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ST. MARY'S UNIVERSITY
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**The effect of working capital management on profitability: Evidence from
Beverages manufacturing companies in Addis Abeba**

BY: - MESFIN BIREDA (MBAAF, SGS/0299/2010A)

**January, 2020
ADDIS ABEBA, ETHIOPIA**



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**The effect of working capital management on profitability: Evidence from
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**A thesis submitted to ST. Mary's University school of graduate studies in
partial fulfillment of the requirement for the Degree of Master of Accounting
and finance**

BY: - MESFIN BIREDA

To: - MOHAMMOD S. (Ass.pro)

January, 2020

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SCHOOL OF GRADUATE STUDIES**

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Statement of certification

MBA Thesis Approval sheet

This is to certify that the thesis entitled, the effect of working capital management on profitability evidence from beverage manufacturing companies in Addis Abeba, carried out by Mesfin Bireda Amerga under the supervision of Mohammed Seid (Ass. Prof) submitted to partial fulfillment of the requirement for the Degree of Master of Accounting and finance compliance with the regulation of the university and meets the accepted standards with respect to originality and quality.

Board of examiners

Approved By:-

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Internal examiner: - Name Signature.....date.....

External examiner: - Name:Signature.....date.....

Advisor: - Name: Mohammed S. (Ass. Prof) Signature.....date.....

Statement of Declaration

I, undersigned, declare that this thesis is my original work of and it has never been presented in any university. All sources and materials used for this thesis have been acknowledged.

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Place: - ST. Mary's University Green campus

Date of Submission-----

This master thesis has been submitted for examination with my approval as thesis

Advisor Name:- Mohammed S. (Ass. Pro)

Signature ----- Date-----

January, 2020
ADDIS ABEBA, ETHIOPIA

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Mary, mother of God: - ask your son, peace, Love and prosperity for Ethiopia and pray for us sinners now and at the hour of death. AMEN

MESFIN BIREDA

Dedication

This research thesis dedicated to my mother Workinesh Biza

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Lists Abbreviation /Acronyms

- ARP :- Account receivables period
- AR :- Account receivable
- APP :- Account payable period
- AP :- Account payable
- CCC :- Cash conversion cycle
- CLRM:- Classical Linear Regression Model
- CR :- Current ratio
- EBIT:- Earning Before Interest and Tax
- ERCA :- Ethiopian Revenue and Custom Authority
- FS:- :- Firm size/natural logarithm of sales
- GDP :- Growth domestic product
- GR:- Growth rate
- ICP:- Inventory conversion period
- LM :- Linear model
- LTO:- Large taxpayer office
- MTO:- Medium Taxpayer office
- MOR:- Ministry of Revenue
- NWC:- Net working capital
- OPM:- Operating profit margin
- QR:- Quick Ratio
- RCP:- Receivables conversion periods
- ROA:- Return on asset
- ROE:- Return on Equity
- ROI :- Return on Investment
- WC:- working capital
- WCM:- working capital management

Abstract

The main objective of this research study was to examine the effect of working capital management on performance of manufacturing firms in Addis Abeba specifically beer, brewery and beverage manufacturing firms. The study covers the time from 2005-2010 E.C (2013-2018) for 6(six) consecutives years. The main target of the of working capital management is managing of current assets and current liabilities. To study this research thesis the researcher mainly uses secondary data from the tax center for tax payers and their yearly finical statement of the each manufacturing firms. The component of working capital component that used by this research study was cash conversion cycle, account payable period, inventory conversion period and account receivables period. The variables that control their effect on the performance of the firms are growth domestic product, firm size (natural logarithm of sales of firms) and the growth rate of the firms. The performance was measured by the return on asset. The data was analyzed using e-view software estimation equation by correlation analysis, descriptive and a pooled panel data regression model of cross-sectional data was used for analysis. The regression result shows negative effect with account receivables period and inventory conversion period, also positive effect on account payable period and cash conversion cycle and the negative effect of current ratio on profitability of the firm indicated that less current asset management than liability. There is statistically significance relationship between the account payable periods and profitability of the firms. The results also show that there exists significant negative relationship between cash Conversion cycle and profitability of the sampled firms. And also the negative relation between the current ratio and the profitability of manufacturing companies on average. Manager, therefore, can increase firm's profitability by controlling and leading the performance of management of working capital components like account receivable period, inventory conversion period, and account payable period and cash conversion cycle. In general the study recommended that firms should minimize working capital management components in order to maximize profitability.

Key words: - ***working capital component, working capital management, return on asset and performance.***

CHAPTER ONE

1. INTRODUCTION

The first chapter of this thesis introduces the area of study, providing a background for the paper. This chapter is organized under different sections in which background of the study, statement of the problem, objectives of the study, research hypothesis significance of the study, delimitation and limitations of the study and finally structure of the paper was presented.

1.1. Background of the study

Business plays a vital role in the capital formation of a country and people consider it as the life blood of a growing economy. Therefore, it is very important to manage business effectively and efficiently. One of the major issues encountered by fund managers today is not just the procurement of funds but also their meaningful deployment to generate maximum returns.

Investment in working capital to a large extent determines the returns earned by a firm. Nevertheless, excessive levels of current assets can easily result in a firm realizing a substandard return on investment while firms with too few current assets may incur shortages and difficulties in maintaining smooth operations (Horne and Wachowicz, 2000). As a result, working capital management is a very important component of corporate finance as it directly affects the liquidity and profitability of a firm. It centers on current assets and current liabilities of a firm. For one thing, the current assets of a typical manufacturing firm accounts for over half of its total assets (Abdul and Mohamed, 2007).

Working Capital Management (WCM) is an important corporate financial decision since it directly affects the profitability of the firm. Working capital management efficiency is vital especially for manufacturing firms, where a major part of assets is composed of current assets especially inventory and trade receivables (Ponsianet.et.al, 2014).

The amount of current assets less current liabilities is called working capital, or net working capital. A company needs adequate working capital to meet current debts, to carry sufficient inventories, and to take advantage of cash discounts. A company that runs low on working capital is less likely to meet current obligations or to continue operating. When evaluating a company's working capital, we must not only look at the dollar amount of current assets less

current liabilities, but also at their ratio. Generally, working-capital requirements are tied up over the life of the project. When the project Terminates, there is usually an offsetting cash inflow as the working capital is recovered (Brigham, 2009). Firms invest in current assets for the same reason they invest in long term, capital assets, to maximize owners' wealth. But because managers evaluate current assets over a shorter time frame (less than a year), they focus more on their cash flows and less on the time value of money (Mohid, 2012). Profitability can be termed as the rate of return on investment. If there will be an unjustifiable over investment in current assets, this would negatively affect the rate of return on investment, Raheman and Nasr (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 (Lazaridis and Tryfonidis , 2006). It is therefore a critical issue to know and understand the effect of working capital management on profitability. In deeded a lot of researches have been conducted in different countries to show the effect of working capital component on manufacturing companies' profitability. However, few studies with reference to Ethiopia on working capital management and profitability especially in manufacturing company, by looking on the importance working capital management the researcher needed to assess the effect of its performance. Accordingly, the general objective of the study is to examine the effect of working capital management components on the profitability of beverage and brewery manufacturing companies in Ethiopia.

1.2.Statement of the problem

Working capital is an important part of finance having a decisive influence on the liquidity, which is regarded as the lifeblood of a business plays a pivotal role in keeping the wheels of a business. Working capital management has always been a fascinating subject from the academic point of view and it must be admitted that in the real world situation also, efficiency with which working capital is managed in a concern is of great significance for its overall wellbeing its growth and decline. The effect of working capital management on profitability has been studied considerably by different researchers like Abenet and Venkateswarlu (2016), Ponsian et.al (2014), Mubashir. H. (2017), Hampus& Micael (2014),Bulin.(2016),Al-Debi'e (2011) the ultimate goal of all business organizations is to be a going concern. However, achieving this ultimate goal requires business organizations to be simultaneously profitable and solvent. Solvency is classified into short-term solvency; or what is referred to as liquidity, and long-term

solvency. The relationship between current asset items and current liability items is called the working capital of the business organization. Working capital can be looked at as the excess of total current assets over total current liabilities, i.e., the remaining current assets after paying all current liabilities. In comparison to the globe working capital management practices in Ethiopia are still immature. If manufacturing sector in Ethiopia adopts comprehensive working capital management, this would be directly affecting profit and value maximization of the organization. (Ephrem, 2011). Working capital management is one of the most important and sensitive aspects of overall financial management that requires careful consideration in all companies, regardless of their type or nature (Deloof, 2003). Most of the researcher are identifies the working capital management that means the components of working capital are affects the profitability/ performance/ of the most manufacturing company. In other word working capital is needed till a firm gets cash on sales of finished products by time required for converting raw material in to finished product (manufacturing cycle) and credit period given to customer and credit period allowed by creditors(credit policy). Most of manufacturing company have problem of the above two important working capital management. On the other hand, findings show that a highly significant negative relationship between account receivable period, inventory conversion period and account payable period with return on asset. To the best of researcher's knowledge, no research has been specifically done in case of the relationship between working capital components and profitability of brewery, beer and Beverage manufacturing company in Addis Ababa. Thus the researcher conducted to study with the aim of providing the following basic research questions and objectives:-

1.3.Research question

As general to address the issue under consideration, the researcher tried to answer the following research questions.

1. Does Account receivables period affect the profitability of beer, brewery and beverage manufacturing companies?
2. Does, beer, beverage and brewery manufacturing companies have consistent Payment practice?
3. Does Inventory management practice affect Profitability of beer, beverage and brewery manufacturing companies?

4. Does the cash conversion cycle have effect on the profitability of beer, brewery and beverage manufacturing companies?
5. Does current ratio has effect on profitability of the manufacturing firms.

1.4.Objective of the study

1.4.1.General Objective

The main objective of the study was to examine the effect of working capital management components on the profitability of Beer, beverage and brewery manufacturing companies in Addis Ababa, Ethiopia.

1.4.2.Specific Objectives

- ✚ To investigate the effect of Average Collection Period on Profitability of the beer, brewery and beverage manufacturing companies in Addis Ababa.
- ✚ To show the effect of Average Payment Period on Profitability of the beer, brewery and beverage manufacturing companies in Addis Ababa.
- ✚ To identify the effect Inventory Conversion Period on Profitability of the beer, brewery and beverage manufacturing companies in Addis Ababa.
- ✚ To show the relationship between Cash Conversion Cycle and Profitability of the beer, brewery and beverage manufacturing companies in Addis Ababa.

1.5.Research hypothesis

Hypothesis form is employed when the state of the existing knowledge and theory permits formulation of reasonable prediction about the relationship among variables. The word hypothesis is a compound of two words, “hypo” and “thesis”. Hypo means, under or below and thesis means a reasoned theory or rational viewpoint. Thus, hypothesis would mean a theory, which is not fully reasoned. Hypotheses are a set of suggested tentative solution of a research problem, which can be or may not be a real solution. (Zikmund,1984).

H₀₁: There is inverse relationship between Average Collection Period (ACP) and Profitability of the companies.

H₀₂: There is inverse relationship between Inventory Conversion Period (ICP) and Profitability of the companies.

H₀₃: There is inverse relationship between Average Payment Period (APP) and Profitability of the companies.

H₀₄: There is positive relationship between Cash Conversion Cycle (CCC) and Profitability of the manufacturing companies.

H₀₅: there is negative effect on current ratio and profitability of the companies

1.6. Significance of the study

The study can be beneficial at least for the following two reasons. First, as it has been discussed in the statement of problem part, no empirical research has been done, yet to examine the effect of working capital management on beer, brewery and beverage manufacturing factories profitability in Addis Ababa. Therefore, the findings of this study can have a great contribution to the body of knowledge by identifying how working capital management efficiency affects the profitability of manufacturing companies in Addis Ababa. Second, it can serve as a base for other researchers who want to do a further research on this topic.

1.7. Scope

This research focuses in the effect of working capital management on profitability of the selected beer, brewery and beverage manufacturing companies found in Addis Ababa. By taking, sample of 15 manufacturing companies will be select from Addis Ababa and the analysis is done for 6(six) years.

1.8. Limitations of the study

The study is limits to beer, brewery and beverage manufacturing companies found in Addis Ababa. Because of the fact that there are a lot of firms found in the city than the other part of the country, Addis Ababa is chosen the result of the paper is restricted to those selected beer, brewery and beverage manufacturing companies in particular and could be generalized to all selected beer, brewery and beverage manufacturing companies Ethiopia.

1.9. Structure of the paper

This research paper consists of five chapters. The first chapter presented Background of the Study, Statement of the Problem, Objectives of the Study, Significance of the Study, Scope of the Study and Limitations of the Study. Discussion in chapter two focuses on literature review of important concepts that are relevant to the title. The third chapter of the study deals with the methodology of the study (i.e. Research Design, Data Source and Collection Methods, Sampling Design,). The forth chapter consists data presentation, analysis and interpretation elements of the study. Finally, the last chapter attempt to conclusion and recommend possible solutions to the problems

CHAPTER TWO

Literature Review

2. Introduction

2.1.Theoretical Literature

This chapter deals with the literature mainly regarding working capital management but before to proceed to working capital management there must be see about financial management, in financial management, two important decisions are very vital and crucial. They are decision regarding fixed assets/fixed capital and decision regarding working capital/current assets. Both are important and a firm always analyzes their effect to final impact upon profitability and risk.

2.2.1. GENERAL MEANINGS OF FINANCIAL MANAGEMENT

According to Fabozzio and Pamela (2003) argued that financial management encompasses many different types of decisions. Investment decisions, financing decisions, and decisions that involve both investing and financing. Investment decisions are concerned with the use of funds the buying, holding, or selling of all types of assets. Financing decisions are concerned with the acquisition of funds to be used for investing and financing day-to-day operations. Many business decisions simultaneously involve both investing and financing. Financial analysis is a tool of financial management. It consists of the evaluation of the financial condition and operating performance of a business firm, an industry, or even the economy, and the forecasting of its future condition and performance. It is, in other words, a means for examining risk and expected return.

Financial management sometimes called corporate finance or business finance, this area of finance is concerned primarily with financial decision-making within a business entity. Financial management decisions include maintaining cash balances, extending credit, acquiring other firms, borrowing from banks, and issuing stocks and bonds (Paramasivan and Subrainaian, 1998).

Investments: - This area of finance focuses on the behavior of financial markets and the pricing of securities. An investment manager's tasks, for example, may include valuing common stocks, selecting securities for a pension fund, or measuring a portfolio's performance.

Financial institution: - This area of finance deals with banks and other firms that specialize in bringing the suppliers of funds together with the users of funds. For example, a manager of a bank may make decisions regarding granting loans, managing cash balances, setting interest rates on loans, and dealing with government regulations (Fabozzi and Pamela ,2003).

According to Zdeňka (2010) financial management ensures both strategic and political objectives of a company's top management. Among them there is besides the basic goal of creating profit and increasing the market value of the company also ensuring financial solvency of the company and its efficient financing in the operational and investment field. In individual phases of the company activity, subsequent tasks for the financial management consist moreover in:-

1. Providing necessary capital:- to set up and operate a company and to enable investment, i.e. providing the company's financing it is creating basic capital (issuing shares, deposits of partners), issuing bonds or obtaining a loan, etc
2. Deciding about the allocation of the capital provided: - purchase of tangible, intangible or long-term financial assets, technology development, financing the company's operation (store, receivables, and operational costs)
3. Deciding about the distribution of created income: – payment of dividends or shares to partners, cumulating or reinvestment of earnings
4. Executing financial control and audit, financial analysis, financial planning and forecasting.

2.2.2. Objectives of Financial Management

Effective procurement and efficient use of finance lead to proper utilization of the finance by the business concern. It is the essential part of the financial manager. Hence, the financial manager must determine the basic objectives of the financial management. Objectives of Financial Management may be broadly divided into two parts such as, Profit maximization and Wealth maximization.

2.2. Working Capital and Working Capital Management

2.2.1. Working capital

Thus, in very simple words, working capital may be defined as “capital Invested in current assets.” Here current assets are those assets, which can be converted into cash within a short period of time and the cash received is again invested into these assets, (Penma, 2013).

Thus, it is constantly receiving or circulating. Hence, working capital is also known as circulating capital or floating capital. According to the studies of (Fabozzio and Pamela, 2003) Working capital is defined as the sum of inventories, short-term receivables and financial accounts. Working capital refers to the capital that a company needs in order to run its Operations, i.e. the short-term financing of the company. Because of this, the properties of working capital are such that it does not earn interest (e.g. capital tied up in Inventory).

Working capital refers to the capital that a company needs in order to run its operations, i.e. the short-term financing of the company. Because of this, the properties of working capital are such that it does not earn interest (e.g. capital tie-up in Inventory). Therefore, it is important that companies manage the working capital levels well in order to ensure that it provides the company sufficient amounts of profit (to counter the cost of capital). Working capital is made up of the net sum of current assets minus current liabilities and is often referred to as the net working capital (Penma, 2013).

Working capital decisions, which are made to support the day-to-day operations of the firm, working capital is the collection of assets needed for day-to-day operations that support a firm's long-term investments'.

Fabozzio and Pamela (2003) explained as, working capital is the capital that managers can immediately put to work to generate the benefits of capital investment. Working capital is also known as current capital or circulating capital. The working capital decision requires an evaluation of the benefits and costs associated with each component.

A corporation invests in long-term assets, such as plant and equipment, and short-term assets, such as cash, accounts receivable, inventory, and marketable securities. Short-term assets are also referred to as working capital, since they are put to work to generate sales which eventually result in cash flow which ultimately generates profit. Working capital comprises permanent working capital and temporary working capital.

