stated below and have been used to analyze and to test the hypotheses of the study. They are dependent, independent, and control variables. The variables were used as applied in previous research (Wubishet, 2014) focusing on the relationship between working capital management and profitability.

3.10.1 Dependent variable

Dependent variables are variables that are used to measure the profitability of firms. In this study, in order to analyze the impact of working capital components on the profitability of manufacturing firms, profitability was measured by return on assets (ROA).

ROA is a widely used financial tool to determine the level and intensity of returns that a firm has generated by employing its total assets. Firms are usually considered well off when they generate returns that can attract further investors and lenders, and in trouble if they need to raise the finance required for growth or capital needs, or if their ROA does not convince financiers. ROA reflects the earnings generated by the capital invested, and is calculated as follows:

$$\text{ROA} = \frac{\textbf{Net Income}}{\textbf{Total Assets}}$$

In this study, ROA is used as dependent variable. ROA has been used by (Samiloglu&Demirgunes, 2008; Sharma and Kumar, 2011; Mogaka&Jagongo, 2013). The return on assets determines the management efficiency to use assets that generates earnings. It is a better measure since it relates the profitability of the company to asset base (Padachi, 2006).

3.10.2 Independent variables

The independent variables used as proxies of working capital management were: Cash conversion cycle, Accounts receivable period, Inventory holding period, and Accounts Payable Period.

While this study was exploring the impact of the aforementioned four variables on profitability, it is noted that this list of the selected variables was not exhaustive as there are a number of working capital components that can affect profitability. The choice of explanatory variables was based on the following factors: 1) alternative theories related to working capital management (for example, one theory stating that a longer cash conversion cycle increases firm profitability given that it leads to higher sales, and the opposing theory stating that corporate profitability decreases as cash conversion cycle elongates, particularly if the costs of higher investment in working capital rise faster than the benefits of holding more inventory and/or granting more trade credit to customers and 2) working capital management variables used in previous studies conducted in other geographic jurisdictions has been used to calculate the relationship between working capital management and profitability(Makori&Ambrose, 2013; Akoto et al., 2013; Azam&Haider, 2011; Odero, 2014). The descriptions of how the variables are measured and computed are explained below.

1. **Cash Conversion Cycle (CCC)**

The cash conversion cycle measures the net time interval between actual cash expenditures on a firm's purchase of productive resources and the ultimate recovery of cash receipts from product sales (Richards and Laughlin, 1980). It is measured as follows:

Cash Conversion Cycle (CCC) = ARP + IHP-APP

The three components of Cash conversion cycle are specified below:

2. **Inventory Holding Period (ICP)**

Inventory holding period measures the number of days inventory is held by the company before it is sold. The less number of days sales in inventory indicates that inventory does

not remain in warehouses or on shelves but rather turns over rapidly from the time of acquisition to sale (Fried et al, 2003). This ratio is measured as follows:

$$\textbf{Inventory Holding Period (ICP)} = \frac{\textbf{Inventary}}{\textbf{Cost of goods sold}} \times \mathbf{365\ days}$$

3. **Accounts Payable Period (APP)**

Accounts Payable Period (APP) measure the number of days a firm takes to pay its suppliers. Thus, this ratio represents an important source of financing for operating activities. The ratio is measured as follows:

$$\text{Account Payable Period (APP)} = \frac{\textbf{Accounts Payable}}{\textbf{Cost of goods sold}} \times \mathbf{365}\ \boldsymbol{days}$$

3.10.3 Control Variables

The control variable (or scientific constant) in scientific experimentation is the experimental element which is constant and unchanged throughout the course of the investigation. The control variable strongly influences experimental results, and it is held constant during the experiment in order to test the relative relationship of the dependent and independent variables. The control variable itself is not of primary concern to the experimenter (Wikipedia). Essentially, a control variable is what is kept the same throughout the experiment, because any change in a control variable in an experiment would invalidate the correlation of dependent variable (DV) to the independent variables (IV). Thus in this study, in order to have a reliable analysis of the impact of working capital management on profitability of the firms, it is common in working capital literature to use some control variables which brought impacts on firm's profitability. The control variables used in the study are:

1. **Current Ratio**: Liquidity is one of the objectives of working capital management. In this study, the researcher has tried to examine the relationship between the two objectives of working capital management policies: liquidity and profitability. Liquidity refers to the ability to meet current liabilities from available current assets. Current Ratio (CR) was used as one of the control variable for the study.

The ratio is measured as follows:

$$\textbf{Current Ratio (CR)} = \frac{\textbf{Current Assets}}{\textbf{Current Liabilities}}$$

2. **Firm Leverage (FL)**: as measured by debt ratio which is calculated by total debt to total asset Fabozzi & Peterson (2003) to keep debt utilization effect constant, firm leverage was used as control variable.

3. **Sales Growth (SG):** measured by [(current year sales-last year sales) /last year sales] was used as control variable. This control variable is consistent with that of (Deloof, 2003) and (Afza&Nazir, 2007)

3.11 Expected Sign

Expected sign was a statistical technique which shows the relationship between two variables. The positive expected sign means that one variable has positive influence on another while negative expected sign means that when one variable shall have a negative influence on another variable.

