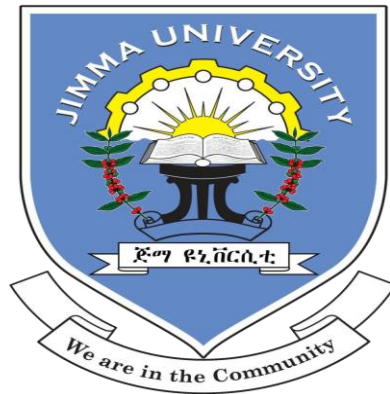


**Effect of working capital management on profitability of
manufacturing companies in case of Hawassa city, Ethiopia**

*A Thesis Submitted to the School of Graduate Studies of Jimma University in
Partial Fulfillment of the Requirements for the Award of the Degree of Master
of accounting and finance*

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JIMMA, ETHIOPIA

**EFFECT OF WORKINGCAPITAL MANAGEMENT ON PROFITABILITY
OF MANUFACTURING COMPANIES *IN CASE OF HAWASSA CITY,
ETHIOPIA***

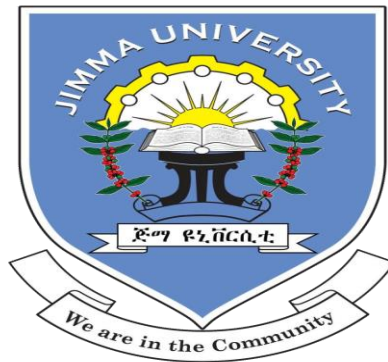
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CERTIFICATE

This is to certify that the thesis entitles “effect of working capital management on profitability of manufacturing companies in case of hawassa city,”, submitted to Jimma University for the award of the Degree of Master of degree in accounting and finance and is a research work carried out by Miss *selamawit kerito*, under our guidance and supervision.

Therefore, we hereby declare that no part of this thesis has been submitted to any other university or institutions for the award of any degree or diploma.

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DECLARATION

I hereby declare that this thesis entitled “effect of working capital management on profitability of manufacturing companies in case of hawassa city”, has been carried out by me under the guidance and supervision of Mengistu Deyassa (assistant professor) and Miss Gelila Eshetu (Msc)

The thesis is original and has not been submitted for the award of any degree or diploma to any university or institutions.

Researcher's Name

Date

Signature

Abstract

This study examined the effect of working capital management on firm's profitability by using audited financial statements of manufacturing plc Company in Hawassa city from the period of 2011 to 2020. In this study, it was examine the components and financial performance of working capital such as account receivable period, account payment period, inventory holding period, tax payable, a cost of goods sold and cash conversion cycle was used as independent variable and return on asset was used as dependent variable. In addition the study was used current ratio, used as liquidity indicator; firm size, as measured by logarithm of sales; firm growth rate as measured by change in annual sales and financial leverage, as control variables. The data was analyzed using descriptive and regression analysis method The sample size was determined by using purposive sampling method also statistical analysis was computed by using Eview's version 10 The result of this study has also indicated that inventory conversion period, ,account payment period, account receivable period, tax payable, current ratio and firm growth have insignificant negative relation with profitability but positive insignificant relationship between cash conversion cycle, cost of goods sold, firm leverage and firm size with profitability Therefore, managers of manufacturing company in hawassa city can maximize firm's value and profitability by improving management of working capital component at optimal level. In general paying suppliers longer and collecting payments from customers earlier, and keeping product in stock less time, are all associated with an increase in the firms performance. Therefore, Managers, can increase firms" profitability by improving the performance of management of working capital components

Key Words: working capital management, return on asset, account receivable, profitability.

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List of acronyms

APP.....	average Payable Period
ACP.....	average collection Period
CCC.....	Cash Conversion Cycle
COG.....	Cost of Goods Sold
CID.....	Capital Investment Decision
CR.....	Current Ratio
ERCA.....	Ethiopian Revenues and Customs Authority
FL.....	Firm leverage
FS.....	Firm size
GWC.....	Gross Working Capital
IHP.....	Inventory Holding Period
NPM.....	Net Profit Margin
NWC.....	Net Working Capital
OLS.....	Ordinary Least Square
OPM.....	Operating Profit Margin
QR.....	Quick Ratio
ROA.....	Return on Asset
ROE.....	Return on Equity
ROI.....	Return on Investment
SG.....	Sales Growth
SNNPR.....	South nation and nationality people representative
TP.....	Tax payable
WC.....	Working Capital
WCM.....	Working Capital Management

CHAPTER ONE

Introduction

1.1 Background of the study

Working capital management is the management of the firm's current assets and current liabilities. An efficient working capital management requires that managers to find right investment levels of cash, marketable securities, receivables and inventories and the appropriate level of short term financing. Many financial managers spend a large amount of time managing on managing current assets and current liabilities. The reasons for managers devote their time and efforts for effective working capital management; it is essential for firm's to discharge its financial obligations and provide an attractive return to shareholders; it requires every day concentration & an adequate control to balance profitability and liquidity and also that creditors serve as the major provider of external financing for companies (Baker and Powell, 2005)

Working capital management has primary goal for firm's survival because of its special effects go to firm's profitability, risk and consequently its value. It has direct influence on profitability and liquidity of a firm's (Hoang, 2015).

Managing working capital to balance liquidity & profitability are challenging decisions in firm's daily operation. In other view, an asset –liability discrepancy may improve firm's profitability in short run, but at risk of its insolvency, on other hand much attention on liquidity will be at outlay of profitability (Abuzayed, 2012). “

Working capital management is the ability firms to control effectively and efficiently the current assets and current liabilities in a manner that provides the firm with maximum return on its assets and minimizes payments for its liabilities” Makori and Jagongo (2013,)

A review done by Van Horne and Wachowicz (2004) also argued that, excessive level of current assets may have a negative effect on the firm's profitability. Whereas a low level of current assets may lead to lower level of liquidity and stock outs results in difficulties in maintaining smooth operations (as cited in Woubshet,2014, p.2) as the major provider of external financing for companies (Baker and Powell, 2005)

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 the major part of assets and liabilities are composed of current assets especially inventory and trade receivables, and current liabilities; trade payable.(Arunkmar and Ramanan, 2013)

Working capital refers to part of the firm's capital, which is required for financing short term or current assets such as cash, marketable securities, debtors and inventories. Funds thus, invested in current assets keep revolving fast and are constantly converted into cash and this cash flow out again in exchange for other current assets. Working capital is also known as revolving or circulating capital or short-term capital. (Deloof, 2003). When a business entity takes the decisions regarding its current assets and current liabilities it can be termed as working capital management. The management of working capital can be defined as an accounting approach that emphasize on maintaining proper levels of both current assets and current liabilities. Working capital management provides enough cash to meet the short-term obligations of a firm.(Raheman and Nasr,2007).

Working capital management is a particular importance to the profitability growth of a business entity. This is because without a proper management of working capital, it is difficult for the firm to run its operations smoothly. That is why Brigham and Houston (2003) conclude that about 60 percent of a typical financial manager's time is devoted to working capital management. Hence, the crucial part of managing working capital is maintaining the required liquidity in day-to-day operation to ensure firm's smooth running and to meet its obligations

Every business requires working capital for its survival. Working capital is a vital part of business investment which is essential for continues business operations. It is required by a firm to maintain its liquidity, solvency and profitability. (Lazaridis and Tryfonidis, 2006).Working capital management explicitly affects both the profitability and level of desired liquidity of a business. Hence, it has both negative and positive impact on firm's profitability, which in turn, affects the share holders' profitability. Indeed, a lot of research has been conducted in different countries to show the impact of working capital components on firms' profitability .However, there are few studies with reference to Ethiopia on working capital management and firms' profitability especially in the

manufacturing sector. By looking on the importance of working capital management, the researcher needs to assess the effect of it on firms' profitability. Accordingly, the general objective of the study is to examine the effect of working capital management on the profitability of manufacturing Company in Hawassa city.

1.2 Statement of the problem

Business concern needs finance to meet their requirements in the economic world. Any kind of business activity depends on the finance. Hence, it is called as lifeblood of business organization (C.Paramasivan and T.Subramanian, n.d). Funds are needed in every business for carrying on day-to-day operations. Significantly Working capital funds are regarded as the life blood of a business firm. A firm can exist and survive without making profit but cannot survive without working capital funds. If a firm is not earning profit it may be termed as 'sick', but, not having working capital may cause its bankruptcy working capital in order to survive. The alternatives are not pleasant. Bankruptcy is one alternative to being acquired on unfavorable term as another. Thus, each firm must decide how to balance the amount of working capital it holds, against the risk of failure (C.Boopathi and P.JohnLeeson, 2016). Working capital is the current or short-term net assets of a firm resulting from short term assets minus short term liabilities. Which also referred to as circulating capital for day-to-day operations of a firm and thus, executives of the firm should pay considerable attention to manage the working capital.

In other term, working capital is the short-term capital reservation for immediate use. Working capital is therefore known as Revolving (or Circulating) Capital or Short-term Capital. In application, firms attempt to manage two requirements: liquidity (working capital) and profitability of the business. (Samithambe Senthilnathan, 2020). further explain that the efficiency of working capital management depends on how a firm manages its working capital requirements (without deficiency) while increasing the firm's profitability, since liquidity and profitability have negative relationship, i.e., higher the liquidity, lower the profitability and higher the profitability, lower the liquidity. The efficient management of working capital is very vital for a business to survive. This is premised on the fact that having too much capital signifies inefficiency where as too little cash in hand signifies that the survival of the business is shaky.

Researchers have studied working capital management in many different ways. While some authors studied the impact of an optimal inventory management, others have studied the optimal way of managing account receivables that leads to profit maximization (Lazaridis and Tryfonidis, 2006; and Besley and Meyer, 1987). Other studies have focused on how reduction of working capital improves a firm's profitability (Jose et al., 1996; Shin and Deirgunes, 2008; Sharma and Kumar, 2011).

According to Muya (2016) Majority of manufacturing firms in Hawassa city have not recorded much growth as compared to firms in other sectors such as service industry. Indeed, manufacturing firms such as the Everyday Company have faced serious challenges in their operations and growth. In spite of the crucial role played by working capital, the extent to which its management affects profitability of these firms is largely unclear. This premise, therefore, necessitated carrying out of this study. However, to contribute a lot for profit and wealth maximization goal, the practice is so crucial. In Ethiopia the government has not given much more attention for manufacturing industry even if the industry produce imported substituted products and significant effect on the national economy.

Beyond the above reason, even if there are plenty of studies conducted on impact of working capital management on profitability, but the result of those studies were inconsistent, as per the study of (Tewodros Dinberu, 2013; Raji Sadiq, 2017; Amanuel Tesfay and G.S. Batra, 2018) positive significant relationship between number of days accounts payable with return on asset and operating profit margin. On the other hand the study of (Mifta Ahmed, 2016 and Beemnet Kumelachew, 2018) found that statically insignificant effect and positive relationship between accounts payable period and profitability. Unlike the above study Wobshet Mengesha (2014) indicated that there is highly significant negative relationship between and account payable period with return on asset. The study done by (Abel Mesfin, 2019; Endale Tilaye, 2015 and Tamene Getnet, 2017) indicated that there is insignificant negative relationship between account payable periods with return.

The study done by (Abel Mesfin, 2019; Beemnet Kumelachew, 2018; Amanuel Tesfay and G.S. Batra, 2018; Aychelet Ketema, 2018) found that there is significantly negative relationship between number of date account receivable and number of day's inventory

holding and company's profitability. On the other hand (EphremAssefa, 2018; EndaleTilaye, 2015) stated that there is statistically insignificant negative relationship between inventory conversion period, days sales outstanding and the profitability of the firms.

According to the study of (Sheaba Rani and ArefeAbreha, 2017; Beemnet Kumelachew, 2018 and Abel Mesfin, 2019) studied that cash conversion cycle has significant negative relationship with return on asset/ profitability of the firm. In contrast the study of Wobshet Mengesha (2014) indicated that no significant relationship between cash conversion cycle with return on investment capital. Contrary the study done by (AycheletKetema, 2018 and RajiSadiq, 2017)) stated that there is positive significant relationship between cash conversion cycle and profitability.

Endale Tilaye (2015) also found that there is statistically insignificant positive relationship between cash conversion cycle and profitability. The above mixed result indicates that it needs to investigate more on this issue and invite researchers to assure and investigate more on the impact of working capital management on profitability.

Ayneshet Agegneu(2019) studied on the effect of working capital management on firm's profitability evidence from Selected Manufacturing and Merchandising Companies in Hawassa City were found to have negative effect on company profitability in both Fixed Effects and Ordinary Least Square regressions while accounts receivable period was negatively affect the company profitability.

Pass and Pike (1987) emphasized that short term finance area particularly working capital management was given very less attention in contrast to long term investment even if it plays a very vital and important role in the growth of firm and in enhancement of profitability. Deficiency in the planning and control of working capital management is one of the main causes of business failure and it is a neglected subject which has been too little investigated or written about. The two main objectives need to be satisfied by working capital management is liquidity and profitability but there should be a trade-off between these two objectives. However, the identification of such relationships have not been identified for Ethiopia manufacturing companies is limited when it comes to Hawassa city to the best of the researcher's knowledge, there has been no much research done regarding the effect of working capital management on profitability of companies in Hawassa and its

surrounding. On top of that, there are a number of manufacturing companies cropping out at different part of the country including Hawassa city. Currently there are around thirty six manufacturing plc companies operating in Hawassa city and many of the companies have been operating for more than 10 years. Therefore, it is right time to analyze the effect of working capital management on profitability of the companies to guide them on the right truck of operation. Therefore, this study attempts to analyze the effect of working capital management on profitability of manufacturing plc companies in Hawassa City.

Keeping the above knowledge gaps in mind and to the best of the researcher knowledge as there were different studies conducted on the effect of working capital management on the profitability of service provider, manufacturing and merchandising companies by considering ROA as dependent variable and accounts receivable period, account payable period, cash conversion cycle and inventory holding period as independent variable.

So far, to the best of researcher knowledge there is variable gap because previous researchers did not consider the effect of cost of goods sold and tax payable of a firm on the profitability of manufacturing companies has not been addressed on those studies. The researcher tried to identify major relevant variables which are missed or not included in previous studies. So the researcher filled the gap of the previous research done in Ethiopia by adding this new variable together with existing variables. So as to reveal the contents or new variables, all variables would enhance the finding and fill the problem of missing important variables which was observed in previous studies and in their dimensions in depth. Previous studies conducted in Ethiopia more of focused on the cities of Addis Ababa - Ethiopia. So that, this work would contribute to fill the research gap of working capital management existed at regional level and what factors mostly affecting the profitability of manufacturing plc company in Hawassa city, In light of the above-mentioned fact, it is vital to investigate the factors that affect the profitability manufacturing companies in Hawassa city.

1.3 Objectives of the Study

1.3.1 The general objective

- The general objective of this study is to examine the effect of working capital management on profitability of manufacturing Companies in case of Hawassa city, Ethiopia

1.3.2 Specific Objectives

The specific objectives of this study are:-

- To examine the effect of account receivable period on profitability of the firms
- To examine the effect of account payment period on profitability of the firm
- To ascertain the effect of cash conversion cycle on profitability of the firm
- To analyze the effect of inventory holding period on profitability of the firm
- To analyze the effect of cost of goods sold on profitability of the firm
- To analyze the effect of tax payable on profitability of the firms

1.3 Research hypothesis

There are several statements of possibility that can be made in view of the effect of working capital management on firm's profitability. By considering the above research objectives the following discussion shows the hypothesis (HP) that this study was attempted to test.

1. H1: Account receivable period has statistically significant and negative effect on the firm's profitability.
2. H1: account payable period has statistically significant and negatively affect on the firm's Profitability.
3. H1: cash conversion cycle has statistically significant and negatively affect on the firm's Profitability.
4. H1: inventory holding period has statistically significant and negatively effect on the firm's profitability
5. H1: cost of goods sold has statistically significant and negatively effect on the firm's profitability
6. H1: tax payable has statistically significant and negatively affect on the firm's profitability

1.4 Significance of the study

The output of this thesis would expect to be significant in various perspectives, which are great benefit for the researcher, to other researchers, to the institutions as a question and the country at large.

Primarily, it might assist other researchers as a source of reference and a valuable addition to the existing knowledge and provide a platform for further research, which may be useful to academicians and scholars.

secondly, based on the finding of the study the researcher could provide recommendations, it may help managers in all manufacturing companies which means the management of the target companies to make a better decision in the future on their working capital. Also, it used as a reference for other companies who are trying to make decision regarding the working capital reform model. Manufacturing companies targeted in the study would clearly understand more on the effect working capital management on their profitability in Ethiopia. They will have the advantage of applying the recommendations made on the study and engage the relevant stakeholder to determine whether to avoid the mistakes and the wrong decisions related with working capital, risk reduction (mitigating risk) or retain the risk in a bid to maximize returns by making good decision.

Finally, it help for the policy maker/government and regulatory bodies/ used as reference to the existing restructure and can be used as input to amend and modify regulation policy and procedures related with manufacturing industries.