Therefore, it is important that companies manage the working capital levels well in order to ensure that it provides the company sufficient amounts of profit (to counter the cost of capital). Working capital is made up of the net sum of current assets minus current liabilities and is often referred to as the net working capital (NWC) (Penman, 2013).

WCM is referring to any actions aimed at managing companies' working capital levels and thus does not refer to any specific managing-model or framework.

In contrast to long-term financial decisions WCM deals with the issues of short-term financing. These types of short-term financing decisions are important for the sustainability of companies, as it affects liquidity and profitability (Aravindan & Ramanathan, 2013).

2.2.2.IMPORTANCE OF WORKING CAPITAL

Working capital is one of the important measurements of the financial position. The words of H. G. Guttman clearly explain the importance of working capital. “Working Capital is the life-blood and nerve center of the business.” In the words of Walker, “A firm’s profitability is determined in part by the way its working capital is managed.” The object of working capital management is to manage firm’s current assets and liabilities in such a way that a satisfactory level of working capital is maintained. If the firm cannot maintain a satisfactory level of working capital, it is likely to become insolvent and may even be forced into bankruptcy. Thus, need for working capital to run day-to-day business activities smoothly can’t be overemphasized. Working Capital is an essential part of the business concern. Every business concern must maintain certain amount of Working Capital for their day-to-day requirements and meet the short-term obligations. Working Capital is needed for the following purposes.

1. Purchase of raw materials and spares: - The basic part of manufacturing process is, raw materials. It should purchase frequently according to the needs of the business concern. Hence, every business concern maintains certain amount as Working Capital to purchase raw materials, components, spares, etc.
2. Payment of wages and salary: - The next part of Working Capital is payment of wages and salaries to labor and employees. Periodical payment facilities make employees perfect in their work. So a business concern maintains adequate the amount of working capital to make the payment of wages and salaries.
3. Day-to-day expenses: - A business concern has to meet various expenditures regarding the operations at daily basis like fuel, power, office expenses, etc.
4. Provide credit obligations: - A business concern responsible to provide credit facilities to the customer and meet the short-term obligation. So the concern must provide adequate Working Capital.

The basic theme of working capital management is to provide adequate support for smooth and efficient functioning of day to day business operations by striking a trade between the

three proportions of working capital. They are liquidity, profitability and risk Reviewed by Mahanoy and Jagannathan (2014).

Working capital management is challenging task since it consists of managing various concepts of current assets, current liabilities along with managing cash, stock movement, trade receivables and trade payables as well. All these elements are inter-connected and affect the other; therefore, there is always a risk to be managed (Simerjeet and Harwinder, 2017).

2.2.3.TYPES OF WORKING CAPITAL

- Permanent Working Capital: - It is also known as Fixed Working Capital. It is the capital; the business concern must maintain certain amount of capital at minimum level at all times. The level of Permanent Capital depends upon the nature of the business. Permanent or Fixed Working Capital will not change irrespective of time or volume of sales.
- Temporary Working Capital It is also known as variable working capital. It is the amount of capital which is required to meet the Seasonal demands and some special purposes. It can be further classified into Seasonal Working Capital and Special Working Capital. The capital required to meet the seasonal needs of the business concern is called as Seasonal Working Capital.

The capital required to meet the special exigencies such as launching of extensive marketing campaigns for conducting research, etc. Semi Variable Working Capital Certain amount of Working Capital is in the field level up to certain stage and after that it will increase depending upon the change of sales or time.

2.3.Working Capital Management and Its important

2.3.1.Working Capital Management

Working capital management involves management of different components of working capital such as cash, inventories, account receivable, creditors etc. The management of current assets, current liabilities and inter-relationship between them is termed as working capital management. “Working capital management is concerned with, problems that arise in attempting to manage the current assets, the current liabilities and the inter-relationship that exist between them. In practice, “There is usually a distinction made between the investment decisions concerning current assets and the financing of working capital.

According to Sathmoorithi.et.al (2018), Working capital management deals with management of current assets and current liabilities and monitoring the inter-relationship between them. It aims to manage both current assets and current liabilities in such a way that a satisfactory level is maintained. Poor management of working capital may lead to business collapse resulting in insolvency. For a business to succeed, it is, therefore, imperative that the working capital is managed efficiently (Azeez, et.al, 2016), highlights the importance of managing short-term assets and liabilities to ensure sound financial health for all organizations and points to the fact that the investment in working capital are generally higher in proportion to the total assets employed, and this scenario demands serious examination of working capital management. Therefore, efficient working capital management involves planning and control of current assets and current liabilities in a manner to strike a balance between liquidity and profitability.

WCM is referring to any actions aimed at managing companies' working capital levels and thus does not refer to any specific managing-model or framework. In contrast to long-term financial decisions, WCM deals with the issues of short-term financing. For example, deciding the level of credit a company gives their clients as well as how much credit they should demand from their suppliers. These types of short-term financing decisions are important for the sustainability of companies, as it affects liquidity and profitability (Aravindan and Ramanathan, 2013).

The management of working capital is defined as the "management of current assets and current liabilities, and financing these current assets." Working capital management is important for creating value for shareholders. Management of working capital management was found to have a significant impact on both profitability and liquidity in studies in different countries (Gill et.al, 2010). Working capital management refers to a company's managerial accounting strategy designed to monitor and utilize the two components of working capital, current assets and current liabilities, to ensure the most financially efficient operation of the company.

The management of net working capital requires consideration for the trade-off between return and risk. Holding more current than fixed assets means a reduced liquidity risk. It also means greater flexibility, since current assets may be modified easily as sales volume changes. However, the rate of return will be less with current assets than with fixed assets. Fixed assets typically earn a greater return than current assets. Long-term financing has less liquidity risk associated with it than short-term debt, but it also carries a higher cost.

According to Brigham and Hustone (2009, 2011) to be raise the following two basic questions based on the working capital management, working capital management involves two basic questions: the first one is what is the appropriate amount of working capital, both in total and for each specific account, and the second, how should working capital be financed? Note that sound working capital management goes beyond finance. Indeed, improving the firm's working capital position generally comes from improvements in the operating divisions. Finance comes into play in evaluating how effective the firm's operating departments are relative to other firms in its industry and also in evaluating the profitability of alternative proposals for improving working capital management.

Fabozzio and Pamela (2003), studied about Fund conception of the management of short-term assets and short-term liabilities of a company is traditional in Anglo-Saxon countries. From there it has moved to the European continent as well and at present we can also find it in our economic practice. For financial management in our country this conception will certainly not become major but with regard to growing contacts with Anglo-Saxon economies, it is necessary to mention it. This conception distinguishes so called monetary funds or financial resources funds that are understood as an aggregation of short-term state values from the balance sheet.

According to Aravindan and Ramanathan (2013), WCM deals with decisions regarding the trade-off between liquidity and profitability. WCM is the managing and planning of liquidity and profitability. A company with poor WCM may run the risk of locking-up surplus amounts of capital (e.g. excess inventories) and on the other hand a shortage of working capital can damage the flow of operations. Aravindan & Ramanathan, (2013) for their studies financial manager, WCM will put focus on three main current assets: Inventories, accounts receivable (AR) and cash (and cash equivalents), while the main current liability is accounts payable (AP). Managing current assets is of importance for many companies as it often accounts for the major part of the company's total assets. (Brealey et. al 2013, Kieschnick et al. 2013). However, the details of how these assets should be handled to achieve optimal levels of working capital is dependent on a number of factors such as the nature of business as well as seasonal variations that might affect product demand. (Aravindan and Ramanathan, 2013) Additionally, the cost of capital in terms of the opportunity cost needs to be considered when referring to optimal levels of working capital. (Brealey et al., 2013) One of the leading institutes on working capital research, REL (a Hackett Group company), tracks the development of working capital through an annual survey. The

results of the 2013 report indicates that, as an effect of an increased focus on working capital due to the previous recession, the management is becoming increasingly more efficient. (REL, 2013) Working capital is defined as the sum of inventories, short-term receivables and financial accounts. Managing working capital means: inventory management: -providing optimal amount of inventory to ensure production cycle and sales, various normative and optimization methods are used, there are compared costs of supplying and costs of stocking. Managing receivables: - providing optimal structure and amount of receivables (issuing invoices, bills) in a company, collecting receivables. Cash flow management: - providing optimal amount of money (cash, bank accounts) in a company Although the working capital management itself consists in managing its individual components, a financial manager is expected to optimize its height and suggest measures so that the costs of preserving the existing height are the lowest possible, that explained by (Petr, 2010). Net working capital is defined as the difference between short-term (current) assets and Financial Management Short-term liabilities (mostly payables and short-term loans) and is used most often. The basic criterion for judging operational finance is the improvement of the company's liquid potential when financial resources funds are increasing. All financial management is influenced by three basic factors so called financial triangle, which includes: liquidity, profitability and risk. These factors are in mutual opposition and maximum values of individual factors cannot be achieved. Hence the goal of financial management is ensuring as advantageous parameters of these three factors as possible.

2.3.1.1. Inventory management

Inventory an important item in the working capital of many business concerns. Net working capital is the difference between current asset and current liabilities. Inventory is a major item of current asset. The term inventory refers to the stocks of the product of a firm is offering for sale and the components that make up the product inventory is store of good and stocks. The inventory turnover ratio indicates how quickly a firm has used Inventory to generate the goods and services that are sold. The inventory turnover is the ratio of the cost of goods sold to inventory.

Inventory turnover ratio = Cost of goods sold/ Inventory.

According to Peter and Zdeňka (2010) a good inventory management is important a successful operation of most organization unfortunately the importance is not always appreciated by top managers. But in other way inventory management to an optimum investment in inventory. In

general the main purpose of inventory management is to determine and maintain the optimum level of inventory investment.

2.3.1.2. Accounts Receivable Management

Receivable mean the book debts or debtors and this arises if the good are sold on credit. According to Fabozzi and Pamela (2003), the accounts receivable turnover ratio is a measure of how effectively a firm is using credit extended to customers. The reason for extending credit is to increase sales. The downside to extending credit is the possibility of default customers not paying when promised. The benefit obtained from extending credit is referred to as net credit sales on credit less returns and refunds. $\text{Accounts receivable turnover} = \frac{\text{Net credit sales}}{\text{Accounts receivable}}$.

2.3.1.3. Cash management

Cash management is one of the key areas of working capital management and cash is the most liquid current asset. Owners of small firms are able to watch recording of their incomes and expenditures within “tax evidence system”. This easy “cash-management” enables owners to manage their liquidity and successfully control the company (Peter and Zdeňka, 2010). According to the expression of Fabozzi and Pamela (2003) Cash flows out of a firm as it pay for the goods and services it purchases from others. Cash flows into the firm as customers pay for the goods and services they purchase. Cash mean the amount of cash and cash-like assets currency, coin, and bank balances. When cash management means management of cash inflows and outflows as well as the stock of cash on hand, In general cash is the common denominator of to which current assets can be reduced because the other major liquid assets, i.e. receivable and inventory get eventually convert into cash; This underlines the importance of cash management.

2.3.2.Important of working capital management

For smooth running an enterprise, adequate amount of working capital is very essential. Efficiency in this area can help, to utilize fixed assets gainfully, to assure the firm’s long- term success and to achieve the overall goal of maximization of the shareholders, fund. Shortage or bad management of cash may result in loss of cash discount and loss of reputation due to non-payment of obligation on due dates. According to Blinder and Manccini (1991) Working capital management is very imperative because it affects the firm’s risk, profitability and value (Smith, 1980). Investment in working capital involves a balance/tradeoff between risk and profitability

because investment decision which leads to increase in profitability will be inclined to increase risk and vice versa. Efficiency in working capital management is very important for the manufacturing firms where more than half of the assets are current assets. Efficiency in managing working capital also increases cash flow to the firms which in turn increase the growth opportunities for the firms and return to the shareholders.

2.3.3. Working Capital Management Policy

According to Fabozzio and Pamala (2003), Aravindan & Ramanathan, (2013), explained about, Working Capital Management formulates policies to manage and handle efficiently; for that purpose, the management established three policies based on the relationship between Sales and Working Capital.

- **Conservative working capital policy:** - Conservative Working Capital Policy refers to minimize risk by maintaining a higher level of Working Capital. This type of Working Capital Policy is suitable to meet the seasonal fluctuation of the manufacturing operation.
- **Moderate working capital policy:-** Moderate Working Capital Policy refers to the moderate level of Working Capital maintenances according to moderate level of sales. It means one percent of change in Working Capital that is Working Capital is equal to sales.
- **Aggressive working capital policy:** - Aggressive Working Capital Policy is one of the high risky and profitability policies which maintain low level of Aggressive Working Capital against the high level of sales, in the business concern during.

According to Brigham and Huston (1975) cited by Njenga (2011) working capital policies are financing current assets can be done by adopting three policy principles namely:

- **Long-term financing:** - Long term financing is a form of financing that is provided for a period of more than one year. The sources of long term financing include long-term borrowings from financial institutions, ordinary share capital, debentures and retained earnings.
- **Short term financing:** - The short term financing is obtained for a period of less than one year. It is arranged in advance from banks and other suppliers of short term financing. The sources include working capital funds from banks, factoring receivables, bank overdrafts, commercial paper etc.
- **Spontaneous financing:** - Spontaneous financing refers to automatic sources of short term funds arising in the normal course of business such as trade credit and outstanding expenses.

There is no explicit cost of spontaneous financing. A firm should utilize this source of financing to the fullest extent. Once this is fully utilized the firm can then choose between long-term and short term.

2.3.4.Approaches of working capital management

There are three basic approaches for determining an appropriate Working Capital finance mix That are explained by the Guttman (new age publisher) and Brigham and Earnhardt (2009,2011).

Hedging Approach: -Hedging approach is also known as matching approach. Under this approach, the business concern can adopt a financial plan which matches the expected life of assets with the expected life of the sources of funds raised to finance assets. When the business follows matching approach, long-term finance shall be used to fixed assets and permanent current assets and short-term financing to finance temporary or variable assets.

Conservative Approach: Under this approach, the entire estimated finance in current assets should be financed from long-term sources and the short-term sources should be used only for emergency requirements. This approach is called as “Low Profit – Low Risk” concept.

Aggressive Approach: Under this approach, the entire estimated requirement of current assets should be financed from short-term sources and even a part of fixed assets financing be financed from short- term sources. This approach makes the finance mix riskier, less costly and more profitable.

2.4. Evaluate operating performance

When we assess a firm’s operating performance, we want to know if it is applying its assets in an efficient and profitable manner. When to assess a firm’s financial condition, can use financial ratios to evaluate five aspects of operating performance and financial condition: -

2.4.1.Return on investment

Ratios compare measures of benefits, such as earnings or net income, with measures of investment.

2.4.2.Liquidity,

Liquidity reflects the ability of a firm to meet its short-term obligations using those assets that are most readily converted into cash.

2.4.3. Profitability,

Profitability is the concern purely depends on the effectiveness and proper utilization of funds by the business concern.

2.4.4. Activity ratio

Activity ratios for the most part, turnover ratios can be used to evaluate the benefits produced by specific assets, such as inventory or accounts receivable or to evaluate the benefits produced by the totality of the firm's assets.

2.4.5. Financial leverage

Financial leverage ratios are used to assess how much financial risk the firm has taken on. Financial leverage ratios are used to assess how much financial risk the firm has taken on. There are two types of financial leverage ratios: component percentages and coverage ratios. (Fabozzi and Pamela ,2003)

2.5. Empirical Literature

Mohamed et.al (2018) Working capital management and its effect on profitability: Empirical evidence from Malaysian capital market, numerous empirical studies on WCM have been done around the world in relevant to its effect on the company' performance. Despite to the existing evidence, findings from Malaysian's point of view may be different due to dissimilarity in business environment between different nations. The purpose of this study is to identify the effect of DSI negative relation between profit, DSO negative relation between profit, DPO the finding was told negative relation between profitability, and CCC also negative relation between positive on the financial performance of Malaysian listed companies. These findings will facilitate companies to draw up a proper WCM to ensure that the company can achieve high profit without having liquidity problem.

Kushagara and Suraya (2017) investigates Impact of working capital management on profitability (case of textile industry) The sector has future potential due to high demand in the Indian Market and international demand; hence this study is important to understand the association between working capital and profitability in the textile Industry. The study will help firms make certain important decisions such as decision on inventory levels or the credit period that the firm can give its debtors in order to clear their bills, so that the profitability of the firm increases and many more crucial determinations. Therefore, the study aims to answer whether

there is relationship between Working Capital and Profitability with the help of certain variables which are the two subjects of this study. The results show that there exists a significant correlation between the profitability and working capital variables, for instance, there exists a negative correlation between Return on Assets and Debtor's Collection Period (DCP), Inventory Holding Period (IHP), Creditor's Payment Period (CPP) and Cash Conversion Cycle (CCC). Textile being one of the major sectors in India, the aim of this paper is to provide some useful recommendation to the people handling this particular department in the industry.

Samrajeet and Kauar, (2017), studies Working capital management and profitability case manufacturing company In the view of working capital management and their impact on profitability of firms. Numerous studies were conducting and results varied over the period of time however few studies on the working capital management and profitability. The study result exhibit that there is a significant relationship between dependent variable (net profit and return on asset) and independent variable. It was found that receivable collection period inventory period and cash conversion cycle had symbolic impact on the profitability of companies. Working Capital Management is one of the vital areas of management, and has a noteworthy impact on the profitability of company. Indian steel manufacturing companies should reduce their Cash Conversion Cycle; hence cash conversion has negative significant relationship with net profit.

From the view of Mubashir H. (2017) the effect of working capital on profitability an analysis of UK pharmaceutical and biotechnology FTSE all share index firms, show the relation between working capital management variable and profitability of the firms. The result investigated that there was positive relation between the cash conversion cycle and the profit, negative relation between the inventory conversion period and the profitability of the firm, the negative relation between the average payment period and profit of the firms and the last there is inverse relation between the account recivable period and the profit of the firms.