Table 1: Summary of explanatory variables and their expected impact on the dependent variable

Classification	Variables	Description	Measurement	Expected sign
Dependent variables	Return on Asset	Indicate of how profitable a company is relative to its total asset	ROA = $\frac{\text{Net Income}}{\text{Total Assets}}$	
Independent Variable	Average payable period (2)	Explains the average period of length among material that purchased and payment to the labours	APP = $\frac{\text{Accounts Payable}}{\text{Cost of goods sold}} \times 365\ days$	(+)
	Inventory collection period (3)	365 days/account payable turnover ratio	ICP=$\frac{\text{Inventary}}{\text{Cost of goods sold}} \times 365\ \text{days}$	(-)
	Cash collection period	Indicates the average length of time that money is tied up in current assets	CCC = ARP + ICP-APP	(-)
	Current asset to total asset ratio	$\frac{\text{Total Current asset}}{\text{total asset}}$	CR= $\frac{\text{Total Current asset}}{\text{total asset}}$	(-)
Control Variables	Sales growth	Shows the amount by which the average sales volumes of company's product or service has growth, typically from year to year	Percentage	(+)
	Firm leverage	calculated by total debt to total asset	FL= Total debt/total asset	(-)
	Current ratio	It shows relationship between current asset and current liability	Current Ratio (CR) =$\frac{\text{Current Assets}}{\text{Current Liabilities}}$	(+)

CHAPTER FOUR

4. DATA PRESENTATION AND ANALYSIS

This chapter presents and discusses the empirical results on the impact of working capital management on firm's profitability. The study provided three types of data analysis; namely descriptive analysis, correlation analysis, and regression analysis. The results of descriptive statistics which shows the relevant phenomena of variables such as minimum, maximum mean and standard deviation of the variables used in the study is presented first. Secondly, Correlation analysis has been performed in order to measure the degree of association or relationship between working capital management and profitability of the chosen enterprise Next presents the test for the classical linear regression model (CLRM) and finally a regression result which outlines an in-depth examination of the relationship between profitability and the various variables under consideration also discussed and finally the tested hypotheses are presented accordingly.

4.1 Descriptive statistics for the study variables

In this section the results from descriptive statistics is discussed. Table 1 below presents descriptive statistics of the dependent and independent variables of the study. It shows the mean and standard deviation of the variables used in the study. In addition, it shows the minimum and maximum values of each respective variable which essentially gives an indication of how wide ranging each respective variable can be.

Table 2: Descriptive Statics

Variable	Obs.	Mean	Std. Dev.	Min	Max
ROA	100	0.004	0.003	0.001	0.012
ICP	100	73.460	12.492	51.633	108.902
APP	100	21.889	9.833	10.373	54.482
CCC	100	97.659	53.167	24.085	274.500
SG	100	2.920	2.720	0.301	12.141
FL	100	0.187	0.079	0.080	0.389
CR	100	0.006	1.437	-3.389	5.423

Source: Researcher's computation with Stata software, 2023

Table 2 above provides a summary of the descriptive statistics of the dependent and independent variables for ten year from 2013 to 2022 for ten agro processing companies with a total 100 observations. For example, the Return on Assets (ROA) variable has a minimum value of 0.001, a maximum value of 0.012, a mean value of 0.004, and a standard deviation of 0.003. This indicates that the average return on assets for firms in Hawassa City is 0.004, with a relatively low level of variation (standard deviation of 0.003).

As presented in table 2 above, the descriptive statistics show that it takes on average of 73 days to sell inventory. The standard deviation of inventory holding period is 12 days with 52 and 109 days as minimum and maximum values respectively. These imply that there is a agro processing company that holds their stocks to their business line with maximum value of 109 and with a minimum value of 52 days during the selected period.

The cash conversion cycle, used as a comprehensive measure of working capital management has an average 97.6 days and the standard deviation of 53 days. The minimum value of the cash conversion cycle shows 20.08 days and on the other way, the maximum time for the cash conversion period is 274 days. These imply that there is an agro processing company who need an average time 98 days to tied up with current asset and maximum and minimum length of 274 days and 20.08 days respectively, to tied up in current assets. The standard deviation for this particular variable is 53 which show high level of variation between the variables under study.

As presented in table 2 above, the explanatory variable CR, which is estimated by dividing current assets to current liabilities has a minimum value and maximum value of –3.38 and 5.42 respectively, while the mean value is 0.006. These imply that there is a manufacturing company who pay their short term liabilities of their business line with maximum value of 5.42 and with a minimum value of -3.38 during the selected period. This result shows that the manufacturing companies are liquid and also shows the existence of large variation among the liquidity level for insurance companies under reflection. According to the theory of agency costs, high liquidity of assets could raise agency costs and reinvestment risk. Undoubtedly, agency cost and reinvestment risk

would put harm on the profitability of a company. In this occasion, it is, therefore, likely that manufacturing companies with less liquid assets outperform those with more liquid assets (Adams and Buckle 2000).

The results of descriptive statistics show that the average leverage ratio for the manufacturing share companies is 18 percent with a standard deviation of 7 percent. The maximum debt financing used by the firm is 38 percent and its minimum level is 8 percent. This shows that there is a firm that uses little debt in its operation.

Lastly, the firm sales growth measured by changes in annual sales has an average of 2.9 % and there is a deviation of 2.7 percent from mean value of sales growth to both directions. The sales growth among the study firms is ranged from 3 percent to 12.1 percent.