1.5 Scope of the Study

Geographically the research study conducted in Ethiopia the continent of Africa eastern country, capital city of SNNPR, founds in South Western part of Ethiopia and delimited to Hawassa city manufacturing companies. A wide range of variables are expected to affect the profitability of manufacturing companies, but this study only intends to evaluate and examine profitability of manufacturing companies by considering, Profitability takes as dependent variable which means return on asset (ROA) use as measure of profitability and Accounts receivable period, account payable period, cash conversion cycle, inventory holding period, cost of goods sold and tax payable take as independent variable. These research papers only consider the effect of working capital management on the profitability of manufacturing companies did not consider service provider and merchandisers' business companies. The time period for the study was bounded only in between 2011 – 2020 (ten years data) that only consider secondary data.

1.6 Limitation of the study

The study did not investigate the effect of working capital management on the profitability of service business and merchandise business companies. This study has covered only manufacturing plc companies and moreover, the independent variables considered in this study might not be the only factors influencing firm's performance.

1.7 Organization of the Paper

Organization of the study covers five chapters. The first chapter consists of background of the study, statement of the problem, research hypothesis, and objective of the study, significance of the study, scope of the study, limitation of the study and organization of the paper. Chapter two contains, literature review (theoretical and empirical) knowledge gap and conceptual frame work were stated. Chapter three states the research methodology which is include research design, source of data and data collection techniques, target population and sampling methods, method of data analysis and presentation, ethical consideration, description of variable (dependent and independent variable), description of data analysis, model specification and description diagnostic tests. The fourth chapter presented the data analysis and presentation of its finding. Finally, the fifth chapter contains all points that are found the paper, summary, draw conclusion and possible recommendations are given.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2. Introduction

The purpose of this chapter is to introduce key principles around working capital and general Theory around it. This chapter introduces drivers behind working capital, the theoretical review of working capital management and reviews of prior research made on working capital management.

2.1 Theoretical Literature Review

2.1.1 The nature and purpose of working capital

In finance financial firm's uses their generated funds for fixed investment especially they invested in the fixed assets. These fixed assets are deployed in the business to earn profits during the life of service year. In other hand, firms utilize their funds on short-term assets to run the business operations.

Atrill & Mclaney (2006) described that the level of current assets and current liabilities can varies from firms to firms depending up on the nature of the business, production policy and market conditions. In case of manufacturing business, they invest largely on inventories such as raw materials, work in progress and finished goods are the day to day activities of the firm's. The firm's will normally sell its finished products or services on credit and buy goods or services on credit give rise trade receivables and trade payables respectively.

Working capital is the most critical components of a business for successful advancement if carried out effectively, efficiently and consistently will guarantee the health of organization; It also ensures a company has adequate cash flow for its short term debt obligations and operating outflow: "Implementing an effective working capital management system is an excellent way for many companies to improve their earnings" Samson et al (2012, 62).

2.1.1.1 Dangers of Excess or Insufficient Working Capital

Excess of working capital is unsafe as too little working capital because of the portion of the funds not fully being utilized by firms. Most of the time managements spend funds on slow moving assets especially on inventories. Extra working capital should be avoided unless it minimizes firm's profitability. On the reverse, inefficient working capital particularly shortage of cash can brings challenges of solvency problem if it fails to finance their short term obligation.

Samson et al., (2012) emphasized that dangers of excess working capital to a business are indicates that unnecessary holding of inventories, imperfect credit policy which follows by ineffective collection period, management ineffectiveness and affinity to make dividend policy freethinking. Due to the stated problem, the firm's incurred unnecessary storage costs, mishandling, stock obsolescence and bad debts which adversely affects the business competitiveness' and its profit. In contrary, firms have been with in inefficient working capital forced to inactive growth, loss of credit opportunity, loss cash discount due to in adequate working capital to pay early in discounting period, loss of good will one of severe challenges which business loss their reputation, if firms unable to pay their creditors at maturity period or provide goods or services to their potential customers on time and organizational control by creditors as the result of failure to finance its obligation.

2.1.2 Factors Determining Working Capital Requirements

In the review of Adeniji (2008) mentioned that there are large number of factors up on which determining working capital need a concern depends on such as size, nature of a firm, operations of a firm, change in economic circumstances, advancement of technology, management ability etc. Even if, many factors influence the requirement of working capital, we can't rank the factors which affect firm's working capital requirements because each of them has its own importance and influences. He noted that firms working capital requirements are particularly dependent up on the nature of the business ,size of the business, sales & demand conditions , Technology & manufacturing

policy & credit policy of firms, operation efficiency, price level change and credit granted by suppliers (as cited in Samson et al., 2012, p.63).

2.1.3. Types of working capital

Working capital is the capital/funds required for day to day operations of the business. Working capital is invested usually in all types of inventories such as raw materials, spares, finished goods etc and credit extension to debtors and cash in hand.

According to Paramasivan and Subramanian (2009), working capital is classified into different types and the classification based on the following views:

1. Balance sheet view
2. Operating cycle view

On the basis of balance sheet view, working capital is described below: The two most important terms when discussing working capital are gross working capital and net working capital. The investment that is needed for receivables, inventories and cash is generally called working capital or gross working capital. It is simply called current assets in the balance sheet of a firm. A certain part of the investment in working capital is financed by short-term financing (current liabilities)-meaning payables, current maturities etc. The difference between the current assets and current liabilities is the net working capital. Net working capital indicates how much a company has to invest of its long-term capital to finance its working capital. Net working capital can be negative, in which case the company has more current liabilities than assets.

The following table shows as an example the part of the balance sheet that has an effect on working capital

Table 1 Example of working capital in a balance sheet

Current assets	Current liabilities
20xx	20xx
Cash.....xxx	Account payablexxx
Marketable securitiesxxx	Notes payablexxx
Receivablesxxx	Accrued expensesxxx
Inventoryxxx	Taxes payablexxx
Prepaidxxx	Current mature of LT debtxxx
Other current assetsxxx	

Total current assetsxxx	Other current liabilitiesxxx
	Total current liabilitiesxxx

Source: (Striscek, 2011)

The efficient management of these balance sheet items can decrease a company's NWC. As an example, by more aggressively collecting receivables, a company does not have to rely as much on long-term financing (which may be costly¹) to finance its operations. Ideally, from a lenders point of view, the current liabilities should cover most of the financing for current assets, and the shareholders equity the rest. (Striscek, 2011).

Most importantly for this research, a separation between operational working capital and financial working capital has to be made. The operational working capital, that is, the part that can be optimized and affected by the company's operations, are the accounts receivable, inventories and accounts payable. The rest, i.e. cash, marketable securities, prepaid and all other current liabilities are a financial decision of the company, and has very little to do with the company's operations in itself. This research focuses solely on the operational net working capital. This can be defined as receivables plus inventories minus payables.

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

Permanent / fixed working capital: it refers to minimum amount of investment in all working capital which is required at all times to carry out minimum level of business activities

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

interruption is referred to as permanent working capital (Fabozzi and Peterson, 2003 p. 679).

Temporary working capital: it's also known as the circulating or transitory working capital. This is the amount of investment required to take care of the fluctuations in the business activity. Fabozzi and Peterson (2003 p. 678) they defined as a rises of working capital from seasonal fluctuations in a firm's business. Because firms do not have to maintain this form of working capital throughout in the year, or year after year, it may be better to use short-term (bank credit) rather than long-term sources of capital to satisfy temporary needs. In other words, it represents additional current assets required at different times during the operating year. For example, extra inventory has to be maintained to support sales during peak sales

Period (Seasonal working capital) similarly, receivable also increase and must be financed during period of high sales. On the other hand investment in inventories, receivables and the like will decrease in periods of depression (special working capital). Temporary working capital fluctuates over time with seasons and special needs of firm operations, whereas, permanent WC changes as firm sizes increases overtime. Further, temporary WC is financed by short term debt.

2.1.4. Working capital management

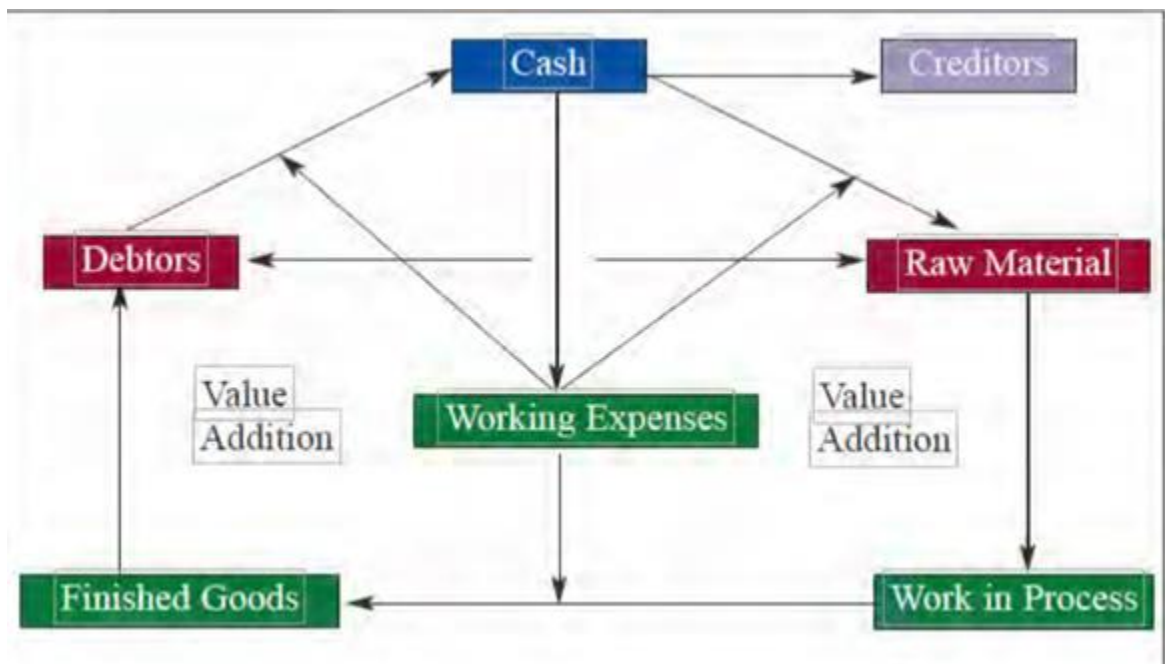
Khan and Jain (2007) also stress that working capital management is concerned with the problems that arise in attempting to manage the current assets, the current liabilities and the interrelationship that exists between them.

Working capital management also refers to the decisions relating to working capital and short term financing and it involves managing the relationship between a firm's short-term assets and its short-term liabilities. The goal of working capital management is to ensure that the firm is able to continue its operations and that it has sufficient cash flow to satisfy both maturing short-term debt and upcoming operational expenses. Working capital entails short term decisions generally relating to the next one year period which are "reversible". These decisions are therefore not taken on the same basis as Capital Investment Decision (CID) rather they has been based on cash flow and or profitability.

Every running business needs working capital. Even a business which is fully equipped with all types of fixed assets required is bound to collapse without (i) adequate supply of raw materials for processing; (ii) cash to pay for wages, power and other costs; (iii) creating a stock of finished goods to feed the market demand regularly; and, (iv) the ability to grant credit to its customers. All these require working capital. Working capital is thus like the lifeblood of a business. The business will not be able to carry on day-to-day activities without the availability of adequate working capital.

Working capital cycle: the working capital cycle measures the time between paying for goods being supplied to the buyer and the final receipt of cash from the sale of these goods. It is advantageous to keep the cycle as short as possible as it increases the effectiveness of working capital. The diagram below shows how the cycle operates or works

Figure 1 working capital cycle



Source: Copeland, et al (2005)

Working capital cycle involves conversions and rotation of various constituents/components

Of the working capital initially 'cash' is converted into raw materials. Subsequently, with the usage of fixed assets resulting in value additions, the raw materials get converted into work in process and then into finished goods. When sold on credit, the finished goods

assume the form of debtors who give the business cash on due date. Thus 'cash' assumes its original form again at the end of one such working capital cycle but in the course it passes through various other forms of current assets too. This is how various components of current assets keep on changing their forms due to value addition. As a result, they rotate and business operations continue. Thus, the working capital cycle involve rotation of various constituents of the working capital.

2.1.5. Working capital management components

The basic focus in managing specific current assets should be to optimize the firm's investment in these assets. The main components of a firm's working capital include the following:

Cash Management

Afande (2015) explained that cash is a central component of business liquidity in firms. A huge cash speculation minimizes the chances of liquidity risk, but it decline the profitability of company

Atrill and McLaney (2006) emphasized that amount of cash held tends vary considerably between business; a business may decide to held at least some of assets in the form of cash. Many business companies prepare cash budget to manage their cash inflow and outflow efficiently and effectively. An adequate controlling over cash helps to managers to take an appropriate action when firms faced over cash surplus or serious cash deficit. When cash

Surplus is expected, the firms utilize its resource by investing in other investment opportunities. But when a firms in serious cash deficit, mangers decide on the best use of their capability to reduce the problem by using borrowing options, liquidating assets, postponing payments and collecting outstanding receivables. Cash conversion cycle has a prominent influence on financing necessities of business; moreover, the longer cash conversion cycle takes the firm to serious financial risks.

Brealey and Myers (2003) indicated that cash is the oxygen which enhances a survival and prosperity, and is the basic indicator of business health. Cash includes both cash in hand and cash at bank. A company needs cash for transaction and speculation purposes. It

also provides the liquidity to the company but the question is why company should have cash reserves when it has an option to utilize it by investing it in short term securities.

Detaining more cash in operation is a cost to firms, unless firms raise funds in capital market or invested to earn a return in other opportunities (Baker and Powell, 2005).

Deloof (2003) studied that does working capital management affect profitability Belgian firms? In his study he examined that cash conversion cycle is time lag between the expenditure for the purchase of raw materials and collection of sales of finished goods. The longer time lag the larger investment in working capital. In addition, he stated that a longer cash conversion cycle might increase profitability because it leads higher sales. Makori and Jagongo (2013) argued that cash conversion cycle is the time span which taken to convert the raw material to the finished goods and receive cash from sales.

Cash conversion cycle (CCC) = (Account collection period (ACP) + Inventory conversion period (ICP)-Account payment period (APP)

Account Receivables Management

“Account receivable is defined as the customers who are not yet payment for goods or a service with the firms has performed. He also emphasized that the main aim of debtor management is to reduce the time laps between completion of sales and receiving the payment” Hassan et.al (2014, 118).

Atrill and McInaney (2006) emphasized that selling of goods and services on credit will result incurring costs like credit administration, bad debts and opportunities forgone in using the funds for more profitable purpose. Therefore, the firms must have comprehensible policies concerning such credit analysis; which customers should receive credit; how much credits should be offer; what length of credit it is prepared to offer; what collection policies should be adopted and how the risk of non- payment can be reduce. In addition the author clearly stated that firms should consider the five Cs of credit criteria for firms before giving credit offer for their customers in order to reduce the risk of collectability. The five Cs of credit are focus on customers attributes such as Capital, capacity, collateral /some kind of security/, conditions /state of the industry customer operates/ and Character /willingness to pay/.

Weygandt, Kimmel, & Kieso, (2011) Stated that account receivable measures the number of times on average in which a company collects receivables during the period. This variable is defined as the number of days which is needed to collect the receivables. In other words, it is the average period for which receivables are outstanding (Makori & Jagongo, 2013).

$$\text{Account collection period} = \frac{\text{Account Receivable} \times 365}{\text{Net sales}}$$

Inventories (Stock) Management

Inventory is defined as the list of stock of raw materials, working in progress or finished goods which are waiting to utilize in production or to be sold. Inventories or stocks are the major parts of current assets which have a significant effect on working capital (Atrill & McLaney, 2006).

A review done by Brealey and Meyers (2006) explained that firms store the inventories to minimize the risk of running out of stock and losing sales as well as customers (cited by Afande, 2015, p.160)

Atrill & McLaney (2006) described that the most common reason that firms hold inventories to meet day to day requirements of customers and production. Sometimes a business may hold excess level of stock more than necessary for the purpose of production or to be sold, if it is believed that future supplier's may be inconsistent or the cost of inventories will go up in the future

Firms will normally minimize the amount of inventories held to appropriate level. This because there are significant costs associated with holding of excess inventories. These costs include; Storage and handling costs; financing costs; the cost of pilferage and obsolescence and the cost of opportunities forgone in tying up funds in the form of assets. In contrary to this, a business must also recognize that, if the level of inventories held is too low will 12 exposed losses of sales; loss of good will from customers; high transport cost incurred to replenish quickly and purchasing at higher price.

“Inventory turnover measures the number of times, on average, the inventory sold during the period; its purpose is to measure the liquidity of the inventory” (Weygandt et al., 2011, 663).

$$\text{Inventory conversion period} = \frac{(\text{inventory} \times 365)}{\text{cost of good sold}}$$

Liquidity

Liquidity ratios indicate a firm's to pay its obligation in short run. Potential lenders carefully scrutinize the status of the company before making short-term loan to firms.