Tesfa and Chawala (2017) A survey of working capital management practice among manufacturing company in Ethiopia The absence of capital market in Ethiopia has increased the problem related to financing investments even for medium and large manufacturing companies. The management of current assets and current liabilities require continuous, day-to-day supervision to ensure that a firm has optimal working capital that is neither excessive so as to

avoid the realization of substandard return on investment nor inadequate so as to reduce shortages and difficulties of maintaining smooth operations.

Harsh(2017), Working capital management and firm profitability meta-analysis, In the literature there is conflicting empirical evidence on association working capital management and firm profitability due to factor including size of the sample proxy measure for variable under study and economic development of the country from which the ample is drawn.

Abnet and Vankteserlu (2016) Effect on working capital management on firms' profitability evidence from manufacturing co. eastern Ethiopia, In view that working capital management decision is important factor as it determines the firm values maximization and shareholders wealth; many researches had conducted various studies to examine on the relationship between working capital management and firm's performance over the last decades. However, the findings are inconsistent for different studies carried out by numerous Researchers and are performed separately. Furthermore, there is also lack of study being conducted on the effect of working capital management on the profitability of firms in Ethiopia.

Bagh et al (2016) examined the impact of working capital management on financial performance of 50 manufacturing firms listed in Karachi stock exchange (KSE) of Pakistan. The data has been taken for 10 years i.e., 2005 to 2014. They said that the company should maintain appropriate level of working capital and it should be the chief objective of working capital management. They examined the effect of various components of working capital i.e., inventory turnover (ITO), cash conversion cycle (CCC), average collection period (ACP), and average payment period (APP) on firm performance by using three different proxies i.e., return on asset (ROA), return on equity (ROE) and earnings per share (EPS). Through multiple regression analysis they found that the APP, ITO and CCC have negative and significant impact on ROA but ACP has positive and significant impact on ROA. Their result advocated that the financial performance of selected firms in Pakistan was influenced by working capital management.

The objective of Arega and Tadesse's research paper (2016) was to examine and analyze the impact of working capital management on the profitability of food complex manufacturing companies operating around Addis Ababa from 2009 to 2013. The results provided proof that the Cash Conversion Cycle, as a measure of working capital management, negatively affects Return on Assets. A negative relationship between the Receivables Collection Period, strong negative

relation of Inventory Conversion Period, Payment Deferral Period and profitability was also found.

In the work of Tesfaye (2016) working capital management and firm profitability evidence from manufacturing share companies in addis abeba Ethiopia the research indicated that relation between account receivables days , inventory conversion period and the cash conversion period was negatively related to return on asset but the account payable days was positive related to that of return on asset. Therefore , by and large, the researcher failed to reject three hypotheses that indicate the relationship between profitability measurement of return on asset and ARD, ICP,CCC, whereas, the researcher rejected one hypotheses indicating the relationship between ROA and APD

The research that investigated by Mifta (2016) impact of working capital management on profitability of manufacturing share company In Ethiopia, the result show that the relation between the working capital component and the profitability of the firm indicated that account receivables period, inventory conversion period and cash conversion period was negatively related to the return on asset for the companies but the account payable period and return on asset was positively related. Therefore, the empirical results from the test hypothesis shows that except hypothesis two (HP2), inventory holding period of the firm are significant negatively related and hypothesis three(HP3), the account payable period of a firm are significant positively related to a firms profitability; the study accepted the null hypothesis.

The research evidence from the work of Rahima (2015) the effect of working capital management in SMEs in Malaysian, the finding shows that there is negative relation between working capital management measure and day account receivables, inventory turnover and cash conversion cycle and SMEs profitability proxies or ROA and ROE except on net operating profit which is having positive effect with CCC. Furthermore the research shows the study show that there is positive relation between day account payable and SMEs profitability measure by ROA and ROE but having negative relation with the net operating profit. The result implies that profitability of SMEs manufacturing firms depend up on effective working capital, therefore this study suggests that SMEs manufacturing companies can improve their profitability by managing working capital properly.

Evidence from Manufacturing S.C. in Addis Ababa, Ethiopia ignored area of empirical research Henoke (2015), Working Capital Management and Firms' profitability: Evidence from Manufacturing S.C. in Addis Ababa, Ethiopia Addis Ababa Ethiopia No research has been done in case of working capital management and profitability of the manufacturing share company in Addis Ababa. The results also show that there exists significant negative relationship between cash Conversion cycle and profitability of the sampled firms. In addition to that there is significant positive relationship between current assets to total assets ratio and profitability measures has been observed. On the other hand, results show that a significant positive relationship between current liabilities to total assets ratio and profitability.

Ntui et.al (2014) The effect on working capital management on profitability, Critical issue that to know understand the effect of working capital management and its influence on the profitability and the components of working capital management that are the effectiveness of firms profitability of firms have been conducted in different countries to show the effects of working capital components on firm's profitability. The finding shows that Positive relationship between cash conversion cycle and profitability of the firm. This means that as the cash conversion cycle increases it will lead to an increase in profitability of the firm, and managers can create a positive value for the shareholders by increasing the cash conversion cycle to a reasonable level. negative relationship between liquidity and profitability showing that as liquidity decreases, the profitability also increases, there exists a highly significant negative relationship between average collection period and profitability indicating that a decrease in the number of days a firm receives payment from sales affects the profitability of the firm positively, there is a highly significant positive relationship between average payment period and profitability. This implies that the longer a firm takes to pay its creditors, the more profitable and there exists a highly significant negative relationship between inventory turnover in days and profitability hinting that firms which maintain sufficiently low inventory levels reduce the cost of storing the inventory which results to higher profitability.

Björkman and Hillergren (2014) The Effects of Working Capital Management on Firm Profitability study examining the impacts of different company characteristics previous researches on the relationship between WCM and profitability have mainly been focused on general relationships, either for a market as a whole or in individual industries. The issue of size has mostly been used as a control variable or different segment of size have been studied

independently study looked at the relationship between company size and the length of the CCC. 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, and industry which has been sparsely investigated and, to the best of the authors knowledge, never on its own characters.

Kadiumi (2012) Profitability and working capital management, the practical implication the study is to encourage managers of firms to implement policies and strategies that will leads to efficient and effective management of the component of working capital due to its significant role in maximizing the market value of the firm and therefore the owner of the company wealth.

Kumar et.al (2012) Working capital management and its effectiveness on the profitability, working capital management has always been a fascinating subject from the academic point of view and it must be admitted that in the real world situation also, efficiency with which working capital is managed in a concern is of great significance for its overall wellbeing – its growth and decline. The findings of this study not only throw light on technical weakness in the managerial activities of the companies, but may also help scholars and researchers to develop new ideas, techniques and methods in respect of the management of working capital.’

Nuru(2011) The effect of working capital management policy on firms profitability (Evidence from P.L.C of Addis Ababa, investigates that, The results show that longer accounts receivable and inventory holding periods are associated with lower profitability. There is also negative relationship between accounts payable period and profitability measures; however, except for operating profit margin this relationship is not statistically significant. The results also show that there exists significant negative relationship between cash conversion cycle and profitability measures of the sampled firms. No significant relationship between current assets to total assets ratio and profitability measures has been observed. On the other hand, findings show that a highly significant positive relationship between current liabilities to total assets ratio and profitability. Finally, negative relationships between liquidity and profitability measures have also been observed. Managers, therefore, can increase firms’ profitability by improving the

efficiency of management of working capital investment and financing policies while, also keeping in view the trade-off between liquidity and profitability.

Njengna (2011) the effect of working capital management on the profitability of small and medium enterprise in Kenya, that investigated that the finding there was a negative relationship between profitability and day inventory outstanding, days sales outstanding, and cash conversion cycle and also there was significant negative relation between profitability and days outstanding.

Hong et.al(2011) Relationship b/n working capital management and profitability in manufacturing company If the company neglects profit it will not survive in the long run on the other hand the company will face insolvency amount to be reduced and the main issue that of the study was working capital management affect profitability.

The main target of Mohamed (2011) Research studies on the effects of management of working capital policies on firms' profitability in developing countries, especially in Ethiopia remained an ignored area of empirical research, Thus, this study examined the effect of working capital investment and financing policies on firms' profitability by using audited financial statements of a sample of 11 manufacturing private limited companies in Tigray region, Ethiopia for the period of 2005 to 2009. The study used return on assets, return on equity and operating profit margin as dependent profitability variables. The results also show that there exists significant negative relationship between cash conversion cycle and profitability measures of the sampled firms. No significant relationship between current assets to total assets ratio and profitability measures has been observed. On the other hand, findings show that a highly significant positive relationship between current liabilities to total assets ratio and profitability. Finally, negative relationships between liquidity and profitability measures have also been observed. Managers, therefore, can increase firms' profitability by improving the efficiency of management of working capital investment and financing policies while, also keeping in view the trade-off between liquidity and profitability.

Debie (2011) Working capital management and profitability the case of industrial firm in Jordan, the relationship between current asset items and current liability items is called the working Capital of the business organization. Working capital can be looked at as the excess of total current Assets over total current liabilities, i.e., the remaining current assets after paying all

current liabilities. Thus, the larger the amount of working capital the stronger the liquidity position of the business Organization. Related literature has identified other measures of the liquidity position of business organizations such as the current ratio, the acid-ratio, the current cash debt coverage ratio, the Receivables Conversion Period (RCP), the Inventories Conversion Period (ICP), and the Cash Conversion Cycle (CCC). On the basis of these he suggested that manager could increase corporate profitability by reducing the number of day's accounts receivable and inventories to a reasonable minimum. The negative relationship between accounts payable and profitability is consistent with the view that less profitable firms wait longer to pay their bills.

Mulualem (2011) studied impact of working capital management on firm's profitability on a Sample of 13 manufacturing companies for the period of five years (2005-2009). The study was employed stratified sampling design based on nature and turnover of companies. The finding of descriptive statistics shows that, on average cash conversion cycle takes 129days and with minimum and maximum days of -25 and 343 respectively. It also took an average 97 days to sell inventory. Firms wait an average 104days to pay their purchases and receive Payment against sales on an average of 58days. The results showed that there is statistical Significance negative relationship between profitability and working capital management. Moreover the study found that there is strongly significant positive relationship between size and firm profitability and there is no statistically significance negative relationship between debt and firms profitability.

In the research finding of Yang(2011) the role of trade in recent subprime in financial crises which implies that trade credit is a substitute of a bank loan he also found a positive relation between account receivables and bank loans which means that they are complementary to each other he also found account payable steady during crises. The empirical evidence indicates that financially constrained firms are more likely to cut their account receivables and increase their use of trade credit.

In their work of Wilson, Okwo, and Ugwunta, (2010) The effect of working capital management on the profitability, evidence from the top five beer brewery firms in the world, This research expands the horizon of knowledge in this area by shedding more light on working capital management as measured by the cash conversion cycle (CCC), and how the individual components of the CCC influence the profitability of world leading beer brewery firms. Multiple regression equations were applied to a cross sectional time series data of five world leading beer

brewery firms after ensuring that the data are stationary and co-integrated. The outcome of the analysis clearly pinpoint that working capital management as represented by the cash conversion cycle, sales growth and lesser debtors' collection period impacts on beer brewery firms' profitability. The empirical results show that the relationship between world leading firms' cash conversion cycle, sales growth rate and profitability is positive and therefore, that cash conversion cycle and sales growth rate are effective determinants of the sector's profitability. This result is strengthened by the multiple regressions which confirm statistically that the cash conversion cycle and sales growth rate significantly impacts on the world top five leading beer brewing companies' profitability. The implication here is that a reduction in the cash conversion cycle and an increase in sales greatly improve world leading beer brewers' profitability. Therefore, efficient management of working capital for world leading beer brewers 'not only has a positive relationship with profitability but significantly impacts on such firm's profitability.

Mathuva (2010) investigated the impact of working capital management components (average collection period, inventory conversion period, and average payment period) on corporate profitability measured by the net operating profit for a sample of 30 firms listed on Nairobi Stock Exchange (NSE) for the periods 1993 to 2008. Both the pooled OLS and the fixed effects regression models were used. The result of the study shows that (1) 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. This means that more profitable firms take the shortest time to collect cash from their customers; (2) there exists a highly significant positive relationship between the period taken to convert inventories into sales (the inventory conversion period) and profitability. This means that firms which maintain sufficiently high inventory levels reduce costs of possible interruptions in the production process and loss of business due to scarcity of products. This reduces the firm supply costs and protects them against price fluctuations; (3) there exists a highly significant positive relationship between the time it takes the firm to pay its creditors (average payment period) and profitability. This means that the longer a firm takes to pay its creditors, the more profitable it is. Based on the findings, the management of a firm can create value for their shareholders by increasing inventories to a reasonable level, taking long to pay creditors to the optimum level and reducing the cash conversion cycle to its minimum.

Lazaridis and Tryfonidis (2006) investigated the relationship between working capital management and corporate profitability using quarterly data of 131 firms listed at Athens Stock Exchange of Greece. Cash conversion cycle has been used as a measure of working capital management whereas gross profit has been taken as profitability measure. The size of the firms as measured by natural logarithm of sales, financial debt of firm and fixed financial assets to total assets ratio were used as control variables. Pearson correlation analysis showed a negative relationship of gross profit with cash conversion cycle, number of days of accounts receivables and inventory and there is a positive relationship between gross profit and number of accounts payable days. In order to validate the robustness of correlation results, four regressions were run the results provides that cash conversion cycle, number of days accounts receivables and inventory were negatively related with gross profit while the number of days accounts payables were positively related to gross profit. All results were statistically significant at 1 percent level of significance indicating that managers can create profits by keeping current assets and current liabilities to an optimal level.

Deloof (2003) investigated the relationship between the working capital management and corporate profitability for a sample of 1009 large Belgian non-financial firms for the period of 1992-1996. The cash conversion cycle has been used as a comprehensive measure of working capital management, whereas gross operating income has been used as a measure of corporate profitability. In addition, size of the firm, sales growth, the financial debt and ratio of fixed financial assets to total assets were introduced as control variables. Using correlation and regression tests he found a significant negative relationship between gross operating income and cash conversion cycle. On basis of these results he suggested that managers can create value for shareholders by maintaining the cash conversion cycle and its components to an optimal level.

In their work, Shin & Soenen (1998) suggested that efficient working capital management was very important for creating value for the shareholders. By using correlation and regression analysis they justified the relationship between the length of net trading cycle, corporate profitability and risk adjusted stock return. They found a strong negative relationship between lengths of the firm's net trading cycle and its profitability. In addition, they found that shorter net trade cycles associated with higher risk.

Mahito and kumar (n.d), the impact of working capital management on profitability case of telecom sector, Working capital management and profitability have some relationship with each

other. Many research works is available on this relationship in different sectors of India. But selected sector i.e. Telecom sector has not been under much consideration regarding the working capital management. So, much literature is not available in this sector in Indian context. Working capital management is very important part of business activities of any firms. Thus, working capital management is very important for telecom sector as well. The main aim of this paper is to find out “Does the working capital management have any impact on the profitability of Telecom sector of India?” and also the purpose of this research is to contribute important aspect towards a financial management known as working capital management with reference to Indian Telecom.

2.10. Summery and Knowledge Gap

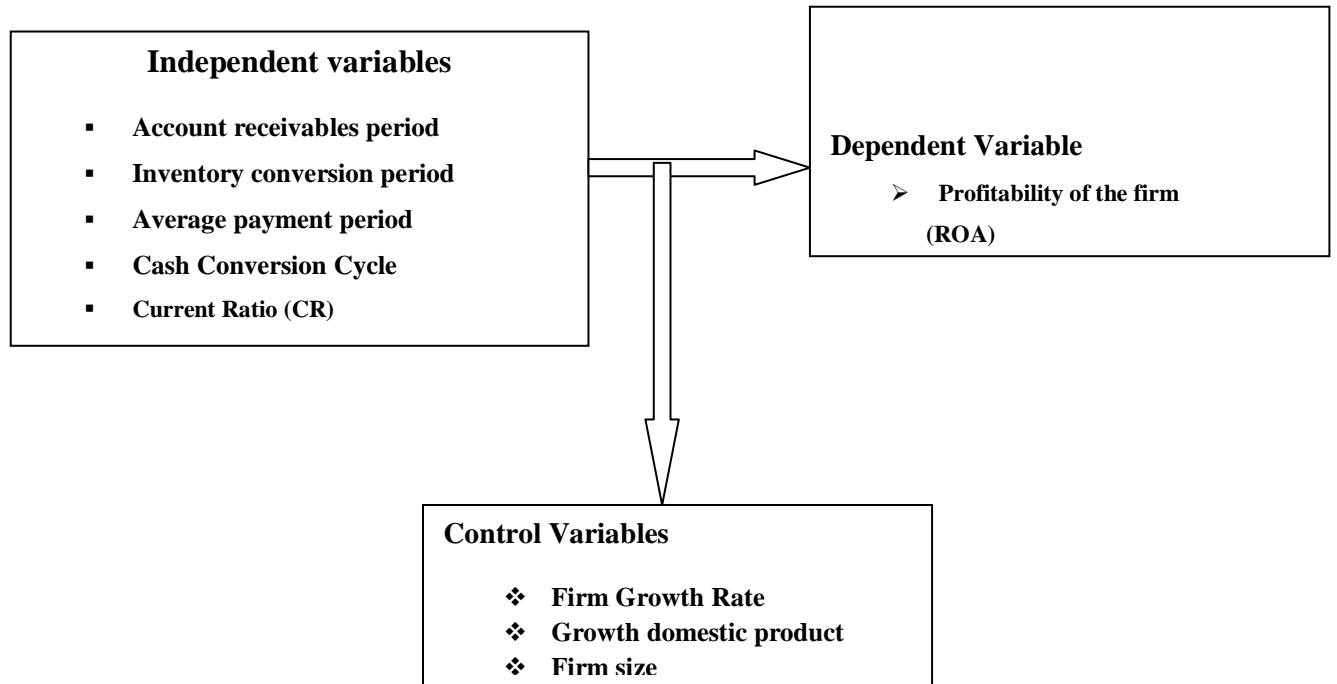
Generally, the literature review indicated that the working capital management has effect on Profitability, liquidity and the ability manufacturing company. Even if different studies indicated that working capital management has impact on the profitability, liquidity and performance of firms but there is still vagueness regarding the appropriate variables, hypotheses and effect size measures that might serve as proxies for working capital management as a whole. In dedeed, we know that working capital components are the main factors that affect the liquidity and profitability of the manufacturing companies. But there are different arguments that have decided by different scholars and their idea about working capital and the components are still vogue and disagree for each other. Most of them are mainly agreed in the proper managing of working capital have important effect on the performance of manufacturing companies.