In the context of descriptive statistics, the terms "right side" and "left side" typically refer to the tail ends of a distribution. Specifically, the "right side" refers to the higher values or the upper tail of the distribution, while the "left side" refers to the lower values or the lower tail of the distribution. For example, when analyzing the minimum and maximum values in Table 2, we can associate the "left side" with the minimum values, as they represent the lower end of the distribution. On the other hand, the "right side" corresponds to the maximum values, which represent the higher end of the distribution.

Using the ROA variable as an example, the minimum value of 0.001 would be considered the left side, indicating the lowest recorded return on assets among the sample firms. Conversely, the maximum value of 0.012 would be considered the right side, representing the highest recorded return on assets.

Similarly, for the other variables, we can identify the left side with the minimum values and the right side with the maximum values. This distinction helps us understand the range of values observed and the extremities of the distribution.Considering the descriptive statistics, understanding the left and right sides of the variables' distributions provides insights into the lower and higher boundaries, allowing for a more comprehensive analysis of the data and its characteristics.

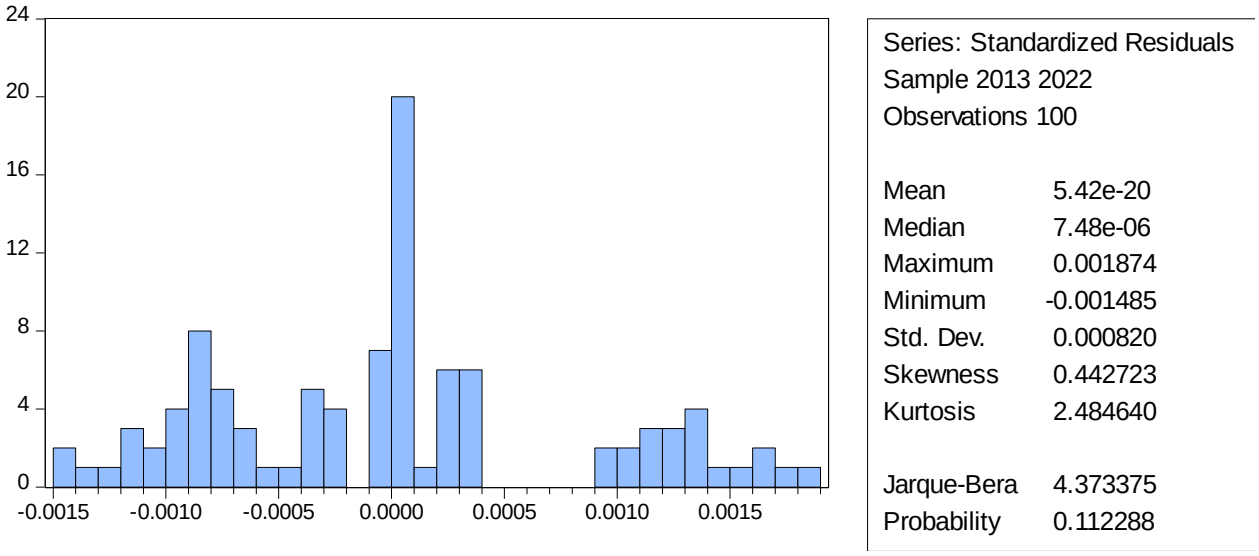
4.2 Diagnostics Tests

4.2.1 Normality test

A normal distribution is not skew and defined to have a coefficient of kurtosis 3. Jarque-Bera formalizes this by testing the residuals for normality and testing whether the coefficient of skewness and kurtosis are zero and three respectively. Skewness measures the extent to which a distribution is not symmetric about its mean value and kurtosis measures how far the tails of the distribution are. The Jarque-Bera probability statistics /P-value/ is also expected not to be significant even at 10% significant level (Brooks, 2008). The study develops the following hypothesis to check the normality: Ho: The residuals are normally distributed H1: The residuals are not normally distributed

The residual normality distribution is tested using histogram, Bera-Jarque test. If the residuals are normally distributed, the histogram should be bell- shaped and the Jarque-Bera statistic would not be significant meaning disturbance to be normally distributed around the mean. The pvalue should be insignificant did not reject the null hypothesis that is the residuals are normally distributed.

Figure 3: Normality test result



4.2.2 Multicolinarity

In the multicollinearity, perfect problem will usually be observed only when the same explanatory variable is carelessly used twice in a regression. This assumption does allow the independent variables to be correlated but they cannot be perfectly correlated. How much correlation causes multicollinearity however, is not clearly defined. While Hair et al (2006) argue that correlation coefficient below 0.9 may not cause serious multicollinearity problem.

Multicollinearity in the research refers to a linear relationship between explanatory variables, which may cause the regression model, biased (Gujarati, 2004). Most of the time, it is common to test if there is Multicollinearity among explanatory variables before going into estimation and interpretation of the model. Most econometric literatures reveal that the presence of Multicollinearity results in inflated standard errors which make inferences from estimation highly problematic (Gujarati, 2004). If an explanatory variable is an exact linear combination of the other explanatory variable, then we say the model suffers from perfect co linearity and it cannot be estimate by OLS (Brooks 2008).