Financial managers must pay close attention to liquidity ratios to ensure they reveal a high probability of firm being able to promptly and full pay its obligation. In addition the preceding paragraph, the authors stated that the most widely measurement used to determine liquidity ratio is current ratio which is the result of current assets dividing to current liabilities (Baker & Powell, 2005).

$$\text{Current ratio (CUR)} = \frac{\text{current asset(CA)}}{\text{current liability(CL)}}$$

Eljelly (2004) stated that one of the competent liquidity management involves planning and controlling current assets and current liabilities in such approach that eliminates the risk of the failure to meet due short term obligations and avoid excessive investment in current assets. The author in addition explained that in every area of financial management, finance managers are always faced with dilemma of liquidity and profitability; hence have to strike a balance between liquidity and profitability of firms

Most of the time, liquidity goals of a firm is to have sufficient cash to pay for bills, to make unexpected purchase and finally, firms have an adequate cash reserve to meet emergencies in all time. Whereas, profitability goal on the other hand requires that, funds of firm are used so as to yield higher returns. Therefore, when one increases, the other decreases (Brigham and Houston, 2003)

Accounts Payable

Another component of working capital is accounts payable, but it is different in the sense that it does not consume resources; instead it is often used as a short term source of

finance. Thus it helps firms to reduce its cash operating cycle, but it has an implicit cost where discount is offered for early settlement of invoices. (Padachi, 2006)

The Cash Conversion Cycle

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

Firms Size

Size of the business directly affects the working capital requirements. The greater the size of a business unit generally large will be the requirements of working capital. However, in some case even a smaller company may need more working capital due to high over charges and inefficient use of resource

Bayyurt (2007) stated that big firms have more competitive power when compared to small firms in fields requiring competition. Since they have a bigger market share, big firms have the opportunity to profit more. In addition to this, big firms are able to seize the opportunity to work in the fields which require high capital rates since they have better resources, and this situation provides them the opportunity to work in more profitable fields with little competition as (cited in Mahdi et al., 2014).

Manoori & Muhammed (2012) stated that large firms have enhanced access to capital markets and have large capacity to extend more trade credits that enable them to have more investment in working capital as compared to smaller firms. He used natural logarithm of total assets as a proxy for firm size.

According to Abiodun (2013) the size of a firm plays an important role in determining the kind of relationship the firm enjoys within and outside its operating environment. The larger firm is greater influences of on its stakeholders. The size of the firm is one of important variables in many studies. In addition, in the review of Chiou et al., (2006) make obvious that the working capital necessity has significantly affects on size of firms (as cited in Hassan et al., 2014, 121).

Return on Asset (ROA)

Return assets the dependent variable in this study to measure the ratio how profitable companies are relative to its assets. It also indicates that how well management is employing the company's total assets to make profitable. Therefore, the higher the return ratio mean that the management more efficiently and effectively utilizing its assets.

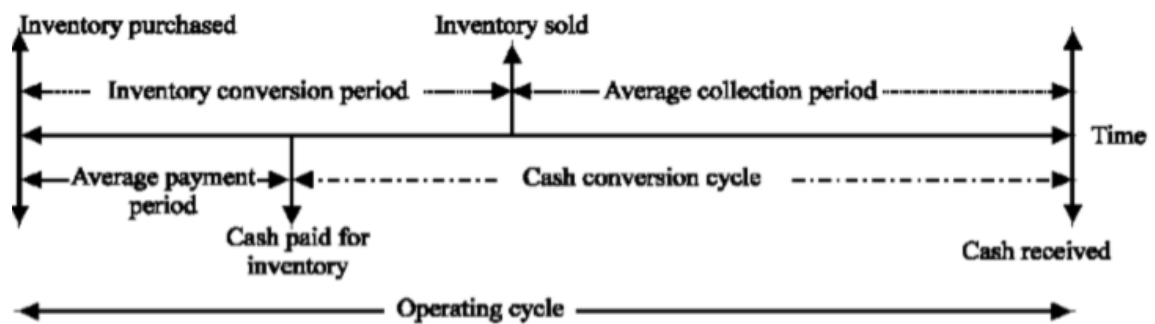
The authors emphasized that, "The rate of return on total assets, or simply return on assets, measures a company's success in using assets to earn profit" (Hornrgren et al., 2012, 739).

Hassan et al., (2014) described return on asset: Return on assets is very important and provide a standard for changing how efficiently financial management employs the average amount which is invested in the firm's assets, whether the amount come from investor or creditors. A low level of return on assets shows that the profits are low for the amount of assets. The return on asset ratio calculates how efficiently profits are being collected from the assets employee. Thus, the variable return on assets, which is calculated by the ratio earnings before interest and tax over total assets, was introduced into the analysis and it is expected that this factor will have a negative effect on the cash conversion cycle.

Return on asset explains that how efficient a company is to utilize its available assets to generate profit. It calculates the percentage of profit a company is earning against per dollar of assets (Weston and Brigham, 1977).

$$\text{Return on Assets (ROA)} = \frac{\text{net income}}{\text{total asset}}$$

Figure 2 Operating and cash conversion cycles



Source: Jordan et al, (2003).

The cash conversion cycle depicted in figure 2.2 above captures the interrelationship of sales,

Cash collections, and trade credit in a manner that the individual numbers may not. To the Extent a firm uses credit, the length of the cash (operating) cycle is reduced

2.1.6. Working capital Theories

There are various theories that support the significance of working capital. Some of the most

Important theories pertinent to working capital management include the following:

Quantity Theory of Money

According to the ‘quantity theory’ money is held only for purpose of making payments for current transactions (Keynes, 1973). This theory was proposed by Irving Fisher in 1911. Fisher’s version of the quantity theory can be explained in terms of the equation of exchange Model.

$$MV = PT \dots\dots\dots (i)$$

Where M is the nominal stock of money in circulation, V is the transaction velocity of circulation of money, that is, the average number of times the given quantity of money changes hand in transactions, P is the average price of all transactions and T is the number of transactions that take place during the time period. Both MV and PT measure the total value of transactions during the time period and so must be identical. Thus, ‘the equation’ is really an identity which must always be true; it tells us only that the total amount of money handed over in transactions equal to the value of what is sold.

Keynesian Theory of Money

Keynes (1973) in his great work: “The General Theory of Employment, Interest and Money” identified three reasons why liquidity is important; **the speculative motive, the precautionary motive and the transaction motive.**

The speculative motive is the need to hold cash to be able to take advantage of, for example, bargain purchase, and favorable exchange rate fluctuations in the case of international firms.

For most firms, reserve borrowing ability and marketable securities can be used to satisfy speculative motives.

The precautionary motive is the need for a safety supply to act as financial reserve. Once again, there is probably a precautionary motive for liquidity. However, given that the

value of money market instruments is relatively certain and that instruments such as T – bills are extremely liquid, there is no real need to hold substantial amount of cash for precautionary purpose .cash is needed to satisfy the transaction motive, the need to have cash on hand to pay bills. Transaction related needs come from collection activities of the firm. The disbursement of cash includes the payment of wages and salaries, trade debts, taxes and dividends.

Baumol Inventory Model

Baumol (1952) developed the inventory development model. The Baumol model is based on the Economic Order Quality (EOQ). The objective is to determine the optimal target cash balance. Baumol made the following assumptions in his model. The firm is able to forecast its cash requirements with certainty and receive a specific amount at regular Intervals, the Firm’s cash payments occur uniformly over a period of time, that is, a steady rate of cash Outflows; the opportunity cost of holding cash is known and does not change over time. Cash holdings incur an opportunity cost in the form of opportunity forgone and the firm will incur the same transactions cost whenever it converts securities to cash. Each transaction incurs a fixed and variable cost. Below is the equation representation in Baumol model of cash management

Holding cost = $K(C/2)$ Total cost = $K(C/2 + c (T/C)$ and Transaction Cost = $c (T/C)$

Limitations of the Baumol model are: it assumes no cash receipts during the projected period, obviously cash is coming in and out on a frequent basis and, no safety stock is allowed for reason being it only takes a short amount of time to sell marketable securities.

The Modern Quantity Theory

Milton Friedman restated the quantity theory of money in 1956 as a theory of demand for money and this modern quantity theory has become the basis of news put forward by monetarists (Copeland et al, 2005). In this theory, money is seen as just one of a number of ways, in which wealth can be held, along with all kinds of financial asset consumer durables, property and human wealth. According to Friedman, money has a convenience yield in the sense that its holding saves time and effort in carrying transactions

2.1.7. Working Capital Policies

In simple definition working capital is administration of current asset minus current liabilities. However managing working capital is not a simple task like its definition. For example when a firms is unable to manage its current liability through current assets

liquidity problem may arise. On other hand, when excess current assets over its current liability mean that the company have an idle resources.

Igor and Suzana (2016) stated that a right working capital policy must maximize revenues and minimize costs at acceptable degree of risk. In other hand a review done by Mathura (2003) emphasized that working capital policy may broadly be divided in to three categories as: Conservative policy; Aggressive policy and Moderate policy.

2.1.7. 1.Conservative policy

The company may prefer to hold rather heavy cash and bank balance in current account or investments in readily marketable securities, meanwhile with higher stocks of raw materials and finished goods in the preparing for reducing risks for out of stock and loss sales. In addition, a more conservative working capital management policy places larger amount of capital invested in liquid assets, but at the sacrifice of some profitability.

2.1.7.2. Aggressive or Restrictive Working Capital Policy

Company may result disproportionately losses by risks of stock outs and the consequential loss of production as well as losing the sales and negatively influence of the profitability of accompany. An approach to aggressive working capital management policy of liquidity management results in a lower cash conversion cycle by reducing the inventory period and the account receivable period while stretching the account payables period. Aggressive asset management leads to the capital being minimized in current assets versus long-term investments. This would result in higher profitability but greater liquidity risks. Aggressive financing policies utilize higher levels of normally lower cost of short-term debt and less long-term capital. Costs, this increases the risk of short term liquidity problem.

2.1.7.3. Moderate working capital policy

The level of working capital will be moderate, neither too high nor too low, but just right (as cited by Afande, 2015, 158)

A moderate or balanced working capital policy falls midway between the aggressive and conservative working capital policies. With a moderate policy, the level of investment in current assets is neither lean nor excessive. Following a moderate policy, long-term funds are used to finance the investment in fixed asset and permanent components of current

assets investments Temporary or seasonal current assets are financed by short term sources of finance.

2.1.8. Working capital management, profitability and liquidity

Jose et al (1996) showed that day-to-day management of a firm's short term assets and liabilities plays an important role in the success of the firm. Firms with growing long term prospects and healthy bottom lines do not remain solvent without good liquidity management. Profitability is more important because profit can usually be turned into a liquid asset, and that liquidity is also important but does not mean that the company is profitable. Gitman (1999), while acknowledging the relative importance of both, submits that liquidity is more important because it has to do with the immediate survival of the company. Profitability tells whether the business is sustainable while liquidity tells whether the business has enough cash to pay its obligations. He cited the examples of two computer companies, Gateway and Dell. According to him, gateway survived years of losses because it was very liquid. Despite years of losses, it functioned because it had enough "liquid" to survive. Dell survived for many years because it was profitable even though it had billions of dollars in debt. Therefore, he submits that both are important, and that neither measure alone can give a true picture of any company's ability to continue. However, he states that at some point, if a company does not gain profitability, it will fail.

For Gitman (1999) in addition to profitability, liquidity management is vital for ongoing concern. Jose et al (1996) suggests optimum liquidity position, which is minimum level of liquidity necessary to support a given level of business activity. He says it is critical to deploy resources between working capital and capital investment, because the return on investment is usually less than the return on working capital investment. Therefore, deploying resources on working capital as much as to maintain optimum liquidity position is necessary. Then he sets up the relationship between conversion cycle and minimum liquidity required such that the cycle lengthens, the minimum liquidity required increases, and vice versa.

2.1.9. Measurement of Liquidity and Profitability

In every area of financial management, the finance manager is always faced with the dilemma of liquidity and profitability. He/she has to strike a balance between the two

(Eljelly, 2004). Liquidity means the firm has to have adequate cash to pay bills as and when they fall due, and it also have sufficient cash reserves to meet emergencies and unforeseen demands, in all time. On the other hand, Profitability goal requires that funds of a firm should be utilized as to yield the highest return. Hence, liquidity and profitability are conflicting decisions, when one increases the other decreases. More liquidity results in less profitability and vice versa. This conflict finance manager has to face as all the financial decisions involve both liquidity and profitability.

Creditors of the company always want the company to keep the level of short term assets higher than the level of short term liabilities; this is because they want to secure their money. When current assets are in excess to current liabilities then the creditors has been in a comfortable situation. On the other hand managers of the company don't think in the same way, obviously each and every manager want to pay the mature liabilities but they also know that excess of current assets were costly and idle resource which is not produce any return for example having high level of inventory raises warehouse expense so, rather than keeping excessive current assets (cash, inventory, account receivable) managers want to keep the optimal level of current assets, to a level which is enough to fulfill current liabilities. And also managers want to invest the excessive amount to earn some return. Hence, managers have to make a choice between two extreme positions; either they choose the long term investments, investments in noncurrent asset such as subsidiaries (equity), with high profitability i.e. high return and low liquidity. On the other hand to choice short term investment with low profitability i.e. low return and high liquidity.

However, creditors of the company want managers to invest in short term assets because they are easy to liquidate but it reduces the profitability because of low interest rate. On the other hand, if the managers prefer the long term investment to enhance the profitability then in case

Of default lenders or creditors have to wait longer and bear some expense to sell these assets because the liquidity of long term investment is low. In reality, none of the managers choose any of these two extremes instead they want to have a balance between profitability and liquidity which fulfils their need of liquidity and gives required level of profitability (Arnold, 2008).

Profitability ratio is a measure of profit generated from the business and is measured in Percentage terms e.g. percentage of sales, percentage of investments, percentage of assets. High percentage of profitability plays a vital role to bring external finance in the business because creditors, investors and suppliers do not hesitate to invest their money in such a company (Fabozzi and Peterson, 2003, p. 733). There are several measures of profitability which a company can use. Few measures of profitability are discussed here:

Gross operating profit (GOP): this ratio explains that how efficient a company is to utilize its operating assets. This ratio calculates the percentage of profit earned against the operating assets of the company (Weston and Brigham, 1977, p. 101).

$$\text{Gross Operating Profit} = \frac{(\text{sale} - \text{COGS})}{(\text{Total asset} - \text{financial asset})}$$

Net profit margin (NPM): It calculates the percentage of each sale dollar remains after deducting interest, dividend, taxes, expenses and costs. In other words, it calculates the percentage of profit a company is earning against its per dollars sale. Higher value of return on sale shows the better performance (Gitman, 1999).

$$\text{NPM} = \frac{(\text{Earnings available for common stakeholder})}{(\text{Net sales})} \times 100$$

Return on asset (ROA): this ratio explains that how efficient a company is to utilize its available assets to generate profit. It calculates the percentage of profit a company is earning against per dollar of assets (Weston and Brigham, 1977, P. 101). The higher value of ROA shows the better performance and it is computed as follows:

$$\text{Return on asset (ROA)} = \left(\frac{\text{earnings available for common stockholder}}{\text{total asset}} \right) \times 100$$

On the other hand, liquidity ratio measures the short term solvency of financial position of a Firm

Ratio is calculated to comment upon the short term paying capacity of a concern or The firm's ability to meet its current obligations Fabozzi and Peterson (2003, p.729) and it is Discussed as follows:

Current ratio: is defined as the relationship between current assets and current liabilities. It is a measure of general liquidity and it is the most widely used to make the

analysis for short term financial position or liquidity of a firm (Fabozzi and Peterson, 2003 p. 733). Current ratio is calculated by dividing the total current assets by total current liability.

$$\text{Current ratio} = \frac{\text{current asset}}{\text{current liability}}$$

2.2. The empirical Review literature

The subject of working capital management has been extensively explored in the discipline of finance. Many researchers have studied working capital from different views and in different environments. This section reviewed the previous studies on the impact of working capital management on firm's profitability.

Deloof (2003) investigated the relationship between working capital management and firm profitability of Belgian firms, where he studied 1009 large Belgian non-financial firms for the period of 1992 to 1996. Using correlation and regression tests he found a significant negative relationship between gross operating income and the number of days accounts receivables, inventories and accounts payable of Belgian firms. On the basis of these results he suggested

that managers could create value for their shareholders 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.

Muhammad & Haider (2011) have studied that impact of working Capital Management on firms' performance for non-financial institutions listed in Karachi Stock Exchange (KSE30) Index in Pakistan. A panel data has been used in this study for 21 Kse-30 Index listed firms over a period for the year 2001 to 2010. The result indicated that there is a negative relationship between cash conversion cycle, account collection period and inventory conversion period with firm's performance but positive for liquidity. he concluded that managers can increase value of share holder and return on asset by reducing their inventory size, cash conversion cycle and account receivable. In other hand increase in liquidity will leads firms' overall performance.

Afeef (2011) examined to determine the potential effect of working capital management on the profit performance of Small and Medium sized firms in Pakistan. He found that a

negative relation for inventory conversion period and cash conversion period with return on asset. But revealed that an insignificant positive relation for current ratio.