From the empirical evidence recognizes working capital have effect on the performance of manufacturing companies. According to Sathyamorthi et.al (2018) average payment period and inventory conversion period were found to be positively and significantly correlated and cash conversion cycle was significantly and positively correlated with inventory conversion period. The regression results showed that only three variables out the remain variables independent variables were statistically significant, namely APP, CR and QR. In other hand Deloof (2003) found that there is a negative relation between inventory conversion, cash conversion period, account collection period and profitability. For these reason no common results among the researchers still they have the study topics that the effect of working capital management on profitability of manufacturing company. And most of the previous studies are more of focused on generally manufacturing sectors but this research mainly focus on the specifically in the beer, beverage and brewery manufacturing that found in Addis Ababa.

2.6. Conceptual framework

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

Figure 2.1: Schematic Conceptual Framework



Source: - Own personal design (2011 E.C/2019)

CHAPTER THREE

RESEARCH METHODOLOGY

3.1. Introduction

The previous chapter described a theoretical literature and works related to working capital management by different authors. This chapter however moves a step further by showing the ways in which the relevant data and its collection methods have helped prove that indeed working capital management is necessary for manufacturing firms. It covers research design, data source and collection methods, population and sample size, data analysis and description of variables, model specifications and diagnostic tests. As Dawson (2009) Methodology is the philosophy or the general principle which will guide research. Research Methodology: can be understood as all those approaches and techniques that are used in conducting a particular research. Research methodology; thus, refer to the techniques researchers use in performing research operations.

Schwardt (2007) defines research methodology as a theory of how an inquiry should proceed. It involves analysis of the assumptions, principles and procedures in a particular approach to inquiry. According to Schwardt (2007), Creswell and Tashakkori (2007), and Teddlie and Tashakkori (2009), methodologies explicate and define the kinds of problems that are worth investigating; what constitutes a researchable problem; testable hypotheses; how to frame a problem in such a way that it can be investigated using particular designs and procedures; and how to select and develop appropriate means of collecting data.

3.2. RESEARCH DESIGN

Researcher after defining and properly formulating research problem as a next step has to prepare a research design or plan of the research work. Research design is a plan of collecting and analyzing data in an economic, efficient and relevant manner. It is a plan of organizing framework for doing the study and collecting the necessary data. In other words research design is nothing but the conceptual structure with in which research is conducted. It constitutes the blue print for collection, measuring and analysis of data. The main purpose of this research is the effect of working capital management on the profitability of beer, brewery and beverage manufacturing company in Addis Ababa. Durrheim (2004), research design is a strategic framework for action that serves as a bridge between research questions and the execution, or

implementation of the research strategy. It is a plan of organizing framework for doing the study and collecting the necessary data. The study adopted an explanatory research that used a quantitative research design through the use of secondary data.

3.3. Data collection

The data requires for the purpose of interpretation and analysis obtains from uses of secondary sources through document analysis. The secondary data deriving from financial statements of selected large tax payers that beer, brewery and beverage manufacturing company. These data include audited balance sheet and profit and loss accounts showing annual financial statements of the sample manufacturing companies. The data are collect period of 6(six) years the period of the data collection was from the years 2005 to 2010 E.C. (2013/2014-2017/2018 G.C). The specific data collect for covering these six years' period considering the variables used in the study have to be collect. To gather the necessary data copies of audited financial statements in the form of income statement and statement financial position over the period of six years have been used. Most of the data are requires from data that obtain from the financial statements summated to the Ethiopian revenue and custom authority (ERCA) OR ministry of revenue (MOR).

3.4. Population

The research would targeted to study the effect of working capital management on profitability of brewery, beverage and beer manufacturing company's population is the total collection of elements about which the researcher makes some inferences. The collection of all possible observations of a specified characteristic of interest is called a population while a collection of observations representing only a portion of the population is called a sample. In this study, the target population is manufacturing company who are large tax payers in Addis Abeba that are beer, brewery and beverage manufacturing firms. The population inference is made due to the availability of the data necessary for the study and also most of the manufacturing firms reside in large tax payers' branch office and also some data are collects from the ABBE. The population of the study will comprise 15 beers, brewery and beverage manufacturing company that found in Addis Ababa.

3.5. Sample and sampling technique

The total population of the study are from 15 all beers, brewery and beverage manufacturing companies that are found in Addis Ababa. The sample is taken from the total population of 14

manufacturing firms. In selecting manufacturing companies, the researcher uses convenience and purposive sampling design method. Addis Ababa region is found to be convenient to obtain the required data with limited time and fund and selecting beers, brewery and beverage manufacturing companies. In this approach the investigator has complete freedom in choosing his sample according to his wishes and desire. The researcher selects the sample based upon his judgment about some appropriate characteristics required from the sample members. Therefore, the sample size is determined by the purposive sampling method which is the non-probability sampling procedure that helps to conduct this study, due to the above condition the researcher is free from any biasness and has complete freedom to select the sample. The other criterion used in selecting sample units to be included in the study is holding a complete 6 (six) years financial statement data which was from the years 2005 to 2010 E.C. (2013/2014-2017/2018 G.C). The reason for selecting this period is due to the latest data for the investigation available for these periods. Due to the time period of establishment of after 2013/2014 beer, beverage and brewery manufacturing companies in Addis Ababa the time was selected for the year.

Table 3.1. Proportionate stratified sampling design

Activity type	Population		Sample	
	Numbers	Proportion in Percent	Number	Percentage
Manufacture of Beverages	4	26.66	4	28.57
Manufacturing of beers	1	6.66	1	16.66
Manufacturing Brewery	10	66.66	9	64.28
Total	15	100	14	100

Source: Survey Result, 2019

3.6. VARIABLE MEASURE AND RESEARCH HYPOTHESIS

In this research, the choice of explanatory variables has been based on alternative theories related to working capital management and profitability and additional variables that were used in previous studies. The variable used in this study is based on the line as applied in previous research regarding the relationship between working capital management and profitability. These variables are categorized as dependent, independent and control variables. The dependent variable for the study refers to the firm's profitability that is represented by return on assets

(ROA), while the independent variables refer to working capital management components that are represented by number of Accounts Receivable Period (ARP), number of days Inventories (ICP), number of days Accounts Payable (APP), cash conversion cycle (CCC) and Current ratio (CR). The control variables for this framework refer to growth domestic product (GDP), firm size (FS) sales growth (GROWTH).

3.6.1. DEPENDENT VARIABLE

One variable depends upon or a consequence of the other variable is called a dependent variable. Dependent variables are variables that are used to measure the profitability of firms. In order to analyze the impact of working capital components on the profitability of manufacturing companies in Ethiopia, profitability is measured by return on assets (ROA). According to Frank and Peterson (2003) Return on assets sometimes called the basic earning power ratio as the ratio of earnings before interest and taxes (EBIT) (also known as operating earnings) to total assets. The most frequently used measure of profitability in this field of study is return on assets (ROA). ROA includes both financial and operating activities, which could be a potential problem when investigating operating activities (Penman 2013). Return on assets (ROA), return on equity (ROE) and operating profit margin (OPM) are best known and most frequent used profitability measures. Henok (2015) examine that amongst various measures of profitability ROA is a better one since it relates the profitability of the business to the asset base, and also it is a simplest one to measure the profitability. It explains the performance and progress of the business in utilizing its resources to generate the income. The major difference between ROA and ROE is that the ROA remain unaffected by the company choice of structure-the choice of using debt versus equity to fund operation. The higher the return on assets indicates that the firms effective enough in generating profit from its available and the reverse is true for decrease in return on assets. Gitman (2002) if the return on asset showing positive value it indicates that the firms are efficient enough in generating profit with its available assets. Most researchers are explain dependent variables that ROA measurement of profitability such as Deloof(2003), Kushagra and Surya (2017), Simaranjeet and Harwinder(2017), Hong.Y et.al (2011), Sherry B. et.al(2016), Abnet and Venkateswarlu(2015), Harsh.p et.al(2017), Sathyamoorthi et.al(2018) Dina and Silvije(2018) are some influential researchers.

$$\text{ROA (return on asset)} = \frac{\text{Earnings Before interest and Tax (EBIT)}}{\text{Total Asset (TA)}}$$

The financial performance (return on asset) of the manufacturing companies can be depending on various component of working capital.

3.6.2. INDEPENDENT VARIABLES AND THEIR RESPECTIVE HYPOTHESIS

Independent variables are variable that is expected to influence the dependent variable. In this research the independent variables are Average collection period/Account receivables period/ (ACP/ARP), Inventory conversion period (ICP) and Average payment period (APP) are independent variables uses as measure specific working capitals components to create investment. The variable Cash Conversion Cycle (CCC) and Current Assets to Total Assets Ratio (CATAR) used as compressive measures of working capital investment policy. Current Liabilities to Total Assets Ratio (CLTAR) used to measure of working capital financing policy.

3.6.2.1. Account Receivable Period (ARP/ACP)

Accounts receivable ratios consist of the accounts receivable turnover ratio and the average collection period. The accounts receivable turnover ratio gives the number of times accounts receivable is collected during the year. It is found by dividing net credit sales (if not available, then total sales) by the average accounts receivable. In general, the higher the accounts receivable turnover, the better since the company is collecting quickly from customers and these funds can then be invested. The collection period (day's sales in receivables) is the number of days it takes to collect on receivables Joel and Jae (2007).

Account Receivable Period (ARP/ACP) = Accounts Receivables / Sales) X 365 days

H₁= There is inverse relationship between average collection period and profitability of the manufacturing companies.

3.6.2.2. Inventory conversion period (ICP)

Inventory Conversion Period is the average time it takes to acquire and sell inventory. The longer the inventory storage period, the higher will be the investment tied up in inventory. Therefore, the higher the investment invested in inventory, the lower will be the profitability of firms. The reason for this could be tied up of more funds and/or deterioration and obsolescence of inventory due to longer inventory period leads to lower profitability.

Deloof, (2003),Wohrmann (2013)who envisaged that inventory conversion period (or inventory management) negatively related to the financial performance of manufacturing companies.

H₂- the inventory conversion period is inversely related with the profitability of manufacturing companies.

Inventory conversion period = Ending inventories/ Cost of goods sold *365 days

3.6.2.3. Average payment period (APP)

An APP measure the number of day firm takes to pay is suppliers. Payables Management Relationship with Profitability in his study, Deloof (2003) asserted that average payables period has negative relationship with profitability. Sabri (2012) concluded that the relationship between profitability and average payables period is negative just as was discovered by Padachi (2006) and Deloof (2003) who carried out their studies on Belgian firms. This negative result, however, contradicts theory which advises in favor of extending average payables in days in a bid to retain the cash for a longer period and use same to finance the activities of the business. Deloof (2003) rationalized the negative relationship between average payables period and profitability as consistent with the view that less profitable entities wait longer to pay their bills. For Deloof (2003), profitability, in that case, affects average payables period and not the other way round. He suggested that it was the inability of firms in distress to generate enough cash to pay their payables that resulted in extending the payable days. According to Moodley (2014), that was not a choice of management but, rather, a forced reaction and as a result it distorted the results with regard to the relationship of payables and Return on Investment (ROI). An alternative explanation by Deloof (2003) which was concurred to by Sabri (2012) was that speeding up payments to suppliers might increase profitability because Belgian firms often received a substantial discount for prompt payment. This resulted in companies choosing to pay earlier rather than keep their cash in the business. As a result, they do not adopt a policy of increasing payable balances. The study by Lazaridis and Tryfonidis (2006), however, emphasized the surprise concerning the results of previous studies. According to Lazaridis and Tryfonidis (2006), “this result is highly significant and does not make economic sense, since the longer a firm delays its payment the higher the working capital levels it reserves and is used in order to increase profitability. Thus this ratio represents an important source of financing for operating activities. Average payable period used to proxy for payments policy and tell us how long it takes the firm to repay for purchasing of inventory. The formulas that calculate the ratio of APP as follows: - Average payable period (APP) = Account payable/cost of Goods sold x 365 days

H₃-there is inverse relation between account payable days /period and profitability.

3.6.2.4. Cash Conversion Cycle(CCC)

Cash conversion cycle is one of the most widely used measures to evaluate and measure the risks and returns associated to liquidity management Since every corporate organization is extremely

concerned about how to sustain and improve profitability, hence they have to keep an eye on the factors affecting the profitability. Cash conversion cycle is one of the most widely used measures to evaluate and measure the risks and returns associated to liquidity management (Moss & Stine, 1993; Bodie & Merton, 2000; Keown , 2003; Appuhami, 2008).

Lyroutdi & Lazaridis (2000) argues that the company's profitability depends on working capital management. Lyroutdi and Lazaridis (2000) provided some evidence that cash conversion cycle significantly affects the liquidity of the company. Sharma & Kumar (2010) found that in Indian firm length of cash cycle and profitability have positive relationship between them.

H₄: There is positive relationship between Cash Conversion Cycle (CCC) and Profitability of the manufacturing companies.

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) = Accounts Receivable Period (ARP) + Inventory conversion Period (ICP) - Accounts Payable Period (APP)

3.6.2.5. Current Ratio (CR)

The current ratio is liquidity ratio that measures a company's ability to pay short term obligation those due within one year. The current ratio is a popular matric used across the industry to access a company's short term liquidity with respect to its available assets and pending liabilities. In other word it reflects a company's ability to generate enough cash to pay of its debts once they become due. It's globally as a way to measure the overall financial health of a company. The formula to calculate the current ratio is current assets divided by current liabilities. David.k (2013) indicated that the financial ratio is the majors tools used to evaluating the firm financial condition and performance.

3.6.3. Control variables

Control variables play an active role in quantitative studies. These variables are a special type of independent variable that is measured in a study because they potentially influence the dependent variable. In order to have a reliable analysis of the effect of working capital management policies on profitability, it is common in working capital literature to use some control variables to account for various factors that may influence profitability of firms (Deelof, 2003; Eljelly, 2004, Fabozzio and Pamala, 2003).Accordingly, together with the above working capital variables,

some control variables that are specific to firms and general to the economy as a whole were taken into account in this study. Financial ratios to evaluate five aspects of operating performance and financial condition: Return on investment, Liquidity, Profitability, Activity, and Financial leverage. Return-on-investment ratios compare measures of benefits, such as earnings or net income, with measures of investment. Liquidity reflects the ability of a firm to meet its short-term obligations using those assets that are most readily converted into cash. Activity ratios for the most part, turnover ratios can be used to evaluate the benefits produced by specific assets, such as inventory or accounts receivable or to evaluate the benefits produced by the totality of the firm's assets. Financial leverage ratios are used to assess how much financial risk the firm has taken on. Financial leverage ratios are used to assess how much financial risk the firm has taken on. There are two types of financial leverage ratios: component percentages and coverage ratios.

According to the Shim and Joel (2007) investigated that the control variables generalized by ratio analysis. As investigated show that different types of control variables are listed by different researchers. The researcher shows the following are the most important factors for the relation of working capital policy and profitability of the manufacturing company.

Growth domestic product explained to the total monetary or market value of all finished goods and services processed with specific time period. It functions as comprehensive scored of the country's economic health. The main interest of GDP is $GDP = \text{consumption} + \text{government spending} + \text{investment} + \text{net export}$. Therefore, GDP market value of all final goods and services produced in a country given time period.

Sales Growth rate (GRWOTH): measured by $[(\text{current year sales} - \text{last year sales}) / \text{last year sales}]$ was used as control variables. This control variable is consistent with the like of (Deloof, 2003). A growth rate is the rate at which a value appreciates (a positive growth) or depreciates (a negative growth) over time (High growth rate implies that the firm can distribute more dividends to its shareholders). A company that is rapidly growing, even if profitable, may have to restrict its dividend payments in order to keep needed funds within the company for growth opportunities.

Firm size:- Firm size (FS): as measured by natural logarithm of sales, as the original value of total sales may disturb the analysis and sales differ from company to company, and making the numbers more comparable. (Fabozzi and assets are not used as a measure of firm size. Peterson,

2003). The size of firm's has in a straight line effects working capital requirement. A firm's larger scale of operations will need more working capital.