Therefore, in this study correlation matrix for six cause variables shown below in the table 3 had been estimated. The results in the following correlation matrix show that the highest correlation is 0.3139 which is between APP and ICP. Therefore there is no the problem of multicolinarity

Table 3: Correlation matrix between Independent Variables (2013-2022)

	ICP	APP	CCC	SG	CR	FL
ICP	1					
APP	0.3139	1				
CCC	0.2808	-0.4373	1			
SG	0.1068	-0.1301	0.2145	1		
CR	-0.0639	-0.1153	-0.0186	0.0575	1	
FL	0.0407	0.1527	-0.1827	-0.1426	0.1759	1

In addition to correlation matrix, the variance inflation factor (VIF) can check the presence of multicolinareaty problem. When the predictor variable is greater than 10

explain the present of multicolinearity problem (Assfaw, 2019a). As presented in the Table 3 and 4, the value of VIF is less than 10 show there is not present the problem of multicollinearity.

Table 4: Variance inflated factor

Variable	VIF	1/VIF
APP	1.7	0.588029
CCC	1.68	0.59431
ICP	1.48	0.677
FL	1.1	0.907664
SG	1.08	0.928379
CR	1.06	0.939591
Mean VIF	1.35	

4.2.3 Heteroscedasticity

Heteroscedasticity occur when the error terms do not have a constant variance (Brooks,2008),. If Heteroscedasticity occur, the estimators of the ordinary least square method are inefficient and hypothesis testing is no longer reliable or valid, as it will underestimate the variances and standard errors. There are several tests to detect the Heteroscedasticity problem, which are Park Test, Glesjer test, Breusch-Pagan-Goldfrey test, White's test, Durbin-Watson stat and Autoregressive Conditional Heteroscedasticity (ARCH) test. In this study, the Durbin-Watson stat test is employed to test for the presence of Heteroscedasticity or not.

In linear regression analysis, an estimator of the asymptotic covariance matrix of the OLS estimator is said to be heteroscedasticity-robust if it converges asymptotically to the true value even when the variance of the errors of the regression is not constant. "Robust" standard errors is a technique to obtain unbiased standard errors of OLS coefficient under heteroscedasticiy Remember, the presence of heteroscedasticity violates the Gauss Markov assumptions that are necessary to render OLS the best linear unbiased estimator (BLUE). You can find the consequences of heteroscedasticity on the OLS estimator here.

Possible solutions to handle heteroscedasticity can be found here. “Robust” standard errors have many labels that essentially refer all the same thing. Namely, standard errors that are computed with the sandwich estimator of variance. Typical terms for “robust” standard errors include White’s Standard Errors, Huber–White standard errors, Eicker–White or even Eicker–Huber–White standard errors(Economic theory Blog, 2022).

As shown in the table 5 Evidence showed that the presence of heteroskedasticity on profitability, with significant p-values less than one percent (1%). Table 5 presents a summary of the test for heteroskedasticity. The researcher make the regression result Robust to obtain unbiased standard errors of OLS

Table 5: Heteroskedasticity Tests

Test		**Manufacturing company**
		For model ROA
Hetroscedasticity	Wald chi square	2324
	P value	0.00

4.2.4 Autocorrelation

This is an assumption that made on the covariance between the error terms is to be zero. It is assumed that the errors are not correlated with one another. If the errors are correlated with one another, it would be stated that they are auto correlated or serially correlated. The violation of this assumption means if there is a problem of autocorrelation between error terms has similar effect to the violation of heteroscedasticity. The OLS estimators are still unbiased and consistent, But they are no longer efficient; it means that the standard error estimates could be wrong. The Usual t-test and f-test of significance will be in valid. Thus, misleading inference made about the Statistical significance of the estimated regression coefficients (Brooks, 2008).

The test of Durbin Watson statistic is a test for autocorrelation in the residuals from a statistical model or regression analysis. The Durbin-Watson statistic always have a value

ranging between 0 and 4. A value of 2.0 indicates there is no autocorrelation detected in the sample. Values from 0 to less than 2 point to positive autocorrelation and values from 2 to 4 means negative autocorrelation (Will Kenton, 2021). Hence, as explained by eview regression model in table below, the value of Durbin-Watson statistics model result ROA is 0.27 which are far from 2 indicate the presence of autocorrelation problem.

Table 6: Test of autocorolation

Test		**Model of ROE**
Autocorrelation	Durbin Watson test	0.27
	Border	2

4.3 Correlation Analysis

Correlation is a statistical measure that indicates the extent to which two or more variables fluctuate in relation to each other. Correlation is a way to index the degree to which two or more variables are associated with or related to each other. The sample size is the key element to determine whether or not the correlation coefficient is different from zero/statistically significant. The values of the correlation coefficient are always between -1 and +1. A correlation coefficient of +1 indicates that the two variables are perfectly related in a positive linear sense; while a correlation coefficient of -1 indicates that two variables are perfectly related in a negative linear sense. A correlation coefficient of 0, on the other hand indicates that there is no linear relationship between two variables (Brooks, 2008). The correlation result supported by Mayers et.al, (2006) As a sample size approaches to 100, the correlation coefficient of about or above 0.20 is significant at 5% level of significance.