According to the study of Gill, Biger, & Mathur (2010) the relationship between working capital management and profitability; evidence from the United States. They found a positive relationship between a cash conversion cycle and gross operating profit, if firms that have higher cash conversion cycle will have larger profitability. But, they observed a negative relationship between average days of account receivable between profitability. In addition the finding indicated that slow collection of account receivables is correlated with low profitability. Regarding to this, managers can improve profitability by reducing the credit period granted to their customers. In contrary other researcher's, they didn't get statically significant relationship between gross operating and account payable.

Dong & Su, (2010), studies revealed that based on secondary data collected from listed firms in Vietnam market for the period of 2006 to 2008 with an attempt to investigate the relationship between profitability measured in terms of gross operating profit, cash 17 conversion cycle and its components for listed firms in Vietnam stock market. They found that negative significant relationship exist between number of days account receivable, number of days inventory conversion and cash conversion cycle with profitability; but significant positive relationship exist between account payment period and profitability. The researcher concluded that, the working capital management plays an important role for the success or failure of firms in business because of its effect on firm's profitability as well on liquidity. The cash conversion cycle increase, it will lead to declining of profitability. They conclude that managers can maximize their value of stakeholders by reducing the number of day's cash conversion cycle, number of days account receivable and number of inventories period to reasonable range.

Ali and Syed (2012) studied working capital management, is really affects the profitability? The data were taken from 2003 to 2008 from balance sheet of 15 companies in Pakistan. They considered profitability as dependent variable whereas working capital and total assets are independent variables. Analysis found by using ordinary least square method, indicates a positive impact of working capital and total asset on profitability. They concluded that efficient management of working capital and having more total asset

can lead firms to profitability. Therefore, the firms should improve their receivables and current assets components for sufficient working capital.

Afande (2015) examined Relationship working capital management and profitability of cement companies in Kenya. He found that efficient working capital management increases firms profitability, hence a negative relationship between the measure of current ratio and profitability variable.

Hassan et al., (2014) studied the effects of working capital management on firm performance: empirical studies of non-financial listed firms in Pakistan based on the data were taken from the annual reports during the period covered 2007-2010. Return on asset one of the dependent variables was used measure firm's performance. They found in their study average age of inventory and average collection period is positively related return on asset but Average payment period had insignificant association return on asset. The insignificant positive inventories association with return on asset may the increasing of sales which leads to higher profit but thus reduce the level of inventories. According to Hassan et al better management of receivables have a positive impact on firm's performance; moreover, it confirms the reduction of account receivables in turn positively affects the firm's profitability.

Eljelly (2004) examined that the relation between profitability and liquidity, as measured by current ratio and cash gap (cash conversion cycle) on sample of joint stock companies in Saudi Arabia. The study revealed that cash gap; current ratio and firm's size has significant negative relation with firm's profitability. The researcher concluded that a certain liquidity levels are desirable and sometimes unavoidable. However, unnecessary costs that borne by companies as the result of holding excessive liquidity.

Lazaridis and Tryfonidis (2006) investigated the relationship that is statistically significant between corporate profitability, the cash conversion cycle and its components. They used a sample of 131 companies listed in the Athens Stock Exchange for the period of 2001-2004. The independent variables used were fixed financial assets, the natural logarithm of sales, financial debt ratio, cash conversion cycle and its components – day's inventory, days receivable and day's payable. The dependent variable is profitability measured by gross operating profit. The research findings showed negative relationship between cash conversion cycle, financial debt and profitability, while fixed financial

assets have a positive coefficient. The authors conclude that companies can create more profit by handling correctly the cash conversion cycle and keeping each different component to an optimum level.

Padachi (2006) examined the trends in working capital management and its impact on firm's performance. The results proved that a high investment in inventories and receivables is associated with lower profitability. Further, he showed that inventory days and cash conversion cycle had positive relation with profitability. On the other hand, account receivables days and accounts payable days correlated negatively with profitability. A study on value added, productivity and performance of few selected companies in Sri Lanka with the sample of 15 financial companies listed under the Colombo Stock Exchange (CSE) reveals that, profit before tax per employee and value added per rupee of fixed asset is positively correlated and labor cost to sales and gross profit is also positively correlated.

Afza and Nazir (2007) studied 208 public limited companies listed at Karachi Stock Exchange (KSE) for a period of 1998 to 2005. Through cross-sectional regression models on working capital policies, profitability and risk of the firms; they found a negative relationship between the profitability measures of firms and degree of aggressiveness on working capital investment and financing policies. Their result indicates that, the firms yield negative returns followed on an aggressive working capital policy by investigating the relative relationship between the aggressive or conservative working capital policies.

In a similar study but based on working capital management and profitability in Pakistani firms Raheman and Nasr (2007) studied the effect of different variables of working capital management including average collection period, inventory turnover in days, average payment period, cash conversion cycle, and current ratio on the net operating profitability. They selected a sample of 94 Pakistani firms listed on Karachi Stock Exchange for a period of six years from 1999 - 2004 and found a strong negative relationship between variables of working capital management and profitability of the firm. They found that as the cash conversion cycle increases, it leads to decreasing profitability of the firm and managers can create a positive value for the shareholders by reducing the cash conversion cycle to a possible minimum level.

Samiloglu and Demirqunes (2008) found that working capital policies are the main determinants of a firm's profitability as far the working capital is concerned. Though they never say which working capital policy guarantees a higher profitability, their studies only mention conservative policy with no reference to the remaining two - aggressive and moderate Policies. They carried out a study on a sample of fifty listed manufacturing firms at the Istanbul stock exchange, Turkey, for a period of ten years, which was from 1998 to 2007. Their dependent variable of the regression model was return on assets. Their empirical results show that for the mentioned sample and period, capital management policy significantly affects profitability of Turkish manufacturing firms. However, they hasten to add that cash conversion cycle, size of a firm and fixed financial assets have no statistically significant effects on the firm's profitability.

Falope and Ajilore (2009) used a sample of 50 Nigerian quoted non-financial firms for the period 1996 -2005. Their study utilized panel data econometrics in a pooled regression, where time-series and cross-sectional observations were combined and estimated. They found a significant negative relationship between net operating profitability and the average collection period, inventory turnover in days, average payment period and cash conversion cycle for a sample of fifty Nigerian firms listed on the Nigerian Stock Exchange. Furthermore, they found no significant variations in the effects of working capital management between large and small firms.

Mathuva (2009) examined the influence of working capital management components on corporate profitability by using a sample of 30 firms listed on the Nairobi Stock Exchange (NSE) for the periods 1993 to 2008. He used Pearson and Spearman's correlations, the pooled ordinary least square (OLS), and the fixed effects regression models to conduct data analysis. The key findings of his study were that:

- ✓ there exists a highly significant negative relationship between the time it takes for firms to collect cash from their customers (accounts collection period) and profitability,
- ✓ there exists a highly significant positive relationship between the period taken to convert inventories into sales (the inventory conversion period) and profitability, and
- ✓ There exists a highly significant positive relationship between the time it takes the firm to pay its creditors (average payment period) and Profitability.

A.K. Sharma and Satish Kumar (2011) examined the effect of working capital on profitability of Indian firms. They collected data of a sample of 263 non-financial BSE 500 firms listed at the Bombay Stock (BSE) from 2000 to 2008 and evaluated the data using OLS multiple regression. The finding of their study was significantly departed from the various international studies conducted in different markets. The results reveal that working capital management and profitability is positively correlated in Indian companies. The study further reveals that inventory of number of days and number of day's accounts payable is negatively correlated with a firm's profitability, whereas number of days accounts receivables and cash conversion period exhibit a positive relationship with corporate profitability.

Waweru (2011) carried out a study on the relationship between working capital management and the value of companies quoted at the NSE (Nairobi stock exchange). The study used secondary data obtained from annual reports and audited financial statements of companies listed on the NSE. A sample of 22 companies listed on the NSE for a period of seven years from 2003 to 2009 was studied. The average stock price was used to measure the value of the firm. The regression models indicated that there was some relationship between working capital management and the firm's value while the result of the Pearson correlation indicated a negative relationship between average cash collection period, inventory turnover in days, cash conversion cycle and the value of the firm.

Makori and Jagongo (2013) in their paper they analyzed the effect of working capital management on firm's profitability in Kenya for the period 2003 to 2012. For this purpose, balanced panel data of five manufacturing and construction firms each which are listed on the Nairobi Securities Exchange (NSE) was used. The dependent variable, firm's profitability, was measured by return on asset. With regard to independent variables, average collection period, inventory conversion period, average payment period and cash conversion cycle were used to measure working capital management. Pearson's correlation and ordinary least squares regression models were used to establish the relationship between working capital management and firm's profitability. The study found a negative relationship between profitability and number of day's accounts

receivable and cash conversion cycle, but a positive relationship between profitability and number of days of inventory and number of day's payable.

Yadav and Kumar (2014) studied the relationship between working capital management determinants on profitability. Profitability is a dependent variable whereas determinants of working capital are independent variables such as average collection period, inventory turnover in days, average payment period, cash conversion cycle, and net trading cycle were used to assess working capital management, and return on total assets. The study has considered sample of the size of ten large scale steel manufacturing companies in India over a ten year period from 2003 to 2013. The analysis was done by using OLS regression, shows whether there is a significant relationship between these variables. From the study, though it is evident that working capital management does not have a significant impact on profitability.

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

Tewodros (2010), studied the effect of management of working capital policies on firm's profitability a sample of 11 manufacturing private limited companies in Tigray region, Ethiopia for the period of 2005-2009. The finding of descriptive statistics shows that, on average cash conversion cycle takes 313days and with minimum and maximum days of - 315 and 2264 respectively. It also took an average 314days to sell inventory. Firms wait an average 120days to pay their purchases and receive payment against sales on an average of 118days. 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.

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 97days 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

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

Tiringo (2013) examined impact of working capital management on profitability of micro and small enterprises in Ethiopia for the case of Bahir Dar City Administration. The study had taken a sample of 67 micro and small enterprises. Data for this study was collected from the financial statements of the enterprises listed on Bahir Dar city micro and small enterprises agency for the year 2011. The study applied Pearson's correlation and OLS regression with a cross sectional analysis the result showed that there is a strong positive relationship between number of day's accounts payable and enterprises

profitability. However, number of days accounts receivable, number of days inventory and cash conversion cycle have a significant negative impact on profitability.

Wubshet (2014) examined the impact of working capital management on firm's performance by using a sample of 11 metal manufacturing private limited companies in Addis Ababa, Ethiopia for the period of 2008 to 2012. The performance was measured in terms of profitability by return on total assets, and return on investment capital as dependent financial performance (profitability) variables. Results indicate that longer accounts receivable and inventory holding periods are associated with lower profitability. 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 cash conversion cycle, account receivable period, inventory conversion period and account payable period with return on investment capital has been observed. 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. The results conclude that cash conversion cycle has significant negative relationship with return on asset.

Mifta (2016) examined that the impacts of working capital management on profitability of manufacturing share companies in Ethiopia. During his study, He was measured firms performance in terms of return on asset which is a dependent variable and average collection period, average payable period and inventory conversion period and cash conversion cycle as an independent variable. The finding showed that a negative relationship between average collection period, inventory conversion period and cash conversion period with profitability. However, he found that a positive relationship between average payable period with profitability.

Niman (2015) studied on the impact of working capital management on firm's profitability evidence from selected manufacturing companies in Somali regional state, Ethiopia. In his study he has found that there is significant negative relationship between liquidity and profitability. The study also revealed that there is a negative relationship between firm's size and profitability in general he conclude that firm's financial managers can create profit by improving working capital component management at optimum level.

Ayneshet Agegneu(2019) studied on the effect of working capital management on firm's profitability evidence from Selected Manufacturing and Merchandising Companies in Hawassa City Administration in his study he has found that Working capital plays a vital role in the company's operations and requires the efficient management. The management of working capital concerns the management of cash, inventories, accounts receivable and accounts payable. It is necessary for a company to monitor its working capital properly and maintain its balance at the appropriate level. Shortage of working capital may lead to lack of liquidity as well as loss of production and sales; on the contrary, excess balance of working capital could be seen as loss of investment opportunities. To conclude, the expectation on the signs of effect of working capital management component is now partially met. Manufacturing sector is seen to mostly meet that expectation. In this sector, inventory period and cash conversion cycle were found to have negative effect on company profitability in both Fixed Effects and Ordinary Least Square regressions while accounts receivable period was seen to negatively affect the company profitability, witnessed by Ordinary Least Squares regressions.

2.3 Conclusions and knowledge gaps emerged from survey of related literature

Above all, a review of prior literature reveals that there exists a significant negative relationship between profitability and working capital management by using different working capital variables selection for analysis as well by using different measurement of profitability like ROA, ROI, ROE and GOP.

From the empirical study listed above it could be depicted that working capital have impact on profitability. Mathuva (2009) found out that shortening days in collection period would result in increase on profitability and further noted that companies with shorter accounts payable period are less profitable and quick turn of inventory would increase profitability. In another way, Sharma and Kumar (2011) found that WCM and profitability is positively correlated. Their study reveals that ARP and CCC exhibit a positive relationship with profitability as well days account payable and inventory of number of days are negatively correlated with firms profitability. Tewodros (2010) also suggested that reduction of CCC and quick turnover of inventory would increase

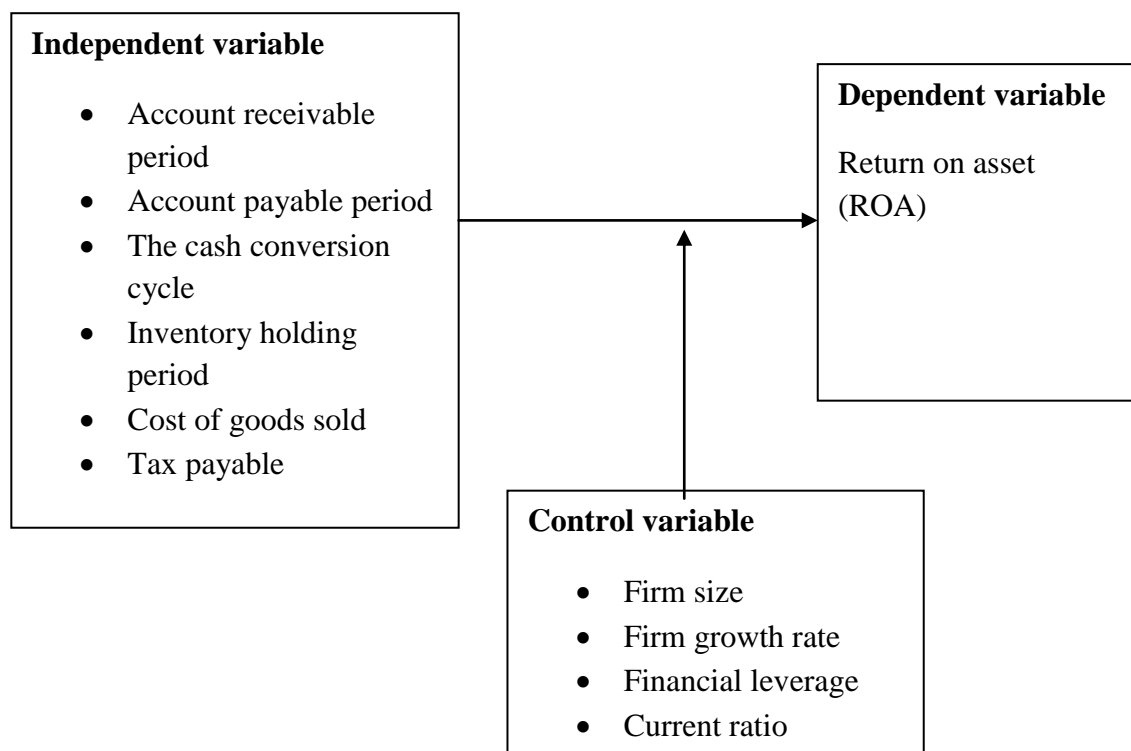
profitability. Tiringo (2013) also suggested that firms with shorter account payable period are less profitable.

It is clear from the empirical evidence; there are no common results on the impact of WC on profitability. This may be due to lack of not incorporating all relevant and most important variables used to measure both WC and profitability. Therefore, this study was included the major important variables and provides useful support for better understanding of the impact of management of working capital on profitability of manufacturing companies in Hawassa city

2.4. The Conceptual framework

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

Figure 3 Schematic conceptual frameworks



Source: - Researcher's Own works based on literature

2.5. Research gap

Most studies conducted on effect of working capital management on profitability of manufacturing companies as indicated above in different world countries as per the knowledge of the researcher and those all studies focused on overdone variables repetitively except the variable which is tax payable and cost of goods sold the researcher tried to identify major relevant variables which are missed or not included in previous studies. So as to reveal the contents or new variables, all variables would enhance the finding and fill the problem of missing important variables which was observed in previous studies and in their dimensions in depth. Previous studies conducted in Ethiopia more of focused on the cities of Addis Ababa - Ethiopia. So that, this work would contribute to fill the research gap of working capital management existed at regional level and what factors mostly affecting the profitability of manufacturing plc company in Hawassa city, Ethiopia In light of the above-mentioned fact, it is vital to investigate the factors that affect the profitability manufacturing companies in Hawassa city then this study tries to answer the important question of how the profitability of manufacturing companies was affect. Finally up to know no much of empirical studies are conducted on the effect of working capital management on profitability of manufacturing company in this city. and also some of these variables are not supported by the recent empirical study conducted by above listed researcher's Therefore; the purpose of this study is to identify the common effect that determine the profitability of manufacturing company and to add some values on the knowledge's of working capital management by exploring the common factors of the manufacturing companies in Hawassa city, Ethiopia

CHAPTER THREE

RESEARCH DESIGN AND METHODOLOGY

Introductions

The previous chapter described a theoretical 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 designs, data source and Collection methods, population and sample size, description of variables, method of data analysis, model specifications and diagnostic tests.