Firm's Size = Natural logarithm of firm's total sales

Table- 3.2- List of Dependent, Independent and Control variables

Dependent variables	Profitability of the firm (ROA)
Independent/explanatory variables	Average collection period (ACP)
	Inventory conversion period (ICP)
	Average payment period (APP)
	Cash Conversion Cycle (CCC)
	Current ratio (CR)
Control variables	Growth domestic product (GDP)
	Firm size (natural logarithm of sales(FS))
	Firm Growth rate(FGR)

Source: - Own computation, 2019

3.7. Model Specification

To analyze the effect of working capital management on profitability, the study used the Following methods: (i) descriptive statistical analysis wherein a description of features of the data in the study such as mean and standard deviation of each variable is presented. (ii) Regression analysis is used to gauge the extent to which a unit change in each respective explanatory variable has on profitability. Pooled ordinary least squares method was uses for regression analysis, penal data observations was combined in determining the causal relationship between profitability variable and the independent variables used in the study. The equation to investigate the relationship between working capital management and profitability will be as follows: The researchers has been used the model that was employed by Akoto & Angmor, (2013), Raheman (2007), and the effect of working capital policies on firms profitability was estimated by using similar model of Theodoros (2010), Brooks(2008). This data include dependent variable begin return on asset (ROA) and independent and control variables used to

being Eight components generally used to measure working capital management that are Average collection period , Inventory conversion period, Average payment period, Cash Conversion Cycle, Firm Growth Rate, Firm size and Growth domestic product.

The model is expressed in mathematical equation:-

$$ROA_t = f(\alpha_t + \beta_1 ACP + \beta_2 ICP + \beta_3 APP + \beta_4 CCC + \beta_5 CR + \beta_6 FGR + \beta_7 GDP + \beta_8 FS) + \epsilon_t \dots (1)$$

Model-1: the effect of ACP on profitability of the firm

$$ROA_t = \alpha_t + \beta_1 ACP + \beta_6 FGR + \beta_7 GDP + \beta_8 FS + \epsilon_t \dots (2)$$

Model-2: the effect of ICP on profitability of the firm

$$ROA_t = \alpha_t + \beta_2 ICP + \beta_6 FGR + \beta_7 GDP + \beta_8 FS + \epsilon_t \dots (3)$$

Model-3: the effect of APP on the profitability of the firm

$$ROA_t = \alpha_t + \beta_3 APP + \beta_6 FGR + \beta_7 GDP + \beta_8 FS + \epsilon_t \dots (4)$$

Model -4: the effect of CCC on profitability of the firm

$$ROA_t = \alpha_t + \beta_4 CCC + \beta_6 FGR + \beta_7 GDP + \beta_8 FS + \epsilon_t \dots (5)$$

Model -5 the effect on CR o returns on asset

$$ROA_t = \alpha_t + \beta_5 CR + \beta_6 FGR + \beta_7 GDP + \beta_8 FS + \epsilon_t \dots (6)$$

Where:-

ROA: Return on asset of firms at time

α : intercept

ACP: Number of day's collection period of at time t

ICP: Number of day's inventory of firm at a time t

APP: Number of days account payable at a time t

CCC: Cash conversion cycle of firm at Time t

CC: Current ratio of firms at a time t

FGR: Sales growth of the firm at a time t

GDP: growth domestic product of a country at a time

FS: Firm size of firm at a time t

ϵ_t : Error term at a time

The definition of all the variables in the model follows standard finance literature:-

Table- 3.3- Variables and their effect

explanatory variables and their expected effect on the dependent variables (Dependent, Independent and control variables)

Dependent variables	Profitability of the firm (ROA)	Effect/impact
Independent variables	Average collection period	Negative
	Inventory conversion period	Negative
	Average payment period	Negative
	Cash Conversion Cycle	positive
	Current Ratio (CR)	positive
Control variables	Firm Growth Rate	More related to dividend
	Growth domestic product	Direct effect on growth of economy
	Firm size	affects the capital structure of a firm

Source: Survey result, 2019

3.8. Diagnostic tests

Diagnostic tests are robust statistical tests carried out to verify if the data used have met the assumptions underlying the ordinary least squares regression and where possible to remove problems associated with panel data. The CLRM for diagnostic tests are

1. Assumption that the mean of the disturbances is zero ($E(u_t)=0$),

2. There is no relationship between independent variables (No multicollinearity).
3. There is no relationship among the error term at the period t and the error term at period before t (No Serial correlation problem)
4. The error term is constant across the number of observations (Homoscedasticity).
5. The error term is normally distributed.

3.8.1. Assumption 1- $E(u_t)=0$

The first assumption required that the mean of the disturbances is zero ($E(u_t) = 0$). For all diagnostic tests we cannot observe the disturbance and so perform the test of residuals that means if the constant term is included in the regression equation, this assumption will never be violated.

3.8.2. Heteroscedasticity Test

The errors do not have constant variance. This assumption is detected by different tests. For the most important tests different studies are used by two main tests, these are Goldfeld-Quandt (1965) tests and white's test (1980). For the purpose of this research study white's test was preferable.

Table 3.4. Heteroscedasticity test

Model -1 ROA C CCC GDP FGR FS

Heteroscedasticity Test: White

F-statistic	1.783734	Prob. F(14,68)	0.0592
Obs*R-squared	22.29374	Prob. Chi-Square(14)	0.0728
Scaled explained SS	32.14936	Prob. Chi-Square(14)	0.0038

Model -2 ROA C APP GDP FGR FS

Heteroscedasticity Test: White

F-statistic	1.172873	Prob. F(14,67)	0.3162
Obs*R-squared	16.14067	Prob. Chi-Square(14)	0.3049
Scaled explained SS	23.45662	Prob. Chi-Square(14)	0.0532

Model -3 ROA C ARP GDP FGR FS

Heteroscedasticity Test: White

F-statistic	1.329916	Prob. F(14,68)	0.2135
Obs*R-squared	17.84096	Prob. Chi-Square(14)	0.2141
Scaled explained SS	26.63780	Prob. Chi-Square(14)	0.0214

Model-4 ROA C ICP GDP FGR FS

Heteroscedasticity Test: White

F-statistic	1.601559	Prob. F(14,67)	0.1016
Obs*R-squared	20.56086	Prob. Chi-Square(14)	0.1134
Scaled explained SS	28.90094	Prob. Chi-Square(14)	0.0108

Model-5 ROA C CR GDP FGR FS

Heteroscedasticity Test: White

F-statistic	0.886112	Prob. F(14,68)	0.5767
Obs*R-squared	12.80586	Prob. Chi-Square(14)	0.5419
Scaled explained SS	19.11863	Prob. Chi-Square(14)	0.1605

Source:-Own computation, 2019**3.8.3. Testing for serial correlation(autocorrelation)****Table 3.5. Breusch-Godfrey serial correlation LM Test**

Model -1 ROA C ICP GDP FGR FS

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	14.22078	Prob. F(2,75)	0.0000
Obs*R-squared	22.54614	Prob. Chi-Square(2)	0.0000

Model-2 ROA C APP GDP FGR FS

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	12.08334	Prob. F(2,75)	0.0000
Obs*R-squared	19.98320	Prob. Chi-Square(2)	0.0000

Model-3 ROA C APP GDP FGR FS

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	12.08334	Prob. F(2,75)	0.0000
Obs*R-squared	19.98320	Prob. Chi-Square(2)	0.0000

Model-4 ROA C CCC GDP FGR FS

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	14.25375	Prob. F(2,76)	0.0000
Obs*R-squared	22.64070	Prob. Chi-Square(2)	0.0000

Model-5 ROA C CR GDP FGR FS

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	13.09633	Prob. F(2,76)	0.0000
Obs*R-squared	21.27346	Prob. Chi-Square(2)	0.0000

Source – Own computation, 2019

3.8.4. Multicollinearity test

Table 3.6. Test of Multicolliniality

	ROA	APP	ARP	ICP	CCC	CR	FGR	FS	GDP
ROA	1	0.251372	0.093248	0.052317	0.040369	-0.04371	0.031871	0.298808	0.206788
APP	0.251372	1	0.282977	-0.1406	-0.19514	-0.11845	0.088691	0.315185	0.190397
ARP	0.093248	0.282977	1	-0.14947	-0.11571	-0.12367	0.118455	0.267711	0.293711
ICP	0.052317	-0.1406	-0.14947	1	0.996923	0.54569	-0.17087	0.063523	0.192738
CCC	0.040369	-0.19514	-0.11571	0.996923	1	0.545006	-0.16865	0.052507	0.192182
CR	-0.04371	-0.11845	-0.12367	0.54569	0.545006	1	0.058545	0.040294	0.093169
FGR	0.031871	0.088691	0.118455	-0.17087	-0.16865	0.058545	1	0.132649	0.236361
FS	0.298808	0.315185	0.267711	0.063523	0.052507	0.040294	0.132649	1	0.864687
GDP	0.206788	0.190397	0.293711	0.192738	0.192182	0.093169	0.236361	0.864687	1

Source: - Own computation, 2019

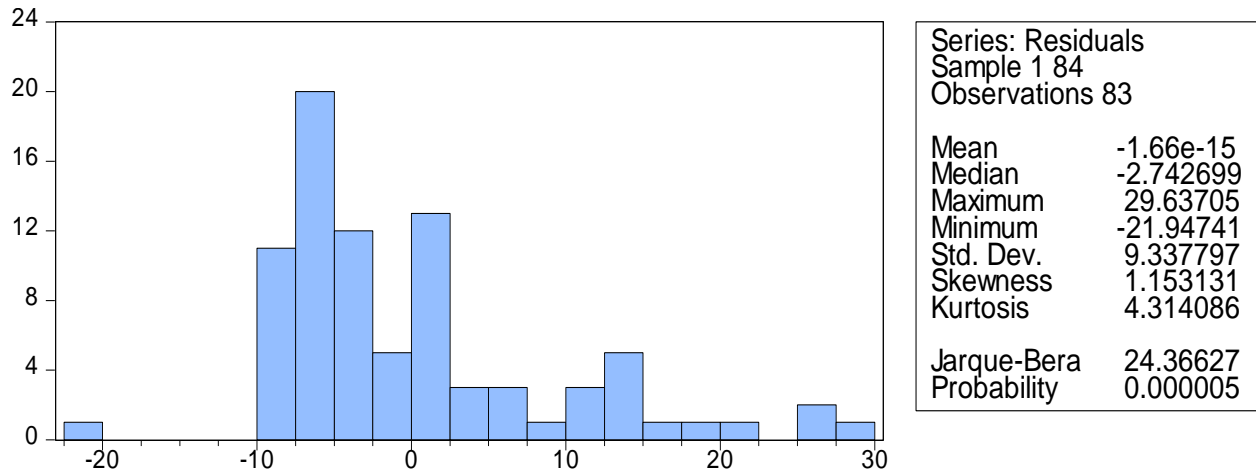
3.8.5. Normality test

Model-1: the effect of ARP on profitability of the firm

$$ROA_t = \alpha_t + \beta_1 ARP + \beta_6 FGR + \beta_7 GDP + \beta_8 FS + \hat{\epsilon}_t$$

MODELE 1- ROA C ARP FGR GDP FS

Figure 3.1 normality tests for the profitability of ARP TO ROA



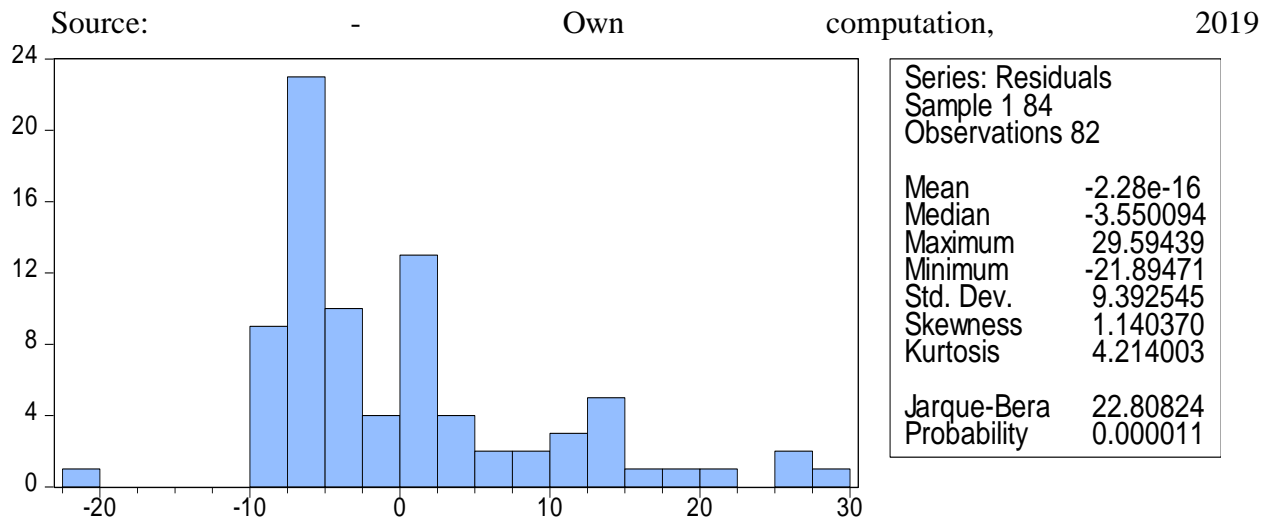
Source: - own computation, 2019

Model-2:- the effect of ICP on profitability of the firm

$$ROA_t = \alpha_t + \beta_2 ICP + \beta_6 FGR + \beta_7 GDP + \beta_8 FS + \hat{\epsilon}_t$$

MODEL-2 ROA C ICP FGR GDP FS

Figure 3.2. The normality test for profitability of ICP to ROA

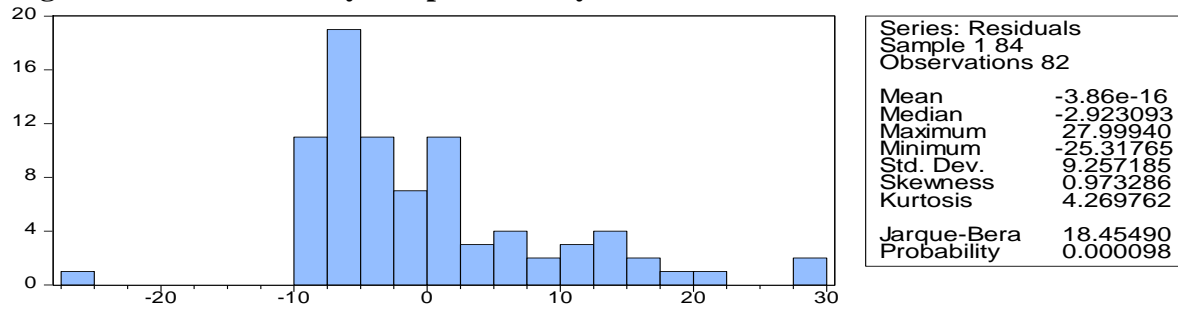


Model-3: the effect of APP on the profitability of the firm

$$ROA_t = \alpha_t + \beta_3 APP + \beta_6 FGR + \beta_7 GDP + \beta_8 FS + \hat{\epsilon}_t$$

Model-2 ROA C APP GDP FGR FS

Figure 3.3. The normality test profitability on the APP to ROA



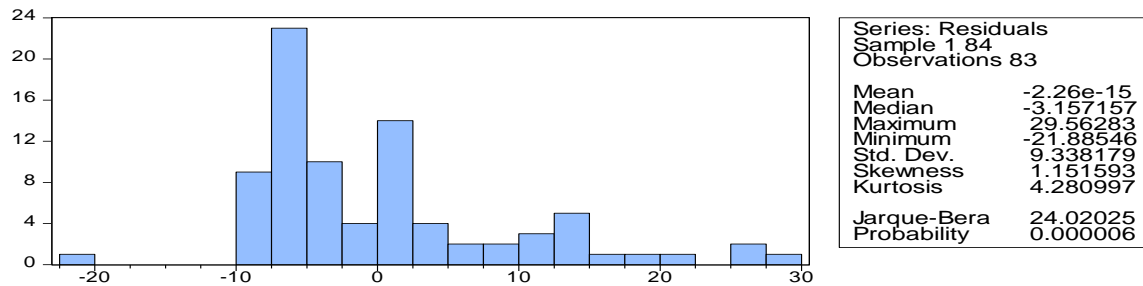
Source: - Own computation, 2019

Model -4: the effect of CCC on profitability of the firm

$$ROA_t = \alpha_t + \beta_4 CCC + \beta_6 FGR + \beta_7 GDP + \beta_8 FS + \hat{\epsilon}_t$$

Model- 4- ROA C CCC FGR GDP FS

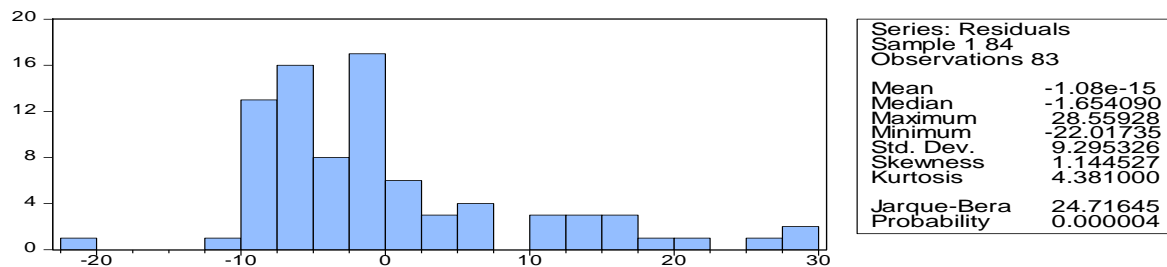
Figure 3.4. The normality test profitability on the CCC to ROA



$$ROA_t = \alpha_t + \beta_5 CR + \beta_6 FGR + \beta_7 GDP + \beta_8 FS + \hat{\epsilon}_t$$

Model- 5- ROA C CR FGR GDP FS

Figure 3.5. The normality test profitability on the CR to ROA



Source: - own computation, 2019

3.9. DATA ANALYSIS METHOD

Data analysis is further transformation of the processed data to look for patterns and relations among data groups. Descriptive analysis is largely the study of distribution of one variable.