Table 7: Correlation Matrix with dependent variable

	ICP	APP	CCC	SG	FL	CR
ROA	0.2432	0.8612	-0.6557	-0.3007	0.0411	-0.0918

Source: STATA output from financial statement of sample firms 2013-2022

As shown in table 9, ICP has significant and positive relationship with firm profitability of in Hawasa city at 5% level of significance. APP has high positive and significant relationship with ROA. This result indicates average payment period has high correlation in the firm profitability of Hawasa city. The growth of APP goes in the same direction with firm profitability. Cash conversion cycle(CCC) has significant and negative relationship with the profitability of firm. This result implies that the direction of CCC is inversely related with profitability of firm in Hawasa city. Next to this sales growth has significant and negative relationship with profitability of firm. The rest variable firm leverage and current ratio has insignificant but firm value has positive and current ratio has negative relationship with profitability of firm.

4.4 Random effect versus fixed effect models

There are broadly two classes of panel estimator approaches that can be employed in financial research. These are fixed effects models and random effects models. Fixed effects models allow the intercept in the regression model to differ cross-sectional but not over time, while all of the Slope estimates are fixed both cross-sectional and over time. As with the same as fixed effects, the random effects approach proposes different intercept terms for each entity and again these intercepts are constant over time, with the relationships between the explanatory and explained variables assumed to be the same both cross-sectional and temporally. In order to identify which model is appropriate the study used Hausman test.

The Hausman Test

Ho: Random effect model is appropriate. If P-value>5%, we fail to reject the null
Ha: Fixed effect model is appropriate. If P-value<5%, we reject the null.

Table 8: Hausman test

	Test	probability
Hausman test	Chi2	0.9935

Source:- own estimation Stata(2023)

As presented in the table 8, Hausman specification test shows, the P- value of the models is 0.9935 which is greater than 5% level of significance. This showed that the null hypothesis of the model which is random effect model is appropriate accept at 5 percent of significant level. Therefore, random effect model is appropriate for this study.

4.5 Regression Result and Its Interpretation

This section presents the regression result of random effect model that made to examine the impact of working capital management on firm profitability in Hawasa city. Accordingly, the regression result is done by stata software. As stated earlier in model selection that is Hausman test, random effect regression model is an appropriate model in this study. The Model equation is:-

$$ROA_{it} = -0.00004 + 0.00006ICP_{it} + 0.0002APP_{it} - 0.00002CCC_{it} - 0.0001SG_{it} - 0.003FL_{it} - 0.00003CR_{it}$$

Where:

- "β_0": - Y-intercept.
- "β_i": Coefficient of variable,
- "ROA_{it}": Return on asset,
- "ICP_{it}: Inventory conversion period,
- "APP_{it}": Average payable period,
- "CCC_{it}": Cash conversion period,
- "SG_{it}" Sales Growth,
- "FL_{it}" Firm Leverage,
- "CR_{it}":Current ratio and
- "μ" Error term.

The coefficients of explanatory variable estimated by the use of linear regression technique, the regression result in Table demonstrates both coefficients of explanatory variables and corresponding p-values.

Table 9: Results of Random Effect Regression Model

ROA	Coef.	Std. Err.	z	P>z
ICP	0.0000562	5.83E-06	9.63	0
APP	0.000154	0.0000106	14.55	0
CCC	-0.0000216	2.01E-06	-10.78	0
SG	-0.0001107	0.0000328	-3.38	0.001
FL	-0.0033931	0.0010093	-3.36	0.001
CR	-0.0000336	0.0000112	-3.01	0.003
_cons	0.0000392	0.0002232	0.18	0.86
Observation	100			
F test	623.66			
Pro>chi2	0			
overall r-squer	0.8928			
R-Squer within	0.978			

Source: Researcher's computation with STATA, 2023

As described earlier, there were the problems with heteroscedasticity and autocorrelation. To alleviate these issues, clustered robust standard error estimations on the random effect model were functional. Then, the estimation results of the linear regression model on the impact of working capital management on firm profitability in hawassa city, ethiopia are presented in Table 10.

Table 10: Summary result of cluster Robust Random effect model

ROA	Coef.	Std. Err.	z	P>z
ICP	0.0000562	0.0000235	2.39	0.017***
APP	0.000154	0.0000297	5.19	0***
CCC	-0.0000216	5.05E-06	-4.28	0***
SG	-0.0001107	0.0000917	-1.21	0.228
FL	-0.0033931	0.0025327	-1.34	0.18
CR	-0.0000336	0.000017	-1.98	0.047**
_cons	0.0000392	0.0000668	0.59	0.557
Observation	100			
F test	2136			
Pro>chi2	0			
overall r-squer	0.8942			
R-Squer within	0.978			

Note: ***, **, * indicate significant at 1 percent, 5 percent and 10 percent significance level respectively. Source: Researcher's computation with STATA, 2023

Table 11 shows that the explanatory power of the models was measured using the R-square within whose value was 97.8%. The F statics value is 2136 and its probability value is signifivant even in at a 1% level of significance, this result suggesting that all predictor variables can jointly influence the rate of 97.8% variation in the profitability of firm in Hawasa city. The intercept of the model is 0.00004, which indicates that the profitability can get in the absence of changes in predictor variables of the firm.

As explained with the expectation of the study, the ICP of firm has a significant positive impact on the profitability of the firm in the Hawasa city.at less than 1% level of significance. This results of clustered robust random effect regression model indicate that as an increase in ICP by 1 period being other factors held constant, results in a 0.00006 birr increase in firms profitability. This positive relationship also reflected in the study of other scholars of Muthuva (2009), Muthuva (2010), Ebenezer (2013), Labethi (2013), Mdirangu (2015), However, this finding is contradictory with the empirical evidence of other authors (Gubare (2012) Tringo (2013), Wubshet (2014) and Mifta (2016)).