3.1 description of the study area

Hawassa is a city in Ethiopia, on the shores of Lake Hawassa in the rift valley Located 275 km Away from Addis Ababa to the south via Debrezeit, 130 km east of Sodo, 75 km north of Dilla, and 1125 km north of Nairobi. Hawassa is the capital city of SNNPRS and is a special zone of this region. The population of Hawassa around 380, 000 Hawassa City was founded in 1952 E.C during the period of Emperor Hailesilassie. Hawassa to the city has got both its name and beauty from Lake Hawassa means 'wide' in Sidama language: one of the widely spoken languages in the area. Now, the city and the lake share a common name i.e Hawassa. The total surface area of Hawassa City is 157.2 square kilometers; it is divided into 8 sub -city administrations. The largest sub-city in terms of area is Hawella-Tula. Hawassa is located in southern Ethiopia, between the 7° 3' latitude North and 38° 29' longitude east. The study will be conducted at a manufacturing Company in Hawassa city (Source: SNNPRS Finance and Economic Development Bureau)

3.2. Research Design

Research design is the plan and structure of investigation so conceived as to obtain answers to research questions. The plan is the overall scheme or program of the research the main purpose of this research is to examine the effect of working capital management on the profitability of manufacturing companies in hawassa city for the period of the year

2011 to the year 2020. The study adopted explanatory research that used a quantitative research design through the use of secondary data.

According to Grover (2003) explanatory research is devoted to finding causal relationships among dependent and independent variables. It does so from theory-based expectations on how and why variables should be related. Hypotheses could be basic (i.e., relationships exist) or could be directional (i.e., positive or negative). The quantitative data gathering methods were useful especially when a study needs to measure the cause and effect relationships evident between pre-selected and discrete variables (Addisu, 2011).

The justification for this method is that it is expected to assist the researcher in explaining the effect of working capital management on the profitability of manufacturing companies in Hawassa city. Furthermore, as the research design goes beyond the description of the phenomena, it enables the researcher to use theory-based expectations on how and why the variables associate.

3.3 Sources of Data and Data Collection Technique

The research study employed the use of a secondary source of data. The secondary data were derived from the financial statements of selected manufacturing companies. The importance of using the secondary data is very easy to collect (Ease of Access Time and Cost-Effective) and allows to generate new insights from previous analysis where researchers have to find the source of that data and then collect it all, (Fikirite, 2011). These data include the audited balance sheet and profit and loss accounts showing annual financial statements of the sampled companies. The data were collected for ten years. The period of the data collection was from the years 2011 to 2020. The specific data collected covering this ten-year period considering the variables used in the study have been collected.

3.4. Target population

A 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 was

thirty-six manufacturing plc companies in Hawassa city the population inference is made due to the availability of the data necessary for the study.

3.5 Sampling technique

The researcher has been used ten years of panel data (time-series data and cross-sectional data) as the objective of the study is to analyze the relationship between the stated dependent and Independent variables. In selecting firms included in this study, purposive sampling techniques have been used. The purposive sampling method was used due to the following reasons. The study first selects the different manufacturing companies which have different backgrounds in terms of the nature of their operation; capital invested, composition, and need for working capital. That means the companies don't have a homogeneous background.

Second, this helps avoid bias that may result from industrial classification since firms operating in different industries have different decision criteria in selecting sources of funds needed for executing investment opportunities and have different working capital requirements. To mitigate this problem the researcher has been limited the study population only to those companies engaged in manufacturing companies in Hawassa city. The other criterion that has been used in selecting sample units to be included in the study was hold a complete 10 years financial statement data which is from 2011 to 2020. The reason for selecting this period is due to the latest data for the investigation available for these periods. Therefore, According to ERCA in Hawassa City, there are 34 manufacturing plc companies in the city. And the sample size consists of 15 manufacturing companies which are 44 percent of the population.

3.6. Method of Data Analysis

To analyze the data, different kinds of statistical methods including descriptive statistics and inferential were used. Furthermore, descriptive is applied for output in terms of, mean, maximum, minimum, and standard deviation of the variables considered in this study. Regressions and Pearson's coefficient correlation were used. In addition, E-view software version 10 was used for processing and converting the raw data into meaningful full information for this study.

First, this study was collected the needed data from Ethiopia's revenue and customs authority office in hawssa city and manufacturing firms who agree to provide their financial statement to the study. After that, collected data are rearranged, edit and

calculated to become complete data that is needed for this study. Next, the collected data were analyzed by using E-views. Software The last step is interpreting the result of E-view version 10's.

3.7.1 Ordinary least square

According to (Brooks, 2008), ordinary least squares (OLS) or linear least squares is a method to estimate the slope and intercept in a linear regression model. This study uses an ordinary least squares (OLS) regression to estimate the equation. According to Brooks (2008), the assumptions of ordinary least squares are:

- 1) The errors have zero mean.
- 2) The variance of the errors is constant and finite over all values.
- 3) The errors are linearly independent of one another.
- 4) There is no relationship between the error and corresponding x variate.

3.7.2 Diagnostic Analysis

Diagnostic test is conducted to examine whether the sample is consistent with these assumptions:

- 1) The model is correctly specified
- 2) There is no relationship between independent variables (No multicollinearity).
- 3) There is no relationship between the error term at the period t and the error term at a 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.

If all the above assumptions are consistent with the sample, the E-view result will be accurate and reliable.

3.8.2 Model selection criteria (Random vs. Fixed effect model)

In this research, the method used in each model is selected based on the Correlated Random Effects-Hausman Test. The Hausman test examines whether the unobservable heterogeneity term is correlated with explanatory variables while continuing to assume that repressors are uncorrelated with the disturbance term in each period. The null hypothesis for this test is that the unobservable heterogeneity term is not correlated or random-effect model is appropriate, with the independent variables. If the null hypothesis is rejected then we employ the Fixed Effects method. (Padachi, 2006)

The pooled regression assumes that the intercepts are the same for each firm. This may be an inappropriate assumption; (Brooks, 2008) recommended that we could instead estimate a model with firm fixed effects, which allows for latent firm-specific heterogeneity. The simplest types of fixed effects models allow the intercept in the regression model to differ across -sectionals.

To determine whether the fixed effects are necessary or not, this study runs HausmanTest.

H0: Random Effects model is appropriate

H1: Fixed Effects model is appropriate

Decision Rule: Reject H0 if p-value less than significance level 5%. Otherwise, do not reject H0.

Table 2: Redundant fixed effect test

Model 1: ROA C ARP CR FL FG F

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	48.329015	5	0.0000

Model 2: ROA C APP CR FL FG FS

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	44.419269	5	0.0000

Model 3: ROA C CC CR FL FG FS

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	45.764390	5	0.0000

Model 4: ROA C IHP CR FL FG FS

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	68.175616	5	0.0000

Model 5: ROA C CGS CR FL FG FS

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	46.474070	5	0.0000

Model 6: ROA C TP CR FL FG FS

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	48.433550	5	0.0000

Source: E-Views output results and author's computation 2011-2020

Based on the Hausman test result above table 2 the p-value is significant at 5% level, therefore, we can reject the null hypothesis which states the Random effect model is appropriate. The final estimation model used fixed in this study is the fixed effect model.

3.8 Model specifications

To analyse the effect of working capital management on profitability, the study was used the following methods: 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. And 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 used in regression analysis, wherein time series and cross-sectional observations are

combined in determining the causal relationship between a dependent variable and the independent variables were used in the study.

3.8.1 General regression model

To examine the effect of working capital management on the profitability of manufacturing share companies in Ethiopia, the model used by (Samiloglu & Demirgunes, 2008) has been adopted and adapted. Generally, this model is specified as:

$$ROA_{it} = \beta_0 + \sum \beta_i X_{it} + \varepsilon_{it}$$

Where:

ROA_{it} is Return on Asset of firm i at time t; i= 1, 2, 3, 4..... 15firms

B₀ is the intercept of the equation

B_i are coefficients of X_{it} variables

X_{it} are independent variables at time t

t = time= 1, 2.....10years (from year 2011 to 2020)

ε_i is the error term

This model is used to test the hypothesis;

$$ROA_{it} = B_0 + B_2 (ARP_{it}) + B_3 (APP_{it}) + B_4 (CCC_{it}) + B_5 (IHP_{it}) + B_6 (CGS_{it}) + B_7 (TP_{it}) + B_8 LnTA_{it} + B_9 (FL_{it}) + B_{10}(CR_{it}) + B_{11}(FG_{it})$$

3.8.2 Specific regression model

Pooled OLS regressions are simply linear regression applied to the whole data set. One of the biggest advantages of the OLS method is that it relaxes the restriction of an enough large data set and simplicity. (Deloof, 2003; Garcia-Teruel & Martinez-Solano, 2006; Padachi, 2006) used OLS to investigate the effect of WCM on the profitability of manufacturing companies.

Six regression models were run in which one for all the variables based on selected sample companies. When the above general model is converted to the specified variables of this study the following regression equations were run to obtain the effect of working capital management on the profitability of manufacturing firms.

Model Specification (I) regressed for accounts receivable period

$$\text{Model 1: } ROA_{it} = \beta_0 + \beta_1 (ARP_{it}) + \beta_2(CR_{it}) + \beta_3(FG_{it}) + \beta_4(FL_{it}) + \beta_5(FS_{it}) + \varepsilon_{it}$$

Model Specification (II) regressed for account payable period

$$\text{Model 2: } ROA_{it} = \beta_0 + \beta_1 (APP_{it}) + \beta_2(CR_{it}) + \beta_3(FG_{it}) + \beta_4(FL_{it}) + \beta_5(FS_{it}) + \varepsilon_{it}$$

Model Specification (III) regressed for cash conversion cycle

$$\text{Model 3: ROA}_{it} = \beta_0 + \beta_1 (\text{CCC}_{it}) + \beta_2 (\text{CR}_{it}) + \beta_3 (\text{FG}_{it}) + \beta_4 (\text{FL}_{it}) + \beta_5 (\text{FS}_{it}) + \varepsilon_{it}$$

Model Specification (iV) regressed for inventory holding period

$$\text{Model 4: ROA}_{it} = \beta_0 + \beta_1 (\text{IHP}_{it}) + \beta_2 (\text{CR}_{it}) + \beta_3 (\text{FG}_{it}) + \beta_4 (\text{FL}_{it}) + \beta_5 (\text{FS}_{it}) + \varepsilon_{it}$$

Model Specification (V) regressed for cost of goods sold

$$\text{Model 5: ROA}_{it} = \beta_0 + \beta_1 (\text{CGS}_{it}) + \beta_2 (\text{CR}_{it}) + \beta_3 (\text{FG}_{it}) + \beta_4 (\text{FL}_{it}) + \beta_5 (\text{FS}_{it}) + \varepsilon_{it}$$

Model Specification (VI) regressed for Tax payable

$$\text{Model 6: ROA}_{it} = \beta_0 + \beta_1 (\text{TP}_{it}) + \beta_2 (\text{CR}_{it}) + \beta_3 (\text{FG}_{it}) + \beta_4 (\text{FL}_{it}) + \beta_5 (\text{FS}_{it}) + \varepsilon_{it}$$

Where: β_0 = intercept of the regression

$\beta_1, \beta_2, \beta_3, \beta_4,$ and β_5 = coefficients on each respective explanatory variables,

ROA_{it} = Return on asset – for firm i at corresponding time t .

ARP_{it} = Account receivable Period – for firm i at corresponding time t .

APP_{it} = Account payable period - for firm i at corresponding time t .

CCC_{it} = cash conversion cycle - for firm i at corresponding time t .

IHP_{it} = Inventory holding period - for firm i at corresponding time t .

CGS_{it} = Cost of goods sold- for firm i at corresponding time t .

TP_{it} = Tax payable - for firm i at corresponding time t .

CR_{it} = Current ratio - for firm i at corresponding time t .

FG_{it} = firm growth for firm i at corresponding time t .

FL_{it} = firm leverage ratio for firm i at corresponding time t .

FS_{it} = firm size i at corresponding time t .

t = time = 1, 2, ..., 10 (from year 2011 to 2020), and

ε_{it} = is the error term of the regression – for firm i at time t

In the first regression model, the ARP has been regressed against the ROA. In the second regression model, the APP has been regressed against the ROA. The third regression model involves a regression of the CCC against the ROA. In the fourth regression model, the IHP is regressed against the ROA. In the fifth regression model, the cost of goods

sold is regressed against the ROA In the six regression model, the tax payable is regressed against the ROA

3.9 Description of variable

In this study, the choice of explanatory variables was 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.

3.9.1 Dependent variable

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

$$\text{Return on asset (ROA)} = \frac{\text{net income}}{\text{total asset}}$$

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

3.9.2 Independent variables

The explanatory variables to be used as proxies of working capital management are (1) account receivable period (2) account payable period (3) cash conversion cycle (4) inventory holding period (5) cost of goods sold (6) tax payable

While this study explores the effect of the aforementioned six variables on profitability, it is noted that this list of the selected variables is not exhaustive as several working capital components can affect profitability. The choice of explanatory variables is based on the following factors: 1) alternative theories related to working capital management (for example, one theory stating that a longer cash conversion cycle increases firm profitability given that it leads to higher sales, and the opposing theory stating that

corporate profitability decreases as cash conversion cycle elongates, particularly if the costs of higher investment in working capital rise faster than the benefits of holding more inventory and/or granting more trade credit to customers and 2) working capital management variables used in previous studies conducted in other geographic jurisdictions has been used to calculate the relationship between working capital management and profitability. The description of how the variables are measured and computed is explained below.

Accounts Receivable Period

The accounts receivable period measures the number of days it takes to collect cash from debtors. (Fried et al, 2003) state that days sales in receivables measure the effectiveness of the firm's credit policy. It indicates the level of investment in receivables needed to maintain the firm's sales level.

$$\text{Account receivable period} = \frac{\text{Account receivable}}{\text{net sale}} \times 365$$

Accounts Payable Period

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

$$\text{Account Payable Period (APP)} = \frac{\text{Account payable}}{\text{cost of goods sold}} \times 365 \text{ day}$$

Cash Conversion Cycle

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:

$$\text{Cash Conversion Cycle (CCC)} = \text{Accounts Receivable Period (ARP)} + \text{Inventory Holding Period (IHP)} - \text{Accounts payable Period (APP)}$$

$$\text{Accounts Receivable Period (ARP)} = \frac{\text{Account Receivable}}{\text{sale}} \times 365 \text{ day}$$

Inventory Holding Period

Inventory holding period measures the number of day's inventory is held by the company before it is sold. The less number of days sales in inventory indicates that inventory does not remain in warehouses or on shelves but rather turns over rapidly from the time of acquisition to sale (Fried et al, 2003). This ratio measured as follows: Inventory Holding

$$\text{Period (IHP)} = \frac{\text{Inventory}}{\text{cost of goods sold}} \times 365 \text{ day}$$

Cost of goods sold

The COGS is an important metric on the financial statements as it is subtracted from a company's revenues to determine its gross profit. The gross profit is a profitability measure that evaluates how efficient a company is in managing its labor and supplies in the production process. Because COGS is a cost of doing business, it is recorded as a business expense on the income statements. Knowing the cost of goods sold helps analysts, investors, and managers estimate the company's bottom line. If COGS increases, net income will decrease. While this movement is beneficial for income tax purposes, the business will have less profit for its shareholders. Businesses thus try to keep their COGS low so that net profits will be higher (www.investopedia.com.)

To measure cost goods sold would be: Cost of goods sold = BI + purchase _EI

Tax payable

Taxes payable are accrued expenses and are placed on their line on the balance sheet because the amounts can be large and, in most cases, are estimates. The first appropriation out of profits is payment or provision for tax. The amount of taxes to be paid is determined by the prevailing tax regulations. The management has no discretion in this respect. Very often, taxes have to be paid in advance based on the profit of the preceding year. Tax liability is, in a sense, short-term liability payable in cash. An adequate provision for tax payments is, therefore, an important aspect of working capital planning. If tax liability increases, it leads to an increase in the requirement of working capital and vice-versa

Control Variables

In order to have a reliable analysis of the impact of working capital management on profitability of the firms, it is common in working capital literature to use some control variables which brought impacts on firm's profitability. The control variables used in the study are:

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

The ratio is measured as follows:

$$\text{Current Ratio (CR)} = \frac{\text{current asset}}{\text{current liability}}$$

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 Peterson, 2003). FS was used as one of the control variable for the study. Firm's Size = Natural logarithm of firm's Total Assets

Firm Growth rate (Grw) – it is the rate of growth of a company measured by change in its annual sales. It is computed as: $\frac{\text{current year sale} - \text{last year sales}}{\text{last year sale}} \times 100$ Were used as control variables. This control variable is consistent with the like of (Deloof, 2003); (Afza and Nazir, 2007).