Analysis begins for most projects with some form of descriptive analysis to reduce the data into a summary format. Descriptive analysis used to the transformation of raw data into a form that would makes them easy to understand and interpret. Therefore, to test the propose hypothesis statistical analysis carrying out using the following methods and the E-views software has been uses to analyses financial data. Descriptive response or observation is typically the first form of analysis (Solomon, 2016). According to John Turkey (1961) cited by Sherry Bullen et.al (2016) data analysis is the procedures for analyzing the data the technique for interpreting the result of such procedures method of data collection plan to make the analysis easier more accurately or more precisely and all the equipment and the results of (mathematical) statistics were used to analyze the data the method of data analysis involved in this research are regression, correlation and descriptive statistics. Econometrics views (E-views) software was used in this study to analyze the data collected. E-views is statistical analysis software packages was used for analysis of time series econometrics, forecasting models and tests the correlation between variables (Gora, 2012) Finally, the researcher applying three main data analysis techniques. Firstly, descriptive statistics is uses to describe the sample data collect. This statistical technique helps to overview the sample characteristics. Secondly, Pearson correlation analysis is uses to define whether working capital management is associated with manufacturing companies' profitability. Thirdly, regression analysis is employing to test the research hypotheses. Finally, the analysis is presented to by using figures and tables.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND DISCUSSION

4.1. Introduction

This chapter presents the results of the various indicators for performance of manufacturing firms and their respective working capital variables. The research has employed 9 variables for the analysis purpose, these variables include dependent variable begin return on asset (ROA) and independent and control variables used to being seven components generally used to measure working capital management that are Average collection period, Inventory conversion period, Average payment period, Cash Conversion Cycle, Current ratio, Firm Growth Rate, Firm size and growth domestic product (GDP). The study provided three types of data analysis; Firstly, descriptive statistics is uses to describe the sample data collect. Secondly, Pearson correlation analysis is uses to define whether working capital management is associated with manufacturing companies' profitability. Thirdly, regression analysis is employing to test the research hypotheses. The results of descriptive statistics which shows the relevant phenomena of variables such as maximum, minimum, mean and standard deviation of variables used in the study were presented.

4.2. Sample distribution

The research was conducted from the sample of 14 beer, beverage and brewery manufacturing company. The selected samples are the following.

Table 4.1 Sample distribution

Sector	Numbers of manufacturing company
Manufacture of Beverages	4
Manufacturing of beers	1
Manufacturing Brewery	9
Total	14

Source-Survey Result, 2019

From the above table the highest percentage of taken by the manufacturing of brewery 66.66 %, the next manufacturing of beverage 26.66% and the least percentage taken by beer manufacturing secret or 6.66%.

4.3. Variables

The dependent variable in the research thesis was that of total profit/Return on asset of the selected manufacturing companies and the independent variable were measure working capital management that are Account receivables period (ARP), Inventory conversion period (ICP), Average payment period (APP), Cash Conversion Cycle (CCC), Current ratio (CR) and the control variables are firm Growth Rate, Firm size and growth domestic product

4.4. Descriptive Variables

In this section mainly discussed about the descriptive statistics. Descriptive analysis shows the average, and standard deviation of the different variables of interest in the study. It also presents the minimum and maximum values of the variables which help in getting a picture about the maximum and minimum values a variable can achieve. The descriptive statistics shows from the E-views table 4.2 as shown below.

Table 4.2. Descriptive statistics presents for 14 Firms

	ROA	APP	ARP	ICP	CCC	CR	FGR	FS	GDP
Mean	6.044756	15.55963	15.04126	230.1265	227.946	4.346173	21.6921	7.077531	8.111111
Median	0.4535	1.56	9.69	121.2	115.65	2.03	13.9	8.5	9.9
Maximum	37.7	183.6	143.48	2035.07	2035.07	102	189.6	9.9	10.4
Minimum	-15.03	0	0	-897.3	-897.3	0	-45.08	0	0
Std. Dev.	9.931554	28.87078	22.11695	404.1807	406.42	12.1054	40.34375	3.078507	3.401654
Skewness	1.359511	3.555874	3.328237	2.401877	2.372783	6.805657	2.659624	-1.50052	-1.74135
Kurtosis	4.296554	18.47108	17.85685	11.09314	10.90814	53.97028	11.16196	4.034452	4.585111
Jarque-Bera	30.6252	978.5177	894.4923	298.9403	287.0745	9393.426	320.3277	34.00747	49.41576
Probability	0	0	0	0	0	0	0	0	0
Sum	489.6252	1260.33	1218.342	18640.25	18463.62	352.04	1757.06	573.28	657
Sum Sq.Dev.	7890.861	66681.74	39132.75	13068964	13214180	11723.27	130209.5	758.1763	925.7
Observations	81	81	81	81	81	81	81	81	81

Source: - own computation, 2019

As shown in the above descriptive table 4.2, the mean value of return on asset 6.04 % from the total asset. The higher the return on assets indicates that the firms is effective enough in generating profit from its available assets and the reverse is true for decrease in return on assets. The standard deviation of return on asset is going to be 9.9 % from the profitability of the manufacturing companies. The maximum and minimum value of the return on asset is to be 37.7 and -15.03 respectively.

The mean value of cash conversion cycle is the days 227.9 days. The firms need to convert inventory to cash is 227.9 days. The standard deviation of the cash conversion period is 406.6 days. The minimum and maximum value of the cash conversion cycle is between -897.3 and 2035.7 respectively.

As shown in the above table the mean value of the account payable period is 15.55. This means the firms are needed 15.55 days on average to pay their debt/short term liabilities. As indicated from the table the standard deviation of the account payable period is 28.87 days. The minimum and maximum ranges the accounting payable period policy was 0(zero) and 183.6 days.

As displayed from table 4.2 the mean value of account receivable period is to be 15.04 days and the standard deviation of 22.1 days and the minimum and maximum value of account receivable period are between zero and 143.days. This means the minimum value of zero means the firm didn't use account receivable at all or a firm use cash to sell its product.

The table that indicated the result of inventory conversion period is 230.1 days. This means the companies needed to changed inventory to cash 230.1 days on average. The standard deviation of the inventory conversion period is 404 days and the minimum and maximum value of the inventory conversion policies is -897.3 and 2035.07 respectively.

In the table above 4.2 have other explanatory variables additional descriptive statistics of control variable to be study. These three important variables are firm growth rate, growth domestic product and firm size. As indicated from table 4.2 GDP which has annual average growth rate of Ethiopia is 9.38% with a standard deviation of 1.13 on the study period. The minimum and maximum annual GDP growth rates during the study period are 7.7% and 10.4% respectively.

The firm size is the natural logarithm of sales of the manufacturing companies used to the control variable. The mean of the natural logarithm of total sales is 7.07(12,000,000). While the standard deviation on the natural logarithm of total sales is 3.07 and the minimum value of

natural logarithm total sales is zero and the maximum value of the natural logarithm of total sales is 9.9. Firm growth rate also another control variable. The mean value of the firm growth rate is 21.69%. The standard deviation of the firm growth rate is 40.34 % and the minimum and maximum value of the firm growth rate is -45.08% and 189.6% respectively.

4.5. Correlation analysis

To see correlation between different variables was very important to build analysis. Correlation, also called as correlation analysis, is a term used to denote the association or relationship between two (or more) quantitative variables. This analysis is fundamentally based on the assumption of a straight –line [linear] relationship between the quantitative variables. Similar to the measures of association for binary variables, it measures the “strength” or the “extent” of an association between the variables and also its direction. The end result of a correlation analysis is a Correlation coefficient whose values range from -1 to +1. A correlation coefficient of +1 indicates that the two variables are perfectly related in a positive [linear] manner, a correlation coefficient of -1 indicates that two variables are perfectly related in a negative [linear] manner, while a correlation coefficient of zero indicates that there is no linear relationship between the two variables being studied. Therefore Correlation is a way to index the degree to which two or more variables are associated with or related to each other.

Table 4.3. The correlation matrix for the variables

	ROA	APP	ARP	ICP	CCC	CR	FGR	FS	GDP
ROA	1	0.251372	0.093248	0.052317	0.040369	-0.04371	0.031871	0.298808	0.206788
APP	0.251372	1	0.282977	-0.1406	-0.19514	-0.11845	0.088691	0.315185	0.190397
ARP	0.093248	0.282977	1	-0.14947	-0.11571	-0.12367	0.118455	0.267711	0.293711
ICP	0.052317	-0.1406	-0.14947	1	0.996923	0.54569	-0.17087	0.063523	0.192738
CCC	0.040369	-0.19514	-0.11571	0.996923	1	0.545006	-0.16865	0.052507	0.192182
CR	-0.04371	-0.11845	-0.12367	0.54569	0.545006	1	0.058545	0.040294	0.093169
FGR	0.031871	0.088691	0.118455	-0.17087	-0.16865	0.058545	1	0.132649	0.236361
FS	0.298808	0.315185	0.267711	0.063523	0.052507	0.040294	0.132649	1	0.864687
GDP	0.206788	0.190397	0.293711	0.192738	0.192182	0.093169	0.236361	0.864687	1

Source: - Own computation, 2019

The result of the correlation analysis of Profitability Measure of return on asset with inventory conversion period, account receivable period, accounts payable period, cash conversion cycle, GDP, firm size, and firm growth rate that presented by the above table in table 4.3.

As shown from the table 4.3 the correlation between the profitability of return on asset positive relation to that of the cash conversion cycle policy. The reason for the positive relation between the variables is the short period of time that to convert to cash and the period of cash conversion period is short then to generate moderate profit. The correlation analysis also shows that, the relationship between inventory conversion periods and profitability measures is positive. This relationship because in the case of increasing sales accompanied with a well management of inventory will lead to less expense to generate high profit operation. The correlation between account payable period and the Return on asset show a positive relationship this relation exist because in this case firms make delayed payment it helps to get interest free money to invest on some other profitable operation. As displayed from the table 4.2 the correlation between the profitability of return on asset and the accounting receivable period is positive. The relation is positive because of the collection of receivable in a short period of time to increase the profitability of the firm and the firm collect receivable in short period of generate other profit.

4.6. Test of Assumptions classical linear regression model

To further investigate the relationship of working capital management on profitability, the model used for the regressions analysis was expressed in the general form as given in equation below:

The model is expressed in mathematical equation:-

$$ROA_t = f(\alpha_t + \beta_1 ACP + \beta_2 ICP + \beta_3 APP + \beta_4 CCC + \beta_5 CR + \beta_6 FGR + \beta_7 GDP + \beta_8 FS) + \hat{\epsilon}_t$$

Table -4.4. Analysis from the E-vies version 9

Dependent Variable: ROA

Method: Least Squares

Date: 01/28/20 Time: 15:47

Sample: 1 84

Included observations: 81

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.092783	2.856259	-0.032484	0.9742
APP	0.138319	0.121785	1.135769	0.2598
ARP	-0.081068	0.127056	-0.638050	0.5255
CCC	0.084833	0.117516	0.721886	0.4727
ICP	-0.080887	0.117658	-0.687472	0.4940
CR	-0.092106	0.109588	-0.840472	0.4034
FGR	0.010959	0.029758	0.368269	0.7138

FS	1.479682	0.772850	1.914578	0.0595
GDP	-0.718561	0.721628	-0.995749	0.3227
R-squared	0.144648	Mean dependent var		6.044756
Adjusted R-squared	0.049608	S.D. dependent var		9.931554
S.E. of regression	9.682076	Akaike info criterion		7.482869
Sum squared resid	6749.467	Schwarz criterion		7.748919
Log likelihood	-294.0562	Hannan-Quinn criter.		7.589612
F-statistic	1.521978	Durbin-Watson stat		1.004950
Prob(F-statistic)	0.164772			

Source- Own Computation, 2019

$$ROA_t = \alpha_t + \beta_1 ICP + \beta_2 ARP + \beta_3 APP + \beta_4 CCC + \beta_5 CR + \beta_6 FGR + \beta_7 GDP + \beta_8 FS + \epsilon_t$$

$$ROA_t = -0.092 - \beta_1 0.08 - \beta_2 0.084 + \beta_3 0.139 + \beta_4 0.084 - \beta_5 0.092 - \beta_6 0.00109 - \beta_7 0.71 + \beta_8 1.47 + \epsilon_t$$

The regression result indicated that the coefficient of inventory conversion period, account receivable period, account period and cash conversion cycle and current ratio were -0.076, -0.080, 0.139 and -0.0013 and 0.092 respectively. Increase in inventory, accounts receivables, current ratio and cash conversion cycle were negatively affect the profitability of the firm and account payable period was positively affect profitability of the firms shown from the regression model. The adjusted R-square the percent of the independent variable was 4.9%. This indicates the dependent variable of profitability could be explained by the independent variables namely; inventory conversion period, account receivable period, account payable period and cash conversion cycle at 4.9%. The F statistics is used to test the significance of the regression model which was at 15.4%. The constant, where the regression line intercepts the y-axis representing the amount the dependent variable y will be when all the independent variables are zero was 3.44%.

4.6.1. Assumption 1- $E(u_t)=0$

The first assumption required that the mean of the disturbances is zero ($E(u_t) = 0$). For all diagnostic tests we cannot observe the disturbance and so perform the test of residuals that means if the constant term is included in the regression equation, this assumption will never been violated.

4.6.2. Heteroscedasticity Test

The errors do not have constant variance. This assumption is detected by different tests. For the most important tests different studies are used by two main tests, these are Goldfeld-Quandt

(1965) tests and white's test (1980). For the purpose of this research study white's test was preferable.

Table -4.5. Heteroscedasticity test
Heteroscedasticity Test: White

F-statistic	1.376646	Prob. F(42,38)	0.1603
Obs*R-squared	48.87698	Prob. Chi-Square(42)	0.2163
Scaled explained SS	58.96894	Prob. Chi-Square(42)	0.0428

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 01/28/20 Time: 15:52

Sample: 1 84

Included observations: 81

Collinear test regressors dropped from specification

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.374398	40.36592	-0.009275	0.9926
APP^2	5.187268	22.01973	0.235574	0.8150
APP*ARP	-2.017414	15.10232	-0.133583	0.8944
APP*CCC	4.706000	21.88649	0.215018	0.8309
APP*ICP	-3.898664	18.45964	-0.211199	0.8339
APP*CR	-43.67456	246.7604	-0.176992	0.8605
APP*FGR	-0.672021	11.99650	-0.056018	0.9556
APP*FS	-17.79795	35.03589	-0.507992	0.6144
APP*GDP	1.132383	0.987702	1.146482	0.2588
APP	-27.49748	21.91750	-1.254590	0.2173
ARP^2	-3.204198	7.072742	-0.453035	0.6531
ARP*CCC	3.744923	7.256556	0.516074	0.6088
ARP*ICP	-4.461248	10.63333	-0.419553	0.6772
ARP*CR	43.11278	245.8852	0.175337	0.8617
ARP*FGR	0.819440	12.00809	0.068241	0.9460
ARP*FS	19.14889	35.23930	0.543396	0.5900
ARP*GDP	-3.799189	1.713555	-2.217139	0.0327
ARP	22.69971	22.84414	0.993677	0.3267
CCC^2	-0.450419	0.301854	-1.492175	0.1439
CCC*ICP	1.671533	3.750408	0.445693	0.6583
CCC*CR	-46.78974	246.4301	-0.189870	0.8504
CCC*FGR	-0.681493	12.01700	-0.056711	0.9551
CCC*FS	-18.48470	35.36735	-0.522649	0.6043
CCC*GDP	0.019321	0.222124	0.086983	0.9311
CCC	0.124671	3.133055	0.039792	0.9685
ICP^2	-1.219378	3.583719	-0.340255	0.7355

ICP*CR	46.64140	246.4200	0.189276	0.8509
ICP*FGR	0.695474	12.01824	0.057868	0.9542
ICP*FS	18.31108	35.35984	0.517850	0.6076
CR^2	1.181271	0.741319	1.593473	0.1193
CR*FGR	-0.970145	0.681616	-1.423303	0.1628
CR*FS	-11.15525	14.94659	-0.746341	0.4601
CR*GDP	12.50670	14.35469	0.871262	0.3891
CR	34.44780	159.6071	0.215829	0.8303
FGR^2	-0.009276	0.018613	-0.498384	0.6211
FGR*FS	-0.846317	1.258265	-0.672606	0.5053
FGR*GDP	-1.546374	1.001183	-1.544547	0.1307
FGR	19.52972	14.33534	1.362348	0.1811
FS^2	18.23135	21.79072	0.836657	0.4080
FS*GDP	29.86413	21.15913	1.411406	0.1663
FS	-465.1962	435.4915	-1.068210	0.2922
GDP^2	-31.31448	32.25658	-0.970794	0.3378
GDP	351.2394	442.6748	0.793448	0.4324
<hr/>				
R-squared	0.603420	Mean dependent var	83.32675	
Adjusted R-squared	0.165094	S.D. dependent var	146.5241	
S.E. of regression	133.8837	Akaike info criterion	12.93669	
Sum squared resid	681144.4	Schwarz criterion	14.20781	
Log likelihood	-480.9358	Hannan-Quinn criter.	13.44668	
F-statistic	1.376646	Durbin-Watson stat	2.351679	
Prob(F-statistic)	0.160300			

Source-Own Computation, 2019

Assume that the variance of the error is constant it is known as homoscedasticity, while the variance of error term is not constant the OLS assumption known as Heteroscedasticity. The researcher used white test for testing of Heteroscedasticity. The reason why using of white test it makes few assumption about likely form of the Heteroscedasticity (brook, 2014). In this case, both the *F*-test and Obs*R-squared ('LM') versions of the test statistic give the same conclusion that there is no evidence for the presence of Heteroscedasticity, since the *p*-values in table 4.3 are considerably in excess of 0.05 we could reject the null hypothesis of Heteroscedasticity. Therefore we conclude from this research violated the assumption.