The average payment period has a significant positive impact on the profitability level of firm at less than 1% level of significance. The results of clustered robust random effect regression model indicate that an increase in an APP of firm by 1 period, being other factors held constant, results in a 0.0002 birr increase in firms profitability. This positive relationship also reflected in the study of other scholars (Mathuva (2009), Mathuva (2010), Kabethi (2013), Mdirangu (2015), Lawal et al (2015), Tringo (2013) However, this finding is contradictory with the empirical evidence of other authors (Gakure (2012), Wubishet (2014)).

The cash conversion cycle was negatively and significantly impact on the firm profitability at less than 1% level of significance. The result of clustered robust random effect regression model shows, being other factors held constant, a one unit increase in CCC leads to reduce by 0.00002 birr of ROA of firm. This negative relationship also reflected in the study of other scholars. This negative relationship also reflected in the study of other scholars (Ephrem (20110, Tringo (2013), Wubishet

(2014) However, this finding is contradictory with the empirical evidence of other authors (Gakure (2012)).

Persistent with the hypothesis, current ratio was found to have a negative and significant impact on the profitability of firm in Hawasa city at less than 5% level of significance. The result of clustered robust random effect regression model indicates that a 1 unit increase in the current ratio, being other factors held constant, had a 0.00003birr decrease of firm profitability.

Table 11: The expected and actual sign of the study

Classification	Variables	Measurement	Expected sign	Actual Sign
Dependent variables	Return on Asset	ROA = $\frac{\text{Net Income}}{\text{Total Assets}}$		
Independent Variables	Average payable period (1)	Account Payable Period (APP) = $\frac{\text{Accounts Payable}}{\text{Cost of goods sold}} \times 365\ days$	Positive (+)	Positive (+)
	Inventory collection period (2)	Inventory Holding Period (IHP) = $\frac{\text{Inventary}}{\text{Cost of goods sold}} \times 365\ \text{days}$	Negative (-)	Negative (-)
	Cash collection period	Cash Conversion Cycle (CCC) = ARP + IHP-APP	Negative (-)	Negative
Control Variables	Sales growth	Percentage	Positive	Positive
	Firm leverage		Negative	Negative
	Current ratio	Current Ratio (CR) =$\frac{\text{Current Assets}}{\text{Current Liabilities}}$	Positive	Positive

CHAPTER FIVE

5. SUMMARY, CONCLUSION AND RECOMMENDATION

5.1. Summary of the Findings

The empirical analysis conducted in this study shed light on the impact of working capital management on firm profitability in Hawassa City, Ethiopia. The findings revealed several important insights that can guide firms in enhancing their financial performance.

The study found a significant relationship between the cash conversion cycle and firm profitability. Firms with cash conversion cycles has an inverse relationship of inputs into cash inflows. This emphasizes the importance of optimizing production efficiency need to reduce cash conversion cycle.

The study finds the positive relationship between average payable periods (APP) on firm profitability. Firms that managed their accounts payable well, by extending payment periods to suppliers without damaging relationships and optimizing payment schedules, experienced higher profitability. This emphasizes the importance of negotiating favorable credit terms and implementing efficient accounts payable systems to streamline payment processes.

The finding of the researcher indicate that there is positive and significant relationship between inventory conversion period and firm profitability. The finding of this variable contradict to the theory may cause by the past ten years are affected by high rate of inflation one reason. This demonstrates the significance of covering the holding costs.

Lastly, the research findings indicate that there is negative and significant relationship between current ratio and firm profitability. In theory, the higher the current ratio, the more capable a company is of paying its obligations because it has a larger proportion of short-term asset value relative to the value of its short-term liabilities. This behavior of current ratio leads to the chash in the crediter reduce the profitability.

5.2. Conclusions

This study investigate the impact of working capital management on firm profitability in hawassa city, ethiopia by using the dependent variable of profitability. The period considered to address the stated objectives has been from 2013 up to 2022. The population of this study was all the agro industry in Hawasa city, Ethiopia currently licensed by the government of Ethiopia among 44 agro industry the researcher took 10 industry that generates financial statement from 2013-2022. To see the impact of capital structure on profitability of working capital management use panel data regression analysis has been carried out. The data was analyzed using descriptive analysis and multiple regression analysis.

This study examines the impact of agro industry independent and control variables factors on profitability. The ICP of firm has a significant positive impact on the profitability of the firm in the Hawasa city. This result indicates the positive relationship caused by the rise of inflation from time to time. Similarly the average payment period (APP) has a significant positive impact on the profitability. This is as the payment stay in the firm rise the profitability. The cash conversion cycle have negatively relationship on the firm profitability. Finally the control variable current ratio was found to have a negative and significant impact on the profitability of firm in Hawasa city.

5.3. Recommendations

Based on the findings of the study conducted in Hawassa City, Ethiopia, several recommendations are proposed to enhance the working capital management practices and profitability of firms in the area.

The cash conversion cycle improving production efficiency to minimize the time it takes to convert inputs into cash flows. Negotiating favorable payment terms with suppliers can also help expedite cash inflows, while streamlining the sales process and minimizing delays in converting inventory to cash are essential. By focusing on these areas, firms can shorten the cash conversion cycle and improve their profitability.