Firm Leverage (FL): as measured by debt ratio which is calculated by total debt to total asset Fabozzi and Peterson (2003) to keep debt utilization effect constant, firm leverage was used as control variable . $Le = \frac{\text{total debt}}{\text{total asset}}$

CHAPTER FOUR

4. DATA ANALYSIS, RESULTS AND DISCUSSION

4.1 Introduction

This chapter presents and discusses the empirical results on the impact of working capital management on a firm's profitability. The study provided two types of data analysis; namely descriptive analysis and inferential analysis. First, 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. For the inferential analysis, a regression result that outlines an in-depth examination of the relationship between profitability and the various variables under consideration was discussed and attempts to test the hypothesis.

4.2 Diagnostic tests

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

4.2.2 Multicollinearity Test

Multicollinearity means that there is a linear relationship between explanatory variables which may cause the regression model biased (Gujarati, 2004).

In any practical context, the correlation between explanatory variables is non-zero; although this was generally relatively begin the sense that a small degree association between explanatory variables was almost always occur but not were cause too much loss of precision. He stated that the most important concern is that as the degree of multicollinearity increases, the regression model estimates of the coefficients become unsteady and the standard errors for the coefficients can get uncontrollably inflated (Chris, 2008).

Hailer et al., (2006) argued that a multicollinearity problem exists when the correlation coefficient among the independent variables in the study is greater than 0.9.

Table 3: correlation matrix between explanatory variable

	ROA	APP	ARP	CCC	CGS	IHP	TP	CR	FG	FL	FS
ROA	1.000000	0.374548	0.750261	-0.390085	-0.109119	-0.541977	0.256770	-0.686972	-0.793064	0.142635	0.571349
APP	0.374548	1.000000	0.567221	-0.150664	-0.034069	-0.055637	0.027238	-0.098958	-0.468945	0.106549	0.399519
ARP	0.750261	0.567221	1.000000	-0.304567	-0.140055	-0.351827	0.159544	-0.593063	-0.755556	0.102731	0.459594
CCC	-0.362449	-0.176212	-0.287640	1.000000	-0.015518	0.043650	-0.101640	0.424298	0.495313	-0.036295	-0.206334
CGS	-0.109119	-0.034069	-0.140055	-0.064997	1.000000	0.227561	0.007230	0.214879	0.191354	0.012280	-0.075263
IHP	-0.541977	-0.055637	-0.351827	0.067650	0.227561	1.000000	-0.289133	0.333053	0.439754	0.022694	-0.304820
TP	0.256770	0.027238	0.159544	-0.084947	0.007230	-0.289133	1.000000	-0.278392	-0.231281	-0.022654	0.195062
CR	-0.686972	-0.098958	-0.593063	0.435068	0.214879	0.333053	-0.278392	1.000000	0.705986	-0.007442	-0.445890
FG	-0.793064	-0.468945	-0.755556	0.487694	0.191354	0.439754	-0.231281	0.705986	1.000000	-0.004198	-0.561942
FL	0.142635	0.106549	0.102731	-0.037454	0.012280	0.022694	-0.022654	-0.007442	-0.004198	1.000000	0.059285
FS	0.571349	0.399519	0.459594	-0.246816	-0.075263	-0.304820	0.195062	-0.445890	-0.561942	0.059285	1.000000

Source: E-Views output results and author's computation 2011-2020

4.2.3 Test for serial correlation

Serial correlation is usually a result of model misspecification or genuine autocorrelation of the model error term. In the presence of such a phenomenon, ordinary least squares are no longer BLUE (Best Linear Unbiased estimators). In such cases, R-squared may be overestimated. There was thus every need to test for serial correlation in the residuals.

According to Brooks (2008) when the error term for any observation is related to the error term of other observation, it indicates that autocorrelation problem exists in this model. In the case of the autocorrelation problem, the estimated parameters can still remain unbiased and consistent, but it is inefficient. The result of the T-test, F-test, or the confidence interval will become invalid due to the variances of estimators tending to be underestimated or overestimated. Due to the invalid hypothesis testing, it may lead to misleading results on the significance of parameters in the model. Breusch-Godfrey Serial Correlation LM Test was used to detect autocorrelation problems.

Ho: $\rho=0$, i.e. no serial correlation

H1: $\rho=1$ i.e. presence of serial correlation

Decision Rule: Reject H0 if p-value less than significance level. Otherwise, do not reject Ho

Table 4: Breusch-Godfrey Serial Correlation LM Test

Model 1: ROA C ARP CR FL FG F

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	34.87441	Prob. F(2,142)	0.0000
Obs*R-squared	49.40912	Prob. Chi-Square(2)	0.0000

Model 2: ROA C APP CR FL FG FS

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	53.87024	Prob. F(2,142)	0.0000
Obs*R-squared	64.71147	Prob. Chi-Square(2)	0.0000

Model 3: ROA C CC CR FL FG FS

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	52.23645	Prob. F(2,142)	0.0000
Obs*R-squared	63.58076	Prob. Chi-Square(2)	0.0000

Model 4: ROA C IHP CR FL FG FS

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	30.38617	Prob. F(2,142)	0.0000
Obs*R-squared	44.95609	Prob. Chi-Square(2)	0.0000

Model 5: ROA C CGS CR FL FG FS

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	51.54527	Prob. F(2,142)	0.0000
Obs*R-squared	63.09334	Prob. Chi-Square(2)	0.0000

Model 6: ROA C TP CR FL FG FS

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	51.55303	Prob. F(2,142)	0.0000
Obs*R-squared	63.09884	Prob. Chi-Square(2)	0.0000

Source: E-Views output results and author's computation 2011-2020

4.2.4. Heteroscedasticity

According to (Brooks, 2008), Heteroscedasticity means that error terms do not have a constant variance. If heteroscedasticity occurs, the estimators of the ordinary least square method are inefficient and hypothesis testing is no longer reliable or valid as it were underestimate the variances and standard errors. There are several tests to detect the heteroscedasticity problem, which are Park Test, Glesjer Test, Breusch-Pagan-Godfrey Test, White's Test, and Autoregressive Conditional Heteroscedasticity (ARCH) test. This study was use Breusch-Pagan-Godfrey Test to detect the presence of Heteroscedasticity.

H0: The model is Heteroscedastic

H1: The model is Homoscedastic

Decision Rule: Reject H0 if p-value greater than significance level. Otherwise, do not reject H0

Table 5: Breusch-Pagan Godfrey Test for Heteroscedasticity

Model 1: ROA C ARP CR FL FG F

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	0.456616	Prob. F(5,144)	0.8079
Obs*R-squared	2.341090	Prob. Chi-Square(5)	0.8002
Scaled explained SS	2.969695	Prob. Chi-Square(5)	0.7047

Model 2: ROA C APP CR FL FG FS

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	2.088400	Prob. F(5,144)	0.0702
Obs*R-squared	10.14167	Prob. Chi-Square(5)	0.0713
Scaled explained SS	12.82367	Prob. Chi-Square(5)	0.0251

Model 3: ROA C CC CR FL FG FS

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.628164	Prob. F(5,144)	0.1562
Obs*R-squared	8.026267	Prob. Chi-Square(5)	0.1548
Scaled explained SS	10.00638	Prob. Chi-Square(5)	0.0751

Model 4: ROA C IHP CR FL FG FS

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	2.418155	Prob. F(5,144)	0.0387
Obs*R-squared	11.61898	Prob. Chi-Square(5)	0.0404
Scaled explained SS	12.31123	Prob. Chi-Square(5)	0.0308

Model 5: ROA C CGS CR FL FG FS

Heteroskedasticity Test: Breusch-Pagan-Godfrey

F-statistic	1.283095	Prob. F(5,144)	0.2744
Obs*R-squared	6.397756	Prob. Chi-Square(5)	0.2694
Scaled explained SS	8.346420	Prob. Chi-Square(5)	0.1381

Model 6: ROA C TP CR FL FG FS

Heteroskedasticity Test: Breusch-Pagan-Godfrey

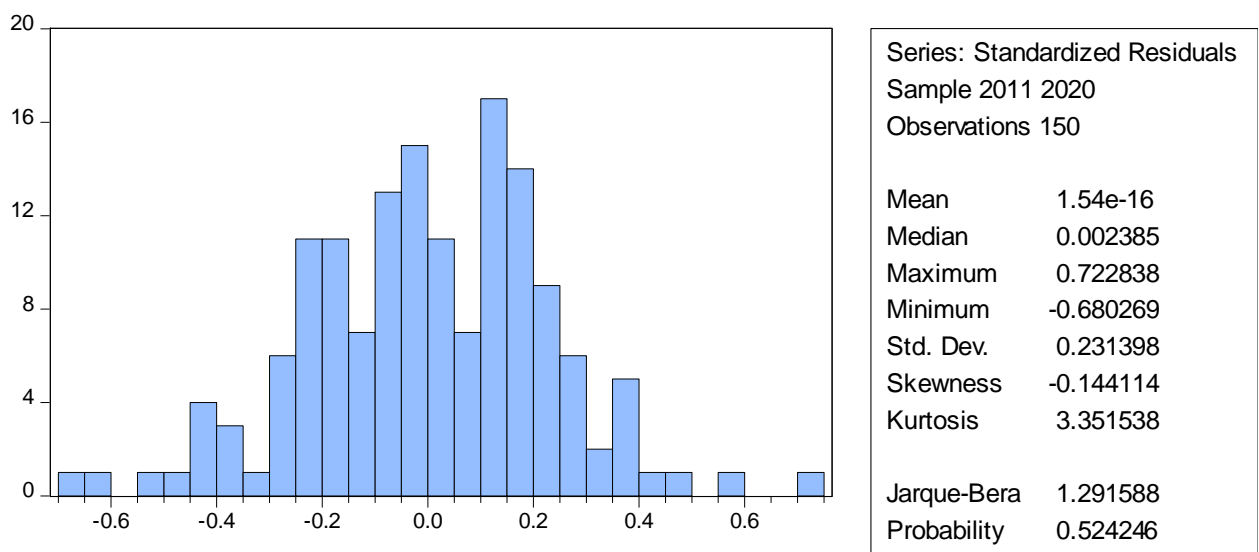
F-statistic	0.882328	Prob. F(5,144)	0.4947
Obs*R-squared	4.458853	Prob. Chi-Square(5)	0.4854
Scaled explained SS	5.437173	Prob. Chi-Square(5)	0.3649

Source: E-Views output results and author's computation 2011-2020

4.2.5 Test for normality

Normality assumption is around the mean of the residuals is zero and used to determine whether a data set is well modeled by a normal distribution or not and also to indicate an underlying random variable is to be normally distributed (Gujarati.2009). Therefore the researcher has used histogram methods of testing the normality of the data. If the residuals are normally distributed about their mean of zero, the shape of the histogram should be a bell-shaped

Figure 4 Histogram regression standardized residual



Source: E-Views output results and author's computation 2011-2020

4.3. Descriptive statistics for the study variables

In this section, the results from descriptive statistics were discussed. Table 6 below presents descriptive statistics of the dependent and independent variables of the study. It shows the mean and standard deviation of the variables used in the study. In addition, it shows the minimum and maximum values of each respective variable which essentially indicates how wide-ranging each respective variable can be.

Table 6: Descriptive statistics

	ROA	APP	ARP	CCC	CGS	IHP	TP	CR	FG	FL	FS
Mean	0.882080	169.9933	264.0800	48.60667	4.840853	43.86667	1.602527	3.236820	33.45901	0.527980	16.22904
Median	1.060000	170.5000	301.5000	44.00000	4.805239	40.00000	1.662330	1.718000	19.66400	0.536000	16.76400
Maximum	1.700000	326.0000	395.0000	300.000	9.146946	159.0000	2.599569	17.17000	129.0000	2.800000	24.56400
Minimum	0.040000	34.00000	48.00000	10.00000	2.923174	2.000000	0.117730	0.023000	10.20000	0.036000	7.873000
Std. Dev.	0.486044	55.06671	87.96373	33.30043	0.940332	30.92938	0.545330	4.176644	25.97370	0.370121	3.971451
Observations	150	150	150	150	150	150	150	150	150	150	150

Source: E-Views output results and author's computation 2011-2020

Table 6 presents descriptive statistics for 15 manufacturing plc companies in hawassa city for ten years from 2011 to 2020. The study has used eleven variables for the analysis purpose which was classified into six independent variables: four independent control variables and one dependent variable. The dependent variable which measures the profitability of the firm is a return on assets. Out of ten independent variables, six are (accounts receivable period, inventory holding period, accounts payable period, cash conversion cycle, cost of goods sold, and tax payable) proxies for the profitability of the sample firms. The remaining four independent control variables used are the firm size as measured by the natural logarithm of sales, leverage of the firms, sales growth rate measured by the relative change in sales as compared to the previous year, and current ratio which measures liquidity.

As it is shown in table 6, the mean value of manufacturing plc company return on asset is around 88.2 percent of total assets. The minimum and maximum value of a firm's return on the asset has 4 percent & 10.7 percent of total assets respectively. The standard deviation indicated that the value profitability can deviate by 40.8 percent. From its mean, firms under the study receive payment on sales on average of 264 days and it can vary by 88 days to both sides of the mean value. The minimum and maximum account receivable period for the sampled firms is 48 and 395 days respectively.

On average, firms wait 169 days to pay for their purchases. Its standard deviation for the firms under study is 55 days which deviates from both sides of the mean value. The accounts payable period ranges from 34 and 326 days to pay their credit purchases.

The cash conversion cycle, used as a comprehensive measure of working capital management, has an average of 48 days and a standard deviation of 33 days. The

minimum value of the cash conversion cycle shows 10 days and on the other way, the maximum time for the cash conversion period is 300 days.

The descriptive statistics show that it takes an average of 43 days to sell inventory. The standard deviation of the inventory holding period is 30 days with 2 and 159 days as minimum and maximum values respectively.

The descriptive statistics show that the cost of doing business is on average 4.8 percent of birr used in the production process. The standard deviation of cost of goods is 0.9 percent and 9.1 and 2.9 Percent of birr as minimum and maximum values respectively

The descriptive statistics show that Tax liability is on average 1.6 percent of birr used in the production process the standard deviation of cost of goods is 0.5 percent and 0.11 and 2.5 Percent of birr as a minimum and maximum values respectively.

Table 6 also includes the descriptive statistics of control variables used in the study. A traditional measure of liquidity (current ratio) shows that on average manufacturing share companies keep current assets at 3.2 times current liabilities with a standard deviation of 4.1 The highest current ratio for a firm in the study period is 17.1 with the lowest at 0.02

The results of descriptive statistics show that the average leverage ratio for the manufacturing share companies is 52 percent with a standard deviation of 37 percent. The maximum debt financing used by the firm is 28 percent and its minimum level is 3.6 percent. This shows that there is a firm that uses little debt in its operation.

The other control variable, firm size, as measured by the natural logarithm of annual sales, is 16 on average and the standard deviation is 3.9 the minimum and maximum values of firm size for the firm measured by the natural logarithm of annual sales are 7.8, and 24.5 respectively.

Lastly, the firm sales growth measured by changes in annual sales has an average of 33.4% and there is a deviation of 25.9 percent from a mean value of sales growth to both directions. The sales growth among the study firms is ranged from 10.2 percent to 129 percent.

4.4 Regression results

This section presents the empirical findings from the e view statistical results on the factors affecting manufacturing company's profitability in hawassa city Ethiopia. The R²

value indicates the explanatory power of the model to explain dependent variables. The P-value indicates the significance of the independent variables.