4.6.3. The assumption of autocorrelation

The errors are not correlated with one another it would be stated that they autocorrelation or they are serially correlated, the assumption of autocorrelation tested by mainly two methods, these are DW, graphical tests and Breusch-Godfrey tests. This research thesis tested autocorrelation by the Breusch-Godfrey tests. According C. Brooks (2014) the test is more general test for autocorrelation up to r^{th} order.

The test of used in a regression analysis to find out the autocorrelation in the residuals then therefore, The values of Durbin Watson (1951) have a upper limit of four and lower limit of zero. If the value of Durban Watson is equal to two then there exists no autocorrelation but if the value is less than two then there exists positive autocorrelation and if the value is higher than 2 than there exist negative autocorrelation investigated by Brooks (2014) it have two critical value the upper critical value and lower critical value and there is also an intermediate region where the null hypothesis of no autocorrelation can neither be rejected nor not rejected.- Durbin–Watson (DW) is a test for first order autocorrelation; it tests only for a relationship between an error and its immediately previous value. It is also possible to express the DW statistic as an approximate function of the estimated value of ρ $DW \approx 2(1 - \hat{\rho})$.

Table 4.6. Test serial correlation of LM test

Test serial correlation LM test (The assumption of autocorrelation)

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	11.07681	Prob. F(2,70)	0.0001
Obs*R-squared	19.47231	Prob. Chi-Square(2)	0.0001

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 01/28/20 Time: 15:54

Sample: 1 84

Included observations: 81

Presample and interior missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.249255	2.536705	-0.098259	0.9220
APP	-0.043845	0.108038	-0.405828	0.6861
ARP	0.068790	0.113415	0.606536	0.5461
CCC	-0.061111	0.104692	-0.583726	0.5613
ICP	0.062461	0.104833	0.595815	0.5532
CR	0.005903	0.098268	0.060068	0.9523
FGR	-0.008435	0.026411	-0.319377	0.7504
FS	-0.440152	0.689468	-0.638393	0.5253
GDP	0.320000	0.642903	0.497742	0.6202
RESID(-1)	0.507266	0.126110	4.022402	0.0001
RESID(-2)	0.023030	0.127075	0.181232	0.8567

R-squared	0.240399	Mean dependent var	-5.28E-15
Adjusted R-squared	0.131884	S.D. dependent var	9.185224
S.E. of regression	8.558123	Akaike info criterion	7.257290
Sum squared resid	5126.903	Schwarz criterion	7.582462
Log likelihood	-282.9202	Hannan-Quinn criter.	7.387753
F-statistic	2.215362	Durbin-Watson stat	1.959491
Prob(F-statistic)	0.026478		

Source – Own computation, 2019

The researcher used to 81 observation that of upper critical value and lower critical value. From displayed by above table 4.5, 81 observations, with seven explanatory variables at 1% level of significance the lower critical value and upper critical value. In general condition DW near or approximately 2 the no autocorrelation in residual and not reject the null hypothesis.

4.6.4. The Assumption of Multicollineality

This is the fourth assumption that the problem occurs when the explanatory variables are very highly correlated with each other.

Table 4.7. Test of Multicollineality assumption

	ROA	APP	ARP	ICP	CCC	CR	FGR	FS	GDP
ROA	1	0.251372	0.093248	0.052317	0.040369	-0.04371	0.031871	0.298808	0.206788
APP	0.251372	1	0.282977	-0.1406	-0.19514	-0.11845	0.088691	0.315185	0.190397
ARP	0.093248	0.282977	1	-0.14947	-0.11571	-0.12367	0.118455	0.267711	0.293711
ICP	0.052317	-0.1406	-0.14947	1	0.996923	0.54569	-0.17087	0.063523	0.192738
CCC	0.040369	-0.19514	-0.11571	0.996923	1	0.545006	-0.16865	0.052507	0.192182
CR	-0.04371	-0.11845	-0.12367	0.54569	0.545006	1	0.058545	0.040294	0.093169
FGR	0.031871	0.088691	0.118455	-0.17087	-0.16865	0.058545	1	0.132649	0.236361
FS	0.298808	0.315185	0.267711	0.063523	0.052507	0.040294	0.132649	1	0.864687
GDP	0.206788	0.190397	0.293711	0.192738	0.192182	0.093169	0.236361	0.864687	1

Source – own computation, 2019

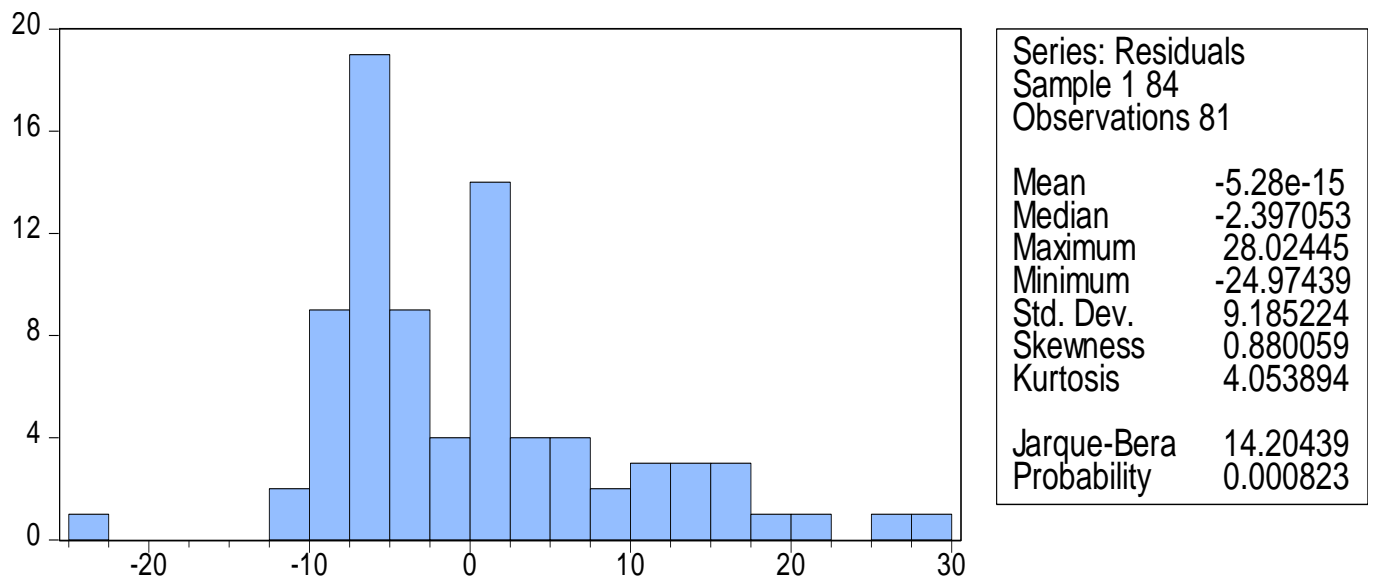
Multicollinearity was assumption of linear relation between explanatory variables/a state of very high inter correlation or inter association among the independent variables that creates biased regression model. This is the fourth assumption that the problem occurs when the explanatory variables are very highly correlated with each other. (Brooks,2008). Therefore a type of

disturbance in the data if present in the data the statistically inferences made about the data may not be reliable. According to Molotora (2007) state that multicollinearity problem exist when the correlation coefficients among variables is greater than 0.75. Kennedy (2008) suggests that any correlation coefficients above 0.7 could cause serious multicollinearity problem leading inefficient estimation and less reliable results. The study has shown from table of 4.7 the highest correlation of 0.99 between the cash conversion cycle and inventory conversion period. n. The result that shown by Molotora (2007) and Kennedy (2008) there are no correlation not above 0.75 and 0.7 respectively. The study shows the highly correlated between explanatory variable (inventory conversion period and cash conversion cycle was 0.99). Therefore, the researchers conclude there was the problem of multicollinearity and violet the assumption.

4.6.5. Assumption of Normality test

The assumption of normality means the data should make roughly fit bell curve shape before running certain statistical tests or regression. One of the most commonly applied tests for normality is the Bera–Jarque (hereafter BJ) test. Bera-Jarque 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 weather a distribution is symmetric about its mean value or not, and kurtosis measures how fat the tails of the distribution are discussed by Henok (2015) and Brooks (2014).

Graph -4.1. The histogram from E-view assumption.



Source – Own computation 2019

Normal distribution is not skewed and is defined to have a coefficient of kurtosis of 3. It is possible to define a coefficient of excess kurtosis, equal to the coefficient of kurtosis minus 3; a normal distribution will thus have a coefficient of excess kurtosis of zero. As shown from histogram graph 4.4 the kurtosis approaches to be 3 (i.e. 4.12), the Jarque-Bera statistics was significant at 1% level of significance and the $K > 3$ the graph has long tailed. Hence, the null hypothesis that the error term is normally distributed should be rejected and it seems that the error term in all of the cases is not normal distribution. According to the figure 4.1 shown that the skewness is greater than zero therefore the distribution is right skewed.

4.7. Discussion of Regression Result

This part is mainly discussed the main point of the research finding between the working capital variables and the effect on profitability of firms.

Table – 4.8. Regression Result for the Effect of Working Capital Management Variables on ROA

Dependent Variable: ROA

Method: Least Squares

Date: 01/30/20 Time: 03:58

Sample: 1 84

Included observations: 81

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.196020	2.710248	-0.072325	0.0425
ICP	-0.084515	0.111644	-0.757008	0.0915
ARP	-0.093421	0.120561	-0.774889	0.0409
APP	0.173776	0.115559	1.503786	0.0070
CCC	-0.271712	0.111508	0.790591	0.0018
CR	-0.087843	0.103986	-0.844756	0.0990
FGR	0.005673	0.028237	0.200910	0.0013
GDP	-0.462874	0.684739	-0.675987	0.5012
FS	1.226466	0.733343	1.672433	0.0988
R-squared	0.191484	Mean dependent var		6.415867
Adjusted R-squared	0.101649	S.D. dependent var		9.692971
S.E. of regression	9.187130	Akaike info criterion		7.377923
Sum squared resid	6077.042	Schwarz criterion		7.643973
Log likelihood	-289.8059	Hannan-Quinn criter.		7.484666
F-statistic	2.131510	Durbin-Watson stat		0.809533
Prob(F-statistic)	0.000342			

Source – Own computation 2019

4.7.1. Inventory conversion period and profitability

In line with hypothesis which state that there is negative but no significant relation to the profitability of manufacturing companies. From the table 4.8. Model specification for the adjusted R-squared is the value of 0.048 (4.8%) This implies that 4.8 percent of the variation in the return on assets can be explained by the variables used in the model. The result of regression indicated that the coefficient of inventory conversion was negative and the model is fit F-Statistic 2.1 P-value of 0.0915. Attached to the test statistic shows that the variable is significant even at 10% level. The regression model implies that negative relation between the inventory conversion period and profitability. Increase in the profitability of the given period of time the high for inventory conversion potential. The negative effect on inventory conversion period results high profit generate in short period of time. Inventory convert in to cash on the short period of time that highly increasing the profitability of the firm and vice versa. The inventory tide up long period of time material to be damage and obsolescence. The result is basically consistent with the finding of Kushagra and Suray (2017), Nuru(2011), Mathuva(2010), Njengna(2011) and Arukumar and Radhammar(2012). From the findings of the researcher point of view the inventory collection ability of the companies have been very speedy there was high profitability and to maintain optimum inventory to generate the profitability. In simple terms, the shorter the firm's inventory holding period, the higher would the profitability and vice versa. It can be also interpreted as if the inventory takes more time to sell, would adversely affect profitability. The reason for this could be tied up of more funds plus deterioration and obsolescence of inventory due to longer inventory period leads to lower profitability. The result shows there is negative effect on return on asset and not significant level.

4.7.2. Account receivable periods and profitability of firm

As shown from the above table 4.8 that the result of the regression implies the coefficient value of account receivable period was negative value and the value of fitted F-statistics 2.13 and the p-value was 0.0409 attached to the test statistics shows significant at 5% significant level. It implies that decrease or increase the collection of account receivable would significantly and negative effect the profitability of the firm. The result is basically consistent with the finding of Mathava(2010), Kushagra and Surya(2017), Nuru(2011), Sharma and Kummar(2011) and Yang(2011). This Negative relationship implies that the number of day to receive cash from credit customer become too short, increase profitability of the firms on average. The reason may

because if a firm collects its accounts receivable quickly, the fund would be available for productive usage. In this sense, the negative relationship between accounts receivable period and firms' profitability was consistent with the view that the highly usage of the time it takes customers to pay their bills, results in less cash available to the inventory, this in turn leads to more sales which ultimately results in an increase in profitability. Therefore the negative relation between the ARP and the ROA indicated that the companies are asset which was result in maximizing to overall return on investment in firms.

4.7.3. Account payable period and profitability of the firm

In line with the table 4.8 Indicated that the result of regression the impact of account payable period on profitability of the firms. The explanatory power of the model as can be seen is that the adjusted R squared values are equal to 10% this implies that 10% of the variation in the return on assets can be explained by the variables used in the model. The F statistic is used to test the model specification. From the table 4.8 the result of one can see that the model is fit with F-statistics 21.3% at p-value of 0.0070 It was significant at 1% of significant level, the relation between the account payable period and the profitability of the firm, because the coefficient of the account payable period was 0.17 if the firms pay their debt at period of time therefore they get acceptance from the stock holder. Previous finding that shows to the relation between the APP and ROA, Mahato and Kummar (2013), Mohammed et.al(2018), Kutag et.al(2014), Akotet et.al(2010),Arega et.al(2015), Mathuva(2010), Rahima (2010), Tesfaye(2016), Nuru(2011), Njenga,(2011), Mitt(2016) the conclude the positive relation between APP and profitability. The APP have positive effect on the ROA means that the companies are paid their debt on time and proper way.

4.7.4. Cash conversion cycle and profitability

The coefficient of the cash conversion period was 0.08 means cash conversion period very short and less than one day on average and the p-value of 0.0018 attached to the statistics for the significance at the 1% significance level. By managing efficiently the accounts receivable period, inventory holding period and accounts payable period (by making short accounts receivable period and inventory holding period and/or making long accounts payable period) managers can control the efficiency of cash conversion cycle and its impact on profitability. Previous finding show that cash conversion cycle having negatively relation with return on asset(ROA) investigated by Gill et.al(2010), Kushagra and Surya(2017), Mathuva(2010), Arega et.al (2015),

Nutug et.al(2014), Mubashir(2017), Akotet et.al(2013) express their finding taking positive relation between working capital component and profitability. Managing cash conversion cycle efficiently, means efficient management of these three items. Therefore the speedy cash conversion has effect of changed inventory to cash shortly and they have generated maximum profit.

4.7.5. Current ratio (CR)

Current ratio is not only measure of the company's liquidity but also is measure of the margin of safety that management maintain in order to allow the inevitable unevenness in the flow of funds through current assets and liabilities and also current ratio is the true indicator of liquidity since it considers the overall magnitude of each fund (Antony, 2010, Gitman, 2005). From the above table 4.8 implies that the co-efficient of the current ratio results -0.087 that means negative effect on profitability. The p-value of the current ratio was 0.0990 significant at all significant levels. The independent variable (current ratio) has insignificant impact on the return on asset of manufacturing companies. The negative current ratios indicate that there was less liquidity that implies operating cash flows and outside finance to meet short term obligation. Because the current ratio implicitly assumes that inventories and account receivables are liquid.

4.8. Summary of the chapter

This chapter mainly has the data presentation, analysis and discussion part of the research. The data are discussed by descriptive, correlation and regression method. The discussed independent variables are ICP, ARP, APP and CCC and the dependent variable was ROA. The control variables are firm size, firms' growth rate and GDP. The relation between the working capital component and profitability of the firms was ICP with ROA negative and significance, ARP with ROA negative and significance, APP with ROA positive but significant and the effect between CCC and ROA positive and significant effect on profitability and also the effect of current ratio on profitability negative effect and significant at all level.

CHAPTER FIVE

Summary, Conclusion and Recommendations

This chapter mainly state that conclusion that focuses on the main findings of the research summarization , the recommendation for the research finding and the area that focus on the research title and further findings and the limitation of the research findings.

5.1. Summary

The research thesis mainly focuses on the effect of working capital management on profitability of the beer, brewery and beverage manufacturing in Addis Abeba. We know that in financial management decision there are two important parts, these are regarding to fixed asset decision and working capital decision. Therefore working capital was very important issue for this research thesis. The most important working capital components are that listed in this research thesis are ROA, APP, ICP, ARP, CCC, GDP, GR and FS. The firms that manage this component firms analyze the effect of final impact up on the profitability of the firm. Working capital management plays an important role in success and failure of firm in business because of its effect on firm's profitability as well as on liquidity. Profitability and working capital relationship is frequently emphasized for deciding on the level of investment in working capital. All manufacturing firms need to understand the association between these two variables to arrive at optimal financial decisions.

5.2. Conclusion

From this research thesis it is concluded that effective and efficient management of working capital management is very important for the profitability of manufacturing firms. A sample of 14 manufacturing companies that are found in Addis Ababa, time from 2013/14-2018/19 to collect data for the study purpose. The data was analyzed by qualitatively and quantitatively. The research used both dependent variable and independent variable. The dependent variable that used by the research thesis was return on asset (ROA) and the independent variables are inventory conversion period, account receivable period, account payable period and cash conversion cycle and also this research used three important control variables this are growth domestic product, firm growth rate and firm size. These variables are seen as one by one

1. There was significant and negative effect on the inventory and the return on asset of the firms. If there was negative relation indicated that the firm speedy convert inventory to

sales. It takes short period of time replace inventory to sales was maximizing profitability of the firm other things remain constant.