The average payable period can positively impact profitability. Firms should strive to extend payment periods to suppliers without jeopardizing relationships. Negotiating longer credit terms, exploring alternative financing options, and optimizing payment schedules can help improve cash flow and profitability. Implementing an efficient accounts payable system can streamline the payment process, ensure timely payments, and avoid unnecessary penalties or interest charges. Regularly reviewing and evaluating supplier contracts and terms can help identify opportunities for better negotiation and aligning payment terms with working capital requirements.

Inventory conversion period are time sale of the product. As wait of inventory conversion period increase leads to rise the profitability. This situation may happen by the reason of inflation rise from time to time. The government may take the action to stabilize the inflation rate otherwise the production decline as wait of the product.

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Annexes

1. Agro Processing Company Name

NO	COMPANY NAME
1	B.W INTEGRATED AGRO INDUSTRY PLC
2	YALA AGRO INDUSTRY P L C
3	SOUTH AGRO INDUSTRY PRIVATE LIMITED COMPANY
4	DOBE TOGA INTERNATIONAL AGRO NEED PLC
5	JARA AGRO INDUSTRIAL PRIVATE LIMITED COMPANY
6	HIBIR AGRO INDUSTRY PVT LTD CO.
7	HABELA REMEDA AGRO INDUSTRY PLC
8	BOCHESI AGRO INDUSTRY PLC
9	HAWASSA FLOUR FACTORY
10	GALLOB AGRO INDUSTRY PRIVATE LIMITED CO.

2. Company Data

ID	year	ROA	ICP	APP	CCC	SG	FL	CR
1	2013	0.0014	92.44	18.00	274.50	5.44	0.1267	-3.3894
1	2014	0.0014	87.81	17.10	260.78	5.17	0.1204	-1.2681
1	2015	0.0013	83.42	16.25	247.74	4.91	0.1143	-1.2147
1	2016	0.0012	79.25	15.43	235.35	4.67	0.1086	-1.1810
1	2017	0.0012	75.29	14.66	223.58	4.43	0.1032	-1.0012
1	2018	0.0011	71.53	13.93	212.40	4.21	0.0980	0.2179
1	2019	0.0011	67.95	13.23	201.78	4.00	0.0931	0.4923
1	2020	0.0010	64.55	12.57	191.69	3.80	0.0885	0.5558
1	2021	0.0010	61.32	11.94	182.11	3.61	0.0841	0.7786
1	2022	0.0009	58.26	11.34	173.00	3.43	0.0799	1.5306
2	2013	0.0035	94.92	25.11	130.00	12.14	0.1663	1.5306
2	2014	0.0034	90.17	23.85	123.50	11.53	0.1580	1.6259
2	2015	0.0032	85.66	22.66	117.32	10.96	0.1501	1.9634
2	2016	0.0030	81.38	21.53	111.45	10.41	0.1426	0.1801
2	2017	0.0029	77.31	20.45	105.88	9.89	0.1355	-0.0760
2	2018	0.0027	73.44	19.43	100.59	9.39	0.1287	0.2914
2	2019	0.0026	69.77	18.46	95.56	8.92	0.1223	-1.3908
2	2020	0.0025	66.28	17.53	90.78	8.48	0.1162	-2.5682
2	2021	0.0023	62.97	16.66	86.24	8.05	0.1104	-2.6021
2	2022	0.0022	59.82	15.82	81.93	7.65	0.1048	-2.0571
3	2013	0.0083	92.95	25.77	75.37	1.72	0.1790	-2.6215
3	2014	0.0079	88.30	24.48	71.61	1.63	0.1701	-2.3703
3	2015	0.0075	83.89	23.26	68.03	1.55	0.1616	-2.3703
3	2016	0.0071	79.69	22.10	64.62	1.47	0.1535	-2.2306
3	2017	0.0067	75.71	20.99	61.39	1.40	0.1458	-0.0872
3	2018	0.0064	71.92	19.94	58.32	1.33	0.1385	3.7516
3	2019	0.0061	68.33	18.95	55.41	1.26	0.1316	-0.1238
3	2020	0.0058	64.91	18.00	52.64	1.20	0.1250	-0.4051
3	2021	0.0055	61.67	17.10	50.00	1.14	0.1188	-0.4051
3	2022	0.0052	58.58	16.24	47.50	1.08	0.1128	0.9053
4	2013	0.0032	108.90	16.46	154.44	1.10	0.1633	0.4584
4	2014	0.0030	103.46	15.64	146.72	1.05	0.1551	-0.6838
4	2015	0.0029	98.28	14.85	139.38	0.99	0.1474	1.1129
4	2016	0.0027	93.37	14.11	132.41	0.94	0.1400	0.9834
4	2017	0.0026	88.70	13.41	125.79	0.90	0.1330	0.9834
4	2018	0.0025	84.27	12.74	119.50	0.85	0.1264	1.0787
4	2019	0.0023	80.05	12.10	113.53	0.81	0.1200	-0.6301
4	2020	0.0022	76.05	11.49	107.85	0.77	0.1140	-0.7049
4	2021	0.0021	72.25	10.92	102.46	0.73	0.1083	-0.5115
4	2022	0.0020	68.64	10.37	97.34	0.69	0.1029	0.7716