Adjusted R-square lies between 0 and 1 and also put a rough guideline as a rule of thumb which can be used to see the adjusted R2 value how well our model fits the data. The interval put as a guidelines are: < 0.1: poor fit, 0.11 to 0.30: modest fit, 0.31 to 0.50: moderate fit, >0.50: strong fit ((Daniel, 2004)

The primary objective of data mining is to develop the best model after several diagnostic tests so that the model finally chosen is good in the sense that all the estimated coefficients have the right signs, they are statistically significant based on F tests, the R2 value is reasonably high and the Durbin–Watson (d) has acceptable value around 2 (Gujarati, 2004)

Regression result of model specification I

Model specification I regressed effect of accounts receivable period on ROA.

$$\text{Model 1: ROA}_{it} = \beta_0 + \beta_1 (\text{AR}_{Pit}) + \beta_2(\text{CR}_{it}) + \beta_3(\text{FG}_{it}) + \beta_4(\text{FL}_{it}) + \beta_5(\text{FS}_{it}) + \epsilon_{it}$$

Table 7 Regression results of profitability measures and ARP

Dependent Variable: ROA
 Method: Panel Least Squares
 Date: 11/26/21 Time: 03:30
 Sample: 2011 2020
 Periods included: 10
 Cross-sections included: 15
 Total panel (balanced) observations: 150

Variable	Coefficient	Std. Error	t-Statistic	Prob.
ARP	-7.47E-05	0.000293	-0.254983	0.7991
CR	-0.009597	0.004718	-2.033979	0.0440
FG	-0.000742	0.001255	-0.591164	0.5554
FL	0.021526	0.040176	0.535800	0.5930
FS	0.000583	0.004204	0.138772	0.8898
C	0.936858	0.125699	7.453177	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.913164	Mean dependent var	0.882080
Adjusted R-squared	0.900473	S.D. dependent var	0.486044
S.E. of regression	0.153337	Akaike info criterion	-0.788792
Sum squared resid	3.056588	Schwarz criterion	-0.387374
Log likelihood	79.15942	Hannan-Quinn criter.	-0.625709
F-statistic	71.95146	Durbin-Watson stat	1.582251
Prob(F-statistic)	0.000000		

Source: E-views output results and author's computation 2011-2020

Table 7 reveals the summary statistics of regression specification 1. The explanatory power of the model as can be seen is that the adjusted R squared values are equal to 90 percent. This implies that 90 percent of the variation in the return on assets can be explained by the variables used in the model. The Adjusted R-squared values in this study are found to be sufficient enough to infer that the fitted regression line is very close to all of the data points taken together (has more explanatory power). The F statistic is used to test the model specification. From the table 7 the result of one can see that the model is fit with F-statistic 71.95 at p-value of 0.0000.

The regression results in table 7 indicate that holding other things constant a day increase in days sales receivable is associated with a decrease in 7.4 percent in profitability and statistically insignificant. The finding is in line with findings of Deloof (2003), Lazaridis and Tryfonidis (2006), Raheman and Nasr (2007), Tewodros (2010), Muluaem (2011) and Yadav and kumar (2014) and empirical results of this study show a insignificant negative relationship between accounts receivable period and firms profitability. This negative relationship indicates that slow collection of accounts receivables is correlated with low profitability. The above analysis is similarly with Fabozzi and Peterson (2003) who mentioned that increase in accounts receivable brought bad debt while increasing sales. Therefore, whenever collection period increases bad debt increases and hence profitability will full down and vice versa.

The regression result for current ratio (CR) which is a traditional measure of liquidity implies a unit increase in current ratio is associated with a decrease in 0.09 percent and statistically significant.

On the other hand, leverage indicate a unit increase in leverage associated with an increase in profitability of 0.2 percent but statistically insignificant. Likewise, a unit increase in sales growth is associated with decrease in profitability of 0.0074 percent but statistically insignificant. The size of a company shows insignificant positive relationship with profitability which means that bigger size firms have more profitability compared to firms of smaller size.

The results from regression model specification I are used to determine hypothesis stated in chapter one as shown in 1.3 section. The first research hypothesis was that accounts receivable period having significant negative effect on firm's profitability. In conformity with hypothesis, the indicator of profitability, return on assets is negatively but insignificant related with accounts receivable period. Therefore, the null hypothesis is not confirmed and can be concluded that hypothesis one is rejected

Regression result of model specification II

Model Specification (II) regressed for account payable period

$$\text{Model 2: ROA}_{it} = \beta_0 + \beta_1 (\text{APP}_{it}) + \beta_2(\text{CR}_{it}) + \beta_3(\text{FG}_{it}) + \beta_4(\text{FL}_{it}) + \beta_5(\text{FS}_{it}) + \epsilon_{it}$$

Table 8 Regression results of profitability measures and APP

Dependent Variable: ROA
Method: Panel Least Squares
Date: 11/26/21 Time: 03:34
Sample: 2011 2020
Periods included: 10
Cross-sections included: 15
Total panel (balanced) observations: 150

Variable	Coefficient	Std. Error	t-Statistic	Prob.
APP	-0.000244	0.000344	-0.708639	0.4798
CR	-0.007785	0.005410	-1.439107	0.1525
FG	-0.000826	0.001242	-0.664824	0.5073
FL	0.022338	0.040126	0.556682	0.5787
FS	0.001411	0.004308	0.327572	0.7438
C	0.941692	0.095034	9.909050	0.0000

Effects Specification

Cross-section fixed (dummy variables)			
R-squared	0.913455	Mean dependent var	0.882080
Adjusted R-squared	0.900806	S.D. dependent var	0.486044
S.E. of regression	0.153080	Akaike info criterion	-0.792148
Sum squared resid	3.046349	Schwarz criterion	-0.390730
Log likelihood	79.41108	Hannan-Quinn criter.	-0.629064
F-statistic	72.21628	Durbin-Watson stat	1.602925
Prob(F-statistic)	0.000000		

Source: E-views output results and author's computation 2011-2020

Result from regression model in table 8 suggests insignificant negative relation between the ROA and APP. The result is consistent with the prior study of (Usama 2012 Raheman and Nasr, 2007) Raheman and Nasr (2007), Sharma and Kumar (2011) and Tewodros (2010), A negative insignificant relationship between accounts payable period and profitability can be explained by the benefits of early payment discounts. On the other

hand, positive significant relationship between accounts payable period and profitability can be explained by the increased availability of funds caused by the delayed payment of accounts payable. Such funds can thus be used for productive purposes that can increase profitability

On the contrary, the finding is opposed to the prior research of (Lazaridis and Tryfonidis (2006) Mifta Ahmed (2016) Ayneshet Agegneu (2019) this finding holds that more profitable firms wait longer to pay their bills. This implies that they withhold their payment to suppliers so as to take advantage of the cash available for their working capital needs. Deloof (2003) who found a strong negative relationship between profitability and number of days of account payable justifies in his result that less profitable firms tend to delay payments and more profitable firms pay their bills earlier.

Mathuva (2010) and Makori and Jagongo (2013) also found a positive relation between accounts payables and firm's profitability. Their explanation for a positive relationship is that the longer a firm delays its payments to its creditors, the higher the level of working capital levels it reserves and uses in order to increase profitability.

Similar, all other variables have insignificant association with firm's profitability. However, firm size and leverage ratio has a positive impact on firm profitability while other control variable like current ratio of the firm and firm growth has a negative effect on profitability of a firm.

The regression results to determined hypothesis stated in chapter one as shown in 1.3 section. The second research hypothesis was that the account payable period of a firm is insignificant negative effect on firm's profitability. In conformity with hypothesis, the indicator of profitability, return on assets is negative related with accounts payable period but insignificant. Therefore, the null hypothesis is not confirmed and can be conclude that hypothesis two is rejected

Regression result of model specification III

Model Specification (III) regressed for cash conversion cycle

Model 3: $ROA_{it} = \beta_0 + \beta_1 (CCC_{it}) + \beta_2 (CR_{it}) + \beta_3 (FG_{it}) + \beta_4 (FL_{it}) + \beta_5 (FS_{it}) + \epsilon_{it}$

Table 9 Regression results of profitability measures and CCC

Dependent Variable: ROA
Method: Panel Least Squares
Date: 11/26/21 Time: 03:41
Sample: 2011 2020
Periods included: 10
Cross-sections included: 15
Total panel (balanced) observations: 150

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CCC	0.000146	0.000496	0.295033	0.7684
CR	-0.010071	0.004881	-2.063244	0.0411
FG	-0.000762	0.001262	-0.603774	0.5470
FL	0.021489	0.040172	0.534915	0.5936
FS	0.000528	0.004218	0.125174	0.9006
C	0.913126	0.086528	10.55291	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.913179	Mean dependent var	0.882080
Adjusted R-squared	0.900490	S.D. dependent var	0.486044
S.E. of regression	0.153324	Akaike info criterion	-0.788962
Sum squared resid	3.056071	Schwarz criterion	-0.387544
Log likelihood	79.17212	Hannan-Quinn criter.	-0.625878
F-statistic	71.96480	Durbin-Watson stat	1.595145
Prob(F-statistic)	0.000000		

Source: E-views output results and author's computation 2011-2020

The regression results in table 9 indicate that holding other things constant a cash conversion cycle period is associated with a decrease in 0.0014 percent in profitability and statistically insignificant

The empirical result suggests there is insignificant positive relation between the Return on asset and cash conversion cycle which is similar to results found in the prior Studies like (Jeng-Ren, et al. 2006, Raheman et al. (2007) and Uyar (2009) Gill et al. (2010) found strong positive relationship between cash conversion cycle as a measure of working capital management profitability. It means that the longer firms cash conversion cycle the lower will be the profitability or the shorter the firm's cash conversion cycle, the higher will be the profitability. Considering the components of the cash conversion cycle (i.e., inventory period, accounts receivable period or accounts payable period) the negative result with cash conversion cycle points out that an increase in profitability is associated with a lower in the cash conversion cycle. It shows that the profitable

companies tend to have the longer cash conversion cycle which indicates to inefficient working capital management. This might be affected by either inventory period, accounts receivable period or accounts payable period

The implication is that the increase or decrease in cash conversion cycle has insignificantly and negatively affect profitability of the firms. It means that the shorter the firm's cash conversion cycle, the higher the profitability and vice versa. As stated in theoretical part of this research, cash conversion cycle is an addition of accounts receivable period and inventory holding period and a deduction of accounts payable period. Managing cash conversion cycle efficiently, therefore, means efficient management of these three items. By managing efficiently the accounts receivable period, inventory holding period and accounts payable period (by making short accounts receivable period, inventory holding period and/or long accounts payable period) managers can control the efficiency of cash conversion cycle and its impact on profitability.

But it is oppose with the study of Deloof (2003), Shin and Soenen (1998), Lazaridis and Tryfonidis (2006), GarciaTeruel and Martinez-Solano (2006), Samiloglu and Demirgunes (2008), Tewodros (2010), Makori and Jagongo (2013) and Mifta Ahmed (2016) all found a significant negative relation between the CCC and a firm's profitability.

Regression results show from table 9 which is current ratio and firm growth have negative effect on return on asset and the remaining other control variables have positively and insignificantly association with firm's profitability.

The results from regression used to determined hypothesis stated in chapter one as shown in 1.3 section. The third research hypothesis was that the cash conversion cycle of a firm is insignificant negatively affect on firm's profitability. In conformity with hypothesis, the indicator of profitability, return on assets is positively and insignificantly related with cash conversion cycle Therefore, the null hypothesis is not confirmed and can be conclude hypothesis three is rejected

Regression result of model specification IV

Model Specification (IV) regressed for inventory holding period

$$\text{Model 4: ROA}_{it} = \beta_0 + \beta_1 (\text{IHP}_{it}) + \beta_2 (\text{CR}_{it}) + \beta_3 (\text{FG}_{it}) + \beta_4 (\text{FL}_{it}) + \beta_5 (\text{FS}_{it}) + \varepsilon_{it}$$

Table 10 Regression results of profitability measures and IHP

Dependent Variable: ROA

Method: Panel Least Squares

Date: 11/26/21 Time: 03:43

Sample: 2011 2020

Periods included: 10

Cross-sections included: 15

Total panel (balanced) observations: 150

Variable	Coefficient	Std. Error	t-Statistic	Prob.
IHP	-0.000224	0.000670	-0.334768	0.7383
CR	-0.009826	0.004722	-2.080685	0.0394
FG	-0.000631	0.001231	-0.512815	0.6090
FL	0.020418	0.040293	0.506738	0.6132
FS	0.000652	0.004188	0.155716	0.8765
C	0.923483	0.091396	10.10416	0.0000

Effects Specification			
Cross-section fixed (dummy variables)			
R-squared	0.913196	Mean dependent var	0.882080
Adjusted R-squared	0.900509	S.D. dependent var	0.486044
S.E. of regression	0.153309	Akaike info criterion	-0.789154
Sum squared resid	3.055483	Schwarz criterion	-0.387736
Log likelihood	79.18655	Hannan-Quinn criter.	-0.626071
F-statistic	71.97996	Durbin-Watson stat	1.598248
Prob(F-statistic)	0.000000		

Source: E-views output results and author's computation 2011-202

The regression result for inventory holding period in table 10 implies a day decrease in inventory holding period is associated with increase in profitability by 0.0022 percent but statistically insignificant.

This implies that the firm's profitability can be increased by reducing the number of days of inventory held in the firm. The results of the study are consistent with the results of the studies conducted by Deloof (2003), Lazaridis and Tryfonidis (2006), Yadav & Kumar(2014), Tewodros (2010) ,Raheman Nasr (2007) and Mifta Ahmed (2016) in their respective analysis of the relationship between profitability and number of days of inventory. Mathura (2009) found contradicting positive evidence in Kenya. He argued that firms keep higher levels of inventory to minimize the risk of possible production

stoppages or when a firm has temporarily no access to raw materials. Makori and Jagongo (2013) also found a positive relationship between the inventory conversion period and profitability. They concluded that maintaining high inventory levels reduces the cost of possible interruptions in the production process and the loss of business due to scarcity of products.

Another important observation that can be made from table 10 is that the conventional measure of liquidity, i.e. current ratio, is significant negative related with the return on assets. The regression result for current ratio (CR) which is a traditional measure of liquidity implies a unit increase in current ratio is associated with an decrease in 0.9 percent and statistically significant.. Firm leverage and firm size which are considered important indicators of firm performance are generally found to be associated positively correlated with profitability but statistically insignificant. On the other hand, firm growth indicate a unit increase in associated with a decrease in profitability of 0.063 percent but statistically insignificant

The results from regression model specification IV are used to determined hypothesis stated in chapter one as shown in 1.3 section. The fourth research hypothesis mainly tested Inventory holding period of a firm is negative effect on profitability. In conformity with hypothesis, the indicator of profitability, return on assets is negatively related with inventory holding period but insignificant. Therefore, the null hypothesis is not confirmed and can be concluded that hypothesis two is rejected.

Regression result of model specification V

Model Specification (V) regressed for cost of goods sold

Model 5: $ROA_{it} = \beta_0 + \beta_1 (CGS_{it}) + \beta_2 (CR_{it}) + \beta_3 (FG_{it}) + \beta_4 (FL_{it}) + \beta_5 (FS_{it}) + \epsilon_{it}$

Table 11 Regression results of profitability measures and CGS

Dependent Variable: ROA
 Method: Panel Least Squares
 Date: 11/26/21 Time: 03:46
 Sample: 2011 2020
 Periods included: 10
 Cross-sections included: 15
 Total panel (balanced) observations: 150

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CGS	0.037401	0.018134	2.062451	0.0412
CR	-0.010790	0.004662	-2.314497	0.0222
FG	-0.000384	0.001214	-0.316717	0.7520
FL	0.025437	0.039590	0.642515	0.5217

FS	0.001222	0.004131	0.295770	0.7679
C	0.715560	0.128347	5.575177	0.0000
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.915873	Mean dependent var	0.882080	
Adjusted R-squared	0.903578	S.D. dependent var	0.486044	
S.E. of regression	0.150926	Akaike info criterion	-0.820489	
Sum squared resid	2.961223	Schwarz criterion	-0.419071	
Log likelihood	81.53669	Hannan-Quinn criter.	-0.657406	
F-statistic	74.48897	Durbin-Watson stat	1.639634	
Prob(F-statistic)	0.000000			

Source: E-views output results and author's computation 2011-2020

The regression result for cost goods sold of a firm in table 11 implies increase in cost goods sold is associated with increase in profitability by 0.3 percent and statistically significant level at 5% and as researcher knowledge to prefer other studies there is no prior research regarding cost of goods sold

On the other hand, current ratio indicates a unit increase in ratio associated with decrease in profitability of 0.1 percent and statistically significant. And a unit increase in firm growth is associated with decrease in profitability of 0.0384 percent but statistically insignificant. The size of a company and firm leverage shows a significant positive relationship with profitability which means that bigger size firms have more profitability compared to firms of smaller size.

The results from regression used to determined hypothesis stated in chapter one as shown in 1.3 section. The fifth research hypothesis mainly cost of goods sold of a firm is positively associated with profitability. In contrary with hypothesis, the indicator of profitability, return on assets is positively related with cost goods sold and statistically significant. Therefore, the null hypothesis is confirmed and can be concluded that hypothesis five is rejected

Regression result of model specification VI

Model Specification (VI) regressed for Tax payable

$$\text{Model 6: ROA}_{it} = \beta_0 + \beta_1 (\text{TP}_{it}) + \beta_2 (\text{CR}_{it}) + \beta_3 (\text{FG}_{it}) + \beta_4 (\text{FL}_{it}) + \beta_5 (\text{FS}_{it}) + \epsilon_{it}$$

Table 12 Regression results of profitability measures and TP

Dependent Variable: ROA
Method: Panel Least Squares
Date: 12/07/21 Time: 13:38
Sample: 2011 2020
Periods included: 10
Cross-sections included: 15
Total panel (balanced) observations: 150

Variable	Coefficient	Std. Error	t-Statistic	Prob.
TP	-0.028508	0.029484	-0.966884	0.3355
CR	-0.011868	0.004928	-2.408472	0.0175
FG	-0.000320	0.001256	-0.255055	0.7991
FL	0.021619	0.041876	0.516254	0.6066
FS	-0.000424	0.004275	-0.099143	0.9212
C	0.972366	0.107075	9.081197	0.0000

Effects Specification

Cross-section fixed (dummy variables)
Period fixed (dummy variables)

R-squared	0.919689	Mean dependent var	0.882080
Adjusted R-squared	0.901105	S.D. dependent var	0.486044
S.E. of regression	0.152850	Akaike info criterion	-0.746904
Sum squared resid	2.826920	Schwarz criterion	-0.164848
Log likelihood	85.01778	Hannan-Quinn criter.	-0.510433
F-statistic	49.48717	Durbin-Watson stat	1.587697
Prob(F-statistic)	0.000000		

Source: E-views output results and author's computation 2011-2020

The regression result for tax payable of a firm in table 12 implies an increase in tax payable is associated with a decrease in profitability by 0.28 percent and statistically insignificant and there is no prior research regarding tax payable as researchers prefer other studies

The results from regression were used to determine the hypothesis stated in chapter one as shown in the 1.3 section. The sixth research hypothesis mainly the tax payable of a firm is negatively associated with profitability. In confirmed with a hypothesis, the indicator of profitability, return on assets is negatively related with tax payable but insignificant. Therefore, the null hypothesis is confirmed, and can be concluded that hypothesis six is accepted.