2. The effect between the account receivables period and return on asset was negative. It implies that firm takes short period of time to collect credit from customer and maximize profitability.
3. The positive relation between the account payable period and profitability of the firms indicated that the firm pay the payable to the shareholder or customer in short period of time other things as it is, the firms attract additional customer and maximize profitability.
4. The research study also seen the relation between the cash conversion period and profitability of the firm. If the firm used to manage effectively and efficiently of the ICP, APP and ARP was managing of the cash conversion cycle because the three independent variables are additive factor for cash conversion cycle.
5. The research study was seen also the effect of current ratio on profitability the manufacturing companies. The effect of current ratio on return on asset was negative effect and significance. This indicates the companies are more debt than that of assets on average.

5.3. Recommendation

This part is going to premised to the conclusion parts of analysis, discussion and result finding. The finding mainly focus of mainly to that the effect of working capital management and profitability of the manufacturing companies, that means the effect of account receivables period, inventory conversion period, account payable period and the cash conversion cycle on the return on asset manufacturing companies. Therefore the researcher recommend based on the research finding.

- The finding implies negative effect between inventory conversion period and the return on asset for the firms. This indicates that the shorter inventory conversion period resulted for higher profitability of the firms. The regression result to significant effect on the profitability of the firms. The researcher recommended to firms to hold the result by better managing of inventory for the firms/ the firms should work on in bettering the inventory management system that minimizes the holding period.
- Finding of the research have negative effect of the account receivables period with the profitability for the manufacturing companies. This result indicated from the research that

means the manufacturing companies perfectly collect the credit from their customers the have getting high profit for the years on average. The researcher further recommended that firms should engage in relationship with those customers who allow short payment period by considering taking into account not to lose customers who delay payments.

- The study also found positive relationship between accounts payable period and firms' profitability. It indicates that whenever firms wait longer to pay their account payables, it increases profitability. However, the study found out there is an insignificant relationship between APP and profitability. Therefore, the researcher recommended that firms should consider the terms of account payable period to be longer to have an impact on firms' profitability.
- The effect between the cash conversion cycle and return on asset was negative. This means that the negative relation will be that of the high capacity of the cash conversion to that of cash increase profitability of manufacturing companies. The researcher suggest that the manufacturing companies will managing of the other working capital component i.e. inventory conversion period, accounting receivable period and account payable period. Inventory management, and by improving the terms on which firm sells goods as well as receipt of cash.
- The research study was seen also the effect of current ratio on profitability the manufacturing companies. The effect of current ratio on return on asset was negative effect and significance. This indicates the companies are more debt than that of assets on average. The researcher recommended that firms should consider manage current asset properly and especially the firms can be manage the cash properly.

5.4. Further Study Area

There is need for further studies to carry the effect of working capital management on profitability of manufacturing firms found in Adiss Abeba starting from 2013/2014-2018/19 incorporating more working capital variables that affects profitability. This study focuses only on the relation between working capital management and profitability measured as profitability or ROA. There are also other measures of profitability, ROE, dividend, return on investment (ROI), to consider for further study. Also, this study looks the effect of working capital management on profitability of manufacturing companies in addis abeba by focusing of operational working capital components like cash, accounts receivables, inventories and accounts payable. The

future researcher should extend on manufacturing companies of addis abeba by using financial working capital components like prepaid and tax payable. The following are the most important things that used to further findings for researcher and other purpose.

- This research study shows only for the effect of WCM on profitability of manufacturing companies in Addis Abeba, working capital not work only in manufacturing companies it also works non-financial sector or service sector, therefore this research thesis role map of other research findings.
- The working capital components are not only listed in this research thesis there are also other components that affect the profitability of manufacturing firms, so this research thesis road for finding of other components.
- Control variables that are listed in this research thesis are GDP, firm growth rate and firm size but there are further control variables that are used to study another research thesis that used in working capital management on profitability of firms.

Limitation of the study

This research study was mainly focus on the effect of working capital component on profitability of beer, brewery and beverage manufacturing companies. The followings are the most important drawback/limitation of the research thesis:-

- There are other small enterprises that manufacturing of the beer, brewery and beverage manufacturing companies and new established beer manufacturing companies. Therefore this research mainly focus on large and medium beer, brewery and beverage manufacturing companies not include the small manufacturing enterprises.
- The research thesis mainly focus on the only effect of working capital management on profitability of the manufacturing companies, but working capital not only focus on the manufacturing companies also service sector.

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Appendixes

Appendixes

Appendix-1

Descriptive statistics presents for 14 Firms

	ROA	APP	ARP	ICP	CCC	CR	FGR	FS	GDP
Mean	6.044756	15.55963	15.04126	230.1265	227.946	4.346173	21.6921	7.077531	8.111111
Median	0.4535	1.56	9.69	121.2	115.65	2.03	13.9	8.5	9.9
Maximum	37.7	183.6	143.48	2035.07	2035.07	102	189.6	9.9	10.4
Minimum	-15.03	0	0	-897.3	-897.3	0	-45.08	0	0
Std. Dev.	9.931554	28.87078	22.11695	404.1807	406.42	12.1054	40.34375	3.078507	3.401654
Skewness	1.359511	3.555874	3.328237	2.401877	2.372783	6.805657	2.659624	-1.50052	-1.74135
Kurtosis	4.296554	18.47108	17.85685	11.09314	10.90814	53.97028	11.16196	4.034452	4.585111
Jarque-Bera	30.6252	978.5177	894.4923	298.9403	287.0745	9393.426	320.3277	34.00747	49.41576
Probability	0	0	0	0	0	0	0	0	0
Sum	489.6252	1260.33	1218.342	18640.25	18463.62	352.04	1757.06	573.28	657
Sum Sq.Dev.	7890.861	66681.74	39132.75	13068964	13214180	11723.27	130209.5	758.1763	925.7
Observations	81	81	81	81	81	81	81	81	81

Source: - own computation, 2019

Appendix-2

The correlation matrix for the variables

	ROA	APP	ARP	ICP	CCC	CR	FGR	FS	GDP
ROA	1	0.251372	0.093248	0.052317	0.040369	-0.04371	0.031871	0.298808	0.206788
APP	0.251372	1	0.282977	-0.1406	-0.19514	-0.11845	0.088691	0.315185	0.190397
ARP	0.093248	0.282977	1	-0.14947	-0.11571	-0.12367	0.118455	0.267711	0.293711
ICP	0.052317	-0.1406	-0.14947	1	0.996923	0.54569	-0.17087	0.063523	0.192738
CCC	0.040369	-0.19514	-0.11571	0.996923	1	0.545006	-0.16865	0.052507	0.192182
CR	-0.04371	-0.11845	-0.12367	0.54569	0.545006	1	0.058545	0.040294	0.093169
FGR	0.031871	0.088691	0.118455	-0.17087	-0.16865	0.058545	1	0.132649	0.236361
FS	0.298808	0.315185	0.267711	0.063523	0.052507	0.040294	0.132649	1	0.864687
GDP	0.206788	0.190397	0.293711	0.192738	0.192182	0.093169	0.236361	0.864687	1

Source: - Own computation 2019

Appendix-3

Table – 4.8. Regression Result for the Effect of Working Capital Management Variables on ROA

Dependent Variable: ROA

Method: Least Squares

Date: 01/30/20 Time: 03:58

Sample: 1 84

Included observations: 81

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.196020	2.710248	-0.072325	0.0425
ICP	-0.084515	0.111644	-0.757008	0.0915
ARP	-0.093421	0.120561	-0.774889	0.0409
APP	0.173776	0.115559	1.503786	0.0070
CCC	-0.271712	0.111508	0.790591	0.0018
CR	-0.087843	0.103986	-0.844756	0.0990
FGR	0.005673	0.028237	0.200910	0.0013
GDP	-0.462874	0.684739	-0.675987	0.5012
FS	1.226466	0.733343	1.672433	0.0988
R-squared	0.191484	Mean dependent var		6.415867
Adjusted R-squared	0.101649	S.D. dependent var		9.692971
S.E. of regression	9.187130	Akaike info criterion		7.377923
Sum squared resid	6077.042	Schwarz criterion		7.643973
Log likelihood	-289.8059	Hannan-Quinn criter.		7.484666
F-statistic	2.131510	Durbin-Watson stat		0.809533
Prob(F-statistic)	0.000342			

Source – Own computation 2019

Appedinx-4

Heteroscedasticity Test: White

F-statistic	1.376646	Prob. F(42,38)	0.1603
Obs*R-squared	48.87698	Prob. Chi-Square(42)	0.2163
Scaled explained SS	58.96894	Prob. Chi-Square(42)	0.0428

Test Equation:

Dependent Variable: RESID^2

Method: Least Squares

Date: 01/28/20 Time: 15:52

Sample: 1 84

Included observations: 81

Collinear test regressors dropped from specification

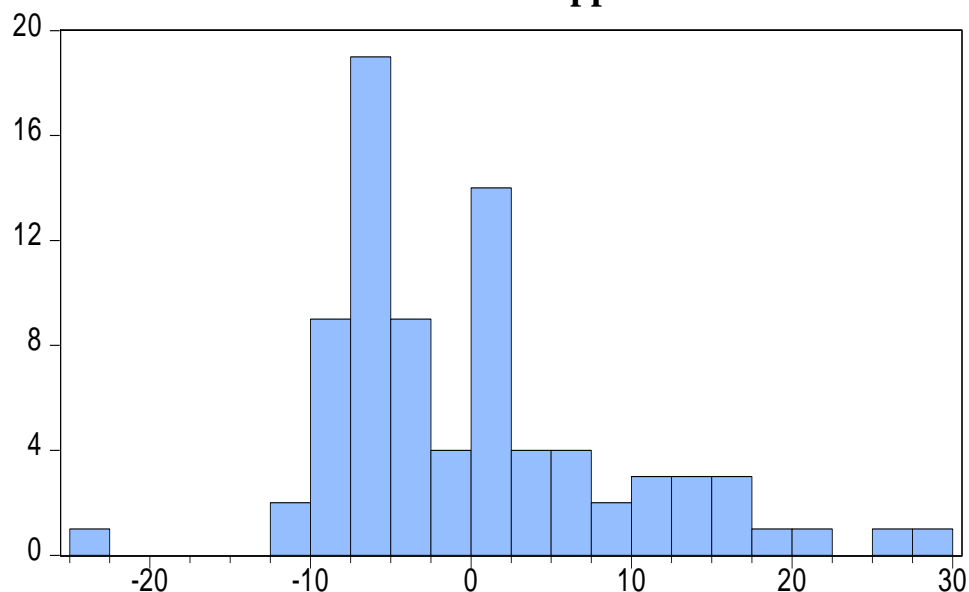
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.374398	40.36592	-0.009275	0.9926
APP^2	5.187268	22.01973	0.235574	0.8150
APP*ARP	-2.017414	15.10232	-0.133583	0.8944
APP*CCC	4.706000	21.88649	0.215018	0.8309
APP*ICP	-3.898664	18.45964	-0.211199	0.8339
APP*CR	-43.67456	246.7604	-0.176992	0.8605
APP*FGR	-0.672021	11.99650	-0.056018	0.9556
APP*FS	-17.79795	35.03589	-0.507992	0.6144
APP*GDP	1.132383	0.987702	1.146482	0.2588
APP	-27.49748	21.91750	-1.254590	0.2173
ARP^2	-3.204198	7.072742	-0.453035	0.6531
ARP*CCC	3.744923	7.256556	0.516074	0.6088
ARP*ICP	-4.461248	10.63333	-0.419553	0.6772
ARP*CR	43.11278	245.8852	0.175337	0.8617
ARP*FGR	0.819440	12.00809	0.068241	0.9460
ARP*FS	19.14889	35.23930	0.543396	0.5900
ARP*GDP	-3.799189	1.713555	-2.217139	0.0327
ARP	22.69971	22.84414	0.993677	0.3267
CCC^2	-0.450419	0.301854	-1.492175	0.1439
CCC*ICP	1.671533	3.750408	0.445693	0.6583
CCC*CR	-46.78974	246.4301	-0.189870	0.8504
CCC*FGR	-0.681493	12.01700	-0.056711	0.9551
CCC*FS	-18.48470	35.36735	-0.522649	0.6043
CCC*GDP	0.019321	0.222124	0.086983	0.9311
CCC	0.124671	3.133055	0.039792	0.9685
ICP^2	-1.219378	3.583719	-0.340255	0.7355
ICP*CR	46.64140	246.4200	0.189276	0.8509
ICP*FGR	0.695474	12.01824	0.057868	0.9542
ICP*FS	18.31108	35.35984	0.517850	0.6076

CR ²	1.181271	0.741319	1.593473	0.1193
CR*FGR	-0.970145	0.681616	-1.423303	0.1628
CR*FS	-11.15525	14.94659	-0.746341	0.4601
CR*GDP	12.50670	14.35469	0.871262	0.3891
CR	34.44780	159.6071	0.215829	0.8303
FGR ²	-0.009276	0.018613	-0.498384	0.6211
FGR*FS	-0.846317	1.258265	-0.672606	0.5053
FGR*GDP	-1.546374	1.001183	-1.544547	0.1307
FGR	19.52972	14.33534	1.362348	0.1811
FS ²	18.23135	21.79072	0.836657	0.4080
FS*GDP	29.86413	21.15913	1.411406	0.1663
FS	-465.1962	435.4915	-1.068210	0.2922
GDP ²	-31.31448	32.25658	-0.970794	0.3378
GDP	351.2394	442.6748	0.793448	0.4324

R-squared	0.603420	Mean dependent var	83.32675
Adjusted R-squared	0.165094	S.D. dependent var	146.5241
S.E. of regression	133.8837	Akaike info criterion	12.93669
Sum squared resid	681144.4	Schwarz criterion	14.20781
Log likelihood	-480.9358	Hannan-Quinn criter.	13.44668
F-statistic	1.376646	Durbin-Watson stat	2.351679
Prob(F-statistic)	0.160300		

Source-Own Computation, 2019

Appendix-5



Series: Residuals	
Sample 1 84	
Observations 81	
Mean	-5.28e-15
Median	-2.397053
Maximum	28.02445
Minimum	-24.97439
Std. Dev.	9.185224
Skewness	0.880059
Kurtosis	4.053894
Jarque-Bera	14.20439
Probability	0.000823

Source – Own computation, 2019

Appendix-6

Test serial correlation LM test (The assumption of autocorrelation)

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	11.07681	Prob. F(2,70)	0.0001
Obs*R-squared	19.47231	Prob. Chi-Square(2)	0.0001

Test Equation:

Dependent Variable: RESID

Method: Least Squares

Date: 01/28/20 Time: 15:54

Sample: 1 84

Included observations: 81

Presample and interior missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.249255	2.536705	-0.098259	0.9220
APP	-0.043845	0.108038	-0.405828	0.6861
ARP	0.068790	0.113415	0.606536	0.5461
CCC	-0.061111	0.104692	-0.583726	0.5613
ICP	0.062461	0.104833	0.595815	0.5532
CR	0.005903	0.098268	0.060068	0.9523
FGR	-0.008435	0.026411	-0.319377	0.7504
FS	-0.440152	0.689468	-0.638393	0.5253
GDP	0.320000	0.642903	0.497742	0.6202
RESID(-1)	0.507266	0.126110	4.022402	0.0001
RESID(-2)	0.023030	0.127075	0.181232	0.8567

R-squared	0.240399	Mean dependent var	-5.28E-15
Adjusted R-squared	0.131884	S.D. dependent var	9.185224
S.E. of regression	8.558123	Akaike info criterion	7.257290
Sum squared resid	5126.903	Schwarz criterion	7.582462
Log likelihood	-282.9202	Hannan-Quinn criter.	7.387753
F-statistic	2.215362	Durbin-Watson stat	1.959491
Prob(F-statistic)	0.026478		

Source – Own computation, 2019

Appendix 7

Data that was to be collected years which was from the years 2005 to 2010 E.C. (2013/2014-2017/201)

Large and medium scale beer, brewery and beverage manufacturing industries in Addis Abeba					
S. No	Name of establishment/enterprise	Phone number	Tax center	Kilil	Wereda /Subcity
1	Mola Maru Alcohol	0112751466	West A.A	A.A	Addis ketema
2	Balezaf Ethiopia liqueurs factory	0114161852	LTO	A.A	Arada
3	Asnake liquors	0111560299/0111573150	MTO	A.A	Kirkos
4	National Alcohol and liquor	0118682418	LTO	A.A	Lideta
5	Awash Wine factory	0113717050	LTO	A.A	Lideta
6	BGI Ethiopia (St.George brewery	0115515196	LTO	A.A	Lideta
7	East Africa bottling	0112756114	LTO	A.A	lideta
8	Great Abyssinia Water	0118605268	LTO	A.A	yeka
9	Moha soft drink	0116614655	LTO	A.A	Kirkos/lideta
10	Daniel H/Silasie liquor factory	-0116625840	MTO	A.A	Kirkos
11	Meskerm liqueurs	0116684496	MTO	A.A	Kirkose
12	Leyu Addis liquor industry	0911243737/0116461282	EAST A.A	A.A	Yeka
13	Sable Gashaw Taddress / Bacteria Alcohol and liquor)	0911644247	AA N ⁰ -2	A.A	Lideta
14	Silivana Teseta /Alcohol	0911228750	Oromia	A.A	Akaki kality
15	Kokeb Liquor Factory	0114431574/0114402030	AA N ⁰ -2	A.A	N.S.L