5	2013	0.0039	81.92	20.04	89.28	6.01	0.3890	0.7423
5	2014	0.0037	77.83	19.03	84.82	5.70	0.3695	5.4228
5	2015	0.0035	73.94	18.08	80.58	5.42	0.3510	2.5896
5	2016	0.0033	70.24	17.18	76.55	5.15	0.3335	-0.7719
5	2017	0.0031	66.73	16.32	72.72	4.89	0.3168	5.3591
5	2018	0.0030	63.39	15.50	69.09	4.65	0.3010	-0.6475
5	2019	0.0028	60.22	14.73	65.63	4.41	0.2859	-0.6475
5	2020	0.0027	57.21	13.99	62.35	4.19	0.2716	-0.5078
5	2021	0.0026	54.35	13.29	59.23	3.98	0.2580	0.7055
5	2022	0.0024	51.63	12.63	56.27	3.78	0.2451	1.0028
6	2013	0.0053	83.53	19.70	153.42	2.37	0.2048	0.9150
6	2014	0.0051	79.35	18.72	145.75	2.25	0.1946	0.6117
6	2015	0.0048	75.39	17.78	138.46	2.14	0.1849	0.7540
6	2016	0.0046	71.62	16.89	131.54	2.03	0.1756	0.8381
6	2017	0.0043	68.04	16.05	124.96	1.93	0.1668	1.1346
6	2018	0.0041	64.63	15.24	118.72	1.83	0.1585	1.1981
6	2019	0.0039	61.40	14.48	112.78	1.74	0.1506	1.3062
6	2020	0.0037	58.33	13.76	107.14	1.66	0.1430	1.3878
6	2021	0.0035	55.42	13.07	101.78	1.57	0.1359	1.3878
6	2022	0.0034	52.65	12.42	96.69	1.49	0.1291	1.5276
7	2013	0.0048	84.72	19.94	86.68	2.67	0.2727	-0.2083
7	2014	0.0046	80.48	18.94	82.35	2.54	0.2591	-0.4336
7	2015	0.0043	76.46	17.99	78.23	2.41	0.2461	-0.6410
7	2016	0.0041	72.63	17.09	74.32	2.29	0.2338	-0.6228
7	2017	0.0039	69.00	16.24	70.60	2.17	0.2221	-0.4216
7	2018	0.0037	65.55	15.43	67.07	2.07	0.2110	-0.8435
7	2019	0.0035	62.27	14.65	63.72	1.96	0.2005	-0.8528
7	2020	0.0034	59.16	13.92	60.53	1.86	0.1904	-1.4609
7	2021	0.0032	56.20	13.23	57.51	1.77	0.1809	-0.7499
7	2022	0.0030	53.39	12.56	54.63	1.68	0.1719	-0.5060
8	2013	0.0121	93.98	54.48	38.22	2.82	0.1568	-0.5060
8	2014	0.0115	89.28	51.76	36.30	2.68	0.1490	-0.3663
8	2015	0.0110	84.81	49.17	34.49	2.55	0.1415	-0.5745
8	2016	0.0104	80.57	46.71	32.76	2.42	0.1345	-1.5275
8	2017	0.0099	76.54	44.38	31.13	2.30	0.1277	-0.4187
8	2018	0.0094	72.72	42.16	29.57	2.18	0.1214	0.3925
8	2019	0.0089	69.08	40.05	28.09	2.08	0.1153	0.6854
8	2020	0.0085	65.63	38.05	26.69	1.97	0.1095	0.1814
8	2021	0.0081	62.35	36.14	25.35	1.87	0.1041	0.2536
8	2022	0.0076	59.23	34.34	24.08	1.78	0.0988	-0.2367
9	2013	0.0048	85.98	34.53	139.96	0.48	0.3829	-0.1029
9	2014	0.0046	81.68	32.80	132.96	0.45	0.3637	0.2401
9	2015	0.0044	77.59	31.16	126.31	0.43	0.3455	0.2401

9	2016	0.0042	73.71	29.61	120.00	0.41	0.3282	0.3354
9	2017	0.0039	70.03	28.12	114.00	0.39	0.3118	-0.6644
9	2018	0.0038	66.53	26.72	108.30	0.37	0.2962	-2.5033
9	2019	0.0036	63.20	25.38	102.88	0.35	0.2814	-0.2622
9	2020	0.0034	60.04	24.11	97.74	0.33	0.2674	-0.1409
9	2021	0.0032	57.04	22.91	92.85	0.32	0.2540	0.0615
9	2022	0.0031	54.19	21.76	88.21	0.30	0.2413	0.6108
10	2013	0.0082	96.03	38.72	75.02	1.63	0.2907	-0.4376
10	2014	0.0078	91.22	36.79	71.27	1.55	0.2762	2.0820
10	2015	0.0074	86.66	34.95	67.71	1.47	0.2624	1.0586
10	2016	0.0070	82.33	33.20	64.32	1.40	0.2492	-1.4287
10	2017	0.0067	78.21	31.54	61.11	1.33	0.2368	-1.4287
10	2018	0.0064	74.30	29.96	58.05	1.26	0.2249	-1.2889
10	2019	0.0060	70.59	28.46	55.15	1.20	0.2137	-0.0469
10	2020	0.0057	67.06	27.04	52.39	1.14	0.2030	-0.3691
10	2021	0.0054	63.70	25.69	49.77	1.08	0.1929	-0.0163
10	2022	0.0052	60.52	24.41	47.28	1.03	0.1832	-0.0612