4.5 General Conclusion

The research provided two types of data analysis; namely descriptive analysis and inferential analysis. The research first looked the description of working capital management components and profitability. I.e. accounts receivable period (in days),

inventory holding period (in days), accounts payable period (in days), cash conversion cycle (in days) tax payable and cost of goods sold in percent of birr, current ratio, sales growth, firm size, leverage ratio and return on assets. Their mean, standard deviation, minimum and maximum values were determined.

The findings showed that inventory holding period and accounts payable period is averagely 43 days and 169 days respectively, cash conversion period had a mean of 48, tax payable and cost of goods sold 1.6 and 4.8 percent of birr respectively, leverage ratio 0.52, average collection period 264, current ratio 3.2, sales growth 0.334, size of the firm measured as log of sales is 3.9 and the overall return on assets recorded a mean of 0.88

The empirical results from the test hypothesis shows that except hypothesis three (HP3), cash conversion cycle of the firm are insignificant positively related and hypothesis five (HP5), the cost of goods sold of a firm are significant positively related to a firms profitability.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of major finding

Based on the result from data analyses and discussions, the researcher has tried to summarize the major findings as follows: -

Descriptive statistics were used to examine the trend of the chosen variables among the samples firms. The mean value of the 15 firms included in the study as measured by return on asset was 88.2 percent and it deviates from the mean to both sides by 48 percent. Its minimum value is 4 percent while the maximum is 17 percent. While the liquidity position as measured by the current ratio is on average 3.2. The firms receive cash collection from their customer on average at 264 days and have accounts payable period on average of 169 days. The average inventory period that means the period from inventory purchased to inventory sold averaged is 43 days. On the other side, the cash conversion cycle as a comprehensive measure of working capital management of manufacturing share companies of the study on average takes 48 days. And also cost of doing business is on average 4.8 percent of birr used in the production process. The standard deviation of cost of goods is 0.9 percent and 9.1 and 2.9 Percent of birr as minimum and maximum values respectively and the Tax liability is on average 1.6 percent of birr and the standard deviation of cost of goods is 0.5 percent and 0.11 and 2.5 Percent of birr as minimum and maximum values respectively.

The Pearson-Correlation result for the whole sample shows that APP, ARP, and TP have a positive correlation with the dependent variable (ROA); while COGs, CCC and IHP have a negative correlation with the dependent variable (ROA).

On the other hand, the Regression result from Pooled OLS model shows that APP, ARP, IHP, and TP have a negative effect on the dependent variable-ROA, and on contrary, CCC and COGS have a positive effect on the dependent variable-ROA.

5.2 Conclusions

Working capital plays a vital role in the company's operations and requires efficient management. The management of working capital concerns the management of cash, inventories, accounts receivable, and accounts payable. It is necessary for a company to monitor its working capital properly and maintain its balance at the appropriate level. Shortage of working capital may lead to lack of liquidity as well as loss of production and sales; on the contrary, excess balance of working capital could be seen as a loss of investment opportunities

The regression analyses of the number of days' accounts receivable period indicate that there is an insignificant negative relationship between these days and the firm's profitability. This means that the higher the firm's accounts receivable period, the lower the profitability therefore, firms can increase their profitability by decreasing the accounts receivable period as much as possible.

The regression analyses of the conversion cycle show that insignificantly and negatively affect the profitability of the firms. It means that the shorter the firm's cash conversion cycle, the higher the profitability and vice versa.

The regression analyses of the inventory holding period indicate that there is a negative relationship between these days and the firm's profitability. This means that the shorter the firm's inventory holding period, the higher the profitability and vice versa. Therefore, firms can increase their profitability by reducing the inventory holding period as much as possible. In another way, firms should faster the speed of inventory turnover to maximize profitability.

The regression analyses of the cost of goods sold indicate that there is a positive relationship between the firm's profitability. That means the higher the firm's cost of goods sold the higher the profitability however, the cost of goods sold is an important figure for an investor to consider because it has a direct impact on profit cost of goods sold is deducted from revenue to determine a company's gross profit in turn, is a measure of how efficient a company is at managing its operation. Thus, if the cost of goods solid is too high Profit suffers and investor naturally worries about how well the company is doing overall.

To conclude, the expectation on the signs of the effect of working capital management component and financial component is now mostly met. Inventory period, account

payable period, tax payable, and cash conversion cycle was found a negative effect on company profitability in Ordinary Least Square regressions while accounts receivable period and cost of goods sold was seen to positively affect the company profitability. Therefore manufacturing companies of hawassa city can increase their profitability by making lower the length of the cash conversion cycle and keeping each different component of working capital management to the optimal level.

5.3 Recommendations

The recommendations of the research were premised on the summary and conclusions from the results and discussion. The study has shown a clear understanding of working capital components and financial working capital components and its impact on the profitability of firms. To improve firms' performance, management of working capital components is necessary. Therefore, the researcher recommends the following points based on the study findings.

- The negative relationship between manufacturing firms' financial performance and the accounts receivable period increases a firm's profitability when there is a high collection of accounts receivable. Firm's profitability increases. Therefore the researcher suggests to the managers of the firm to control their receivables and uncollectible before long. The researcher further recommended that firms should engage in a relationship with those customers who allow short payment periods by considering taking into account not to lose customers who delay payments.
- The researcher recommended that it is apparent that a higher inventory holding period is associated with higher storage, carrying costs and is also prone to spoilage. Hence, the regression result indicates inventory holding period is insignificant in affecting profitability. However, as far as previous empirical and theoretical studies are concerned minimizing the inventory holding period was result in an efficient outcome of the investment. The firms should work on bettering the inventory management system that minimizes the holding period.
- The researcher recommended that whenever firms pay earlier their account payables, it increases profitability. However, the study found out there is an insignificant relationship between the account payable period and profitability. Therefore, firms should consider the terms of the account payable period to be longer to have an effect on firms' profitability.

- The study also found that the cash conversion cycle has a positive relationship with firms' profitability. Therefore, regarding the cash conversion cycle, the researcher recommended that lowering the working capital cycle as a measure of efficient working capital management is the one to be appraised. This means that Investment in working capital could be optimized and cash flows could be improved by reducing the time frame of the physical flow from receipt of raw material to shipment of finished goods, i.e. inventory management, and by improving the terms on which firm sells goods as well as receipt of cash.
- The study also found that cost of goods sold indicates that there is a positive relationship between the firm's profitability. the researcher recommended that firms use less expensive materials in production and also investigate ways to reduce material storage and transport cost
- Hawassa manufacturing companies should negotiate ceaselessly on every material order place if can't get a price discount to seek other benefits such as free or reduced rate shipping Lastly, the researcher recommended that as much as possible management system should be cost-effective that minimize the cost of goods sold to increase profitability
- The study also found that tax payable indicates that there is a negative effect on a firm's profitability. This means the higher tax payable of the firm, the lower profitability. This can be described as the firm paying higher tax can decrease profitability so the researcher recommended that the company's tax liability should be in line with its operating strategy that is; to maximize profits a company must understand how it incurs tax liability and adjust its strategies accordingly

Finally, management of manufacturing firms made understudy can create value for the shareholders as well to make the firms performance well by reducing: 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.

5.4 suggestions for continued research

There is a need for further studies to carry out an effect of working capital management on the profitability of firms by incorporating more working capital variables that affect profitability.

This study focuses only on the relation between working capital management and profitability measured as ROA. There are also other measures of profitability, ROI, GOP, ROE to consider for further study.

Also, this study looks effect of working capital management on the profitability of manufacturing companies in hawassa city by focusing on operational and financial working capital components like accounts receivables, inventories, accounts payable. Cash conversion cycle, cost of goods sold the future researcher should extend on manufacturing companies of hawassa city by using more financial working capital components like cash, prepaid etc

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Appendix 1 Name of manufacturing company

1. Ababa sweater production distribution
2. Abdulhahim nasir flour factory
3. Abenandone soap and detergent factory
4. Adimas bread factory
5. Alef flour factory
6. Antene worku furniture
7. Awassa Moha Factory
8. Awo soap and detergent factory
9. Bereket flour factory
10. Beti textile
11. esabela socks manufacturing plc
12. Etab soap factory
13. Fisha getachew textile
14. G.agre pack plc
15. General plastic packing producer company
16. Getachew denbabo textile
17. Hawasa flour S.CO
18. Hawela plastic factory
19. Helen g/meskel textile
20. Jerusalem textile
21. Like garment factory
22. Liyu textile product factory
23. Lopee steel manufacturing
24. Makia house hold and office furniture
25. Marta wonda flour factory
26. Mensur sultan flour factory
27. Mokonnen furniture
28. Nasir usman flour factory
29. Nice packed water factory
30. Tabor ceramic products s.co
31. Tadesse worku metal and woodwork
32. Tekeya zera plastic production recycling factory
33. Yabisira metal and wood manufacturing
34. Yoha milk factory
35. Zenaye hunagawe blocket factory
36. Zerihun textile and curtain work

Appendix 2 selected manufacturing company

1. Ababa sweater production distribution
2. Antene worku furniture
3. Bereket flour factory
4. Etab soap factory
5. General plastic packing producer company
6. Hawasa flour S.CO
7. Helen g/meskel textile
8. Jerusalem textile
9. Marta wonda flour factory
10. Mensur sultan flour factory
11. Mokonnen furniture
12. Nasir usman flour factory
13. Nice packed water factory
14. Tabor ceramic products s.co
15. Zerihun textile and curtain work

Appendix 3 Converted Raw financial statements data of manufacturing companies

YEAR	ARP	APP	IHP	FS	CCC	FL	FG	ROA	CR	Log of CGC	Log of TP
2011	330	230	116	12.55	19	0.73	18.664	1.25	1.653	5.596286	1.039196
2012	335	215	146	10.58	34	0.7	16.764	1.35	0.233	6.789491	1.414212
2013	332	220	161	13.529	89	0.7	17.664	1.25	0.187	6.914069	1.542573
2014	285	210	110	14.457	63	0.79	15.563	1.15	2.923	6.612007	1.412494
2015	298	195	78	10.57	76	0.45	20.564	1.071	0.643	6.873488	1.487644
2016	315	204	110	10.56	11	0.75	21.464	1.18	0.093	6.73521	1.961425
2017	357	190	76	10.58	21	0.79	17.364	0.88	1.363	6.955297	2.278381
2018	318	215	142	10.58	16	0.77	20.564	0.9	0.513	6.47927	1.875364
2019	343	189	124	10.59	33	0.61	19.364	1.01	1.613	6.289366	1.911731
2020	304	160	110	10.58	15	0.94	18.364	1.1	1.043	6.808328	1.93227
2011	314	180	120	12.34	19	0.33	16.364	1.2	1.843	6.855677	1.904343
2012	326	190	145	23.65	39	0.49	20.764	0.9	1.023	7.036275	1.711076
2013	338	195	144	10.235	34	0.63	15.664	0.871	1.433	7.104501	1.503292
2014	306	182	111	23.54	89	0.63	15.664	1.12	1.333	5.41376	1.972628
2015	319	176	111	13.43	59	0.17	17.564	0.86	0.803	7.310652	1.704049
2016	320	160	106	43.12	88	0.14	21.564	1.26	1.743	9.212263	1.998725
2017	335	180	121	10.2	19	0.59	20.564	1.46	0.913	10.33885	1.446128
2018	317	166	103	10.61	85	0.69	18.564	1.35	0.633	11.0013	1.476521
2019	334	168	112	8.92	85	0.59	17.564	1.5	1.503	10.08798	1.410645
2020	328	175	113	7.873	65	0.58	17.564	1.31	2.893	11.14695	1.722471
2011	328	190	123	11.903	44	0.55	21.564	1.49	1.133	7.213398	1.749779
2012	330	180	146	21.234	52	0.84	20.564	1.55	1.343	7.161255	1.439103
2013	325	195	133	9.002	29	0.9	16.964	1.7	0.547	7.101986	1.476521
2014	314	180	106	13.453	25	0.94	17.164	1.49	1.733	6.783878	1.654786
2015	340	226	146	14.73	68	0.46	17.664	1.3	1.573	7.004196	1.839206
2016	289	170	90	23.182	34	0.62	20.564	1.38	0.893	6.95798	1.910738
2017	358	220	136	10.55	19	2.3	17.264	1.42	1.603	6.282141	1.46345
2018	309	178	124	10.58	38	2.39	18.564	1.1	0.173	7.214575	1.507369
2019	328	178	116	10.63	79	0.44	17.564	1.2	0.767	6.954157	1.465667
2020	337	202	95	10.62	76	0.63	19.564	1.19	0.553	6.59929	1.544344
2011	313	210	112	10.6	56	0.69	17.264	1.52	0.377	7.194518	1.589569
2012	318	215	119	10.56	55	0.78	23.564	1.2	0.507	6.103693	1.526769
2013	336	227	123	10.57	68	0.18	16.564	1.2	1.733	6.59929	1.465667
2014	288	247	146	10.57	14	0.23	19.764	1.49	0.023	7.214575	1.549921
2015	349	166	78	10.6	15	0.13	17.664	1.36	0.047	5.954157	1.446932
2016	337	234	76	10.57	21	0.36	16.564	1.18	1.043	5.301231	1.988977
2017	340	204	78	10.58	55	0.56	17.564	1.46	2.943	6.344228	2.096179

2018	310	195	89	10.6	48	0.91	20.564	1.47	1.703	7.246627	2.27756
2019	370	236	87	10.6	56	0.21	16.464	1.29	2.673	6.127098	2.050465
2020	333	210	81	10.55	28	0.25	20.564	1.28	1.643	6.675505	2.096221
2011	348	220	89	10.57	34	0.4	16.564	1.36	0.523	6.608262	1.979171
2012	338	215	87	15.56	56	0.76	16.564	1.52	0.043	7.083054	1.669875
2013	358	216	78	11.55	66	0.87	19.914	1.47	0.803	7.062602	1.550098
2014	286	214	77	10.536	19	0.07	15.664	1.2	1.743	6.655891	2.230218
2015	324	173	76	17.63	69	0.91	15.564	1.44	1.913	7.214133	1.678943
2016	353	235	84	9.62	84	0.88	17.864	1.25	2.633	6.78743	2.163246
2017	336	199	76	10.68	14	0.8	24.564	1.5	1.503	7.033158	1.84418
2018	311	153	86	10.56	30	0.73	16.764	1.41	2.893	6.680933	1.743431
2019	322	155	76	10.57	84	0.79	23.569	1.27	1.133	6.610443	2.176
2020	330	236	78	10.64	47	2.8	16.564	1.46	1.343	6.673545	2.270515
2011	338	206	89	10.63	49	0.73	24.563	1.5	0.547	5.637263	1.719176
2012	326	220	78	10.56	55	0.9	16.764	1.42	1.733	6.772852	2.033443
2013	329	235	79	10.67	67	0.19	15.664	1.37	1.573	6.673545	2.042188
2014	339	230	76	10.69	45	0.55	15.564	0.99	0.893	7.254595	1.522667
2015	348	153	109	10.64	19	0.45	17.564	1.35	1.603	6.953863	1.558381
2016	350	153	89	10.88	32	0.15	15.664	0.98	0.827	7.031623	2.398706
2017	340	153	74	10.66	14	0.05	24.569	1.38	0.767	7.198883	1.421355
2018	335	154	68	10.58	55	0.45	17.464	1.05	2.553	7.022687	2.293775
2019	338	242	100	10.62	65	0.25	20.36	1.35	0.377	6.409628	2.206489
2020	305	155	87	10.58	79	0.55	20.564	1.46	1.893	6.178134	1.599054
2011	184	158	77	10.57	13	0.15	16.064	0.96	1.463	6.596398	1.746905
2012	195	171	78	10.62	90	0.15	16.964	1.06	1.863	6.778246	1.772008
2013	284	162	76	10.57	33	0.55	20.56	0.97	2.863	6.249425	1.614375
2014	280	182	80	10.55	29	0.55	17.964	0.96	2.663	6.189082	1.704859
2015	274	183	91	10.56	23	0.05	20.564	1.17	1.863	6.56902	1.969349
2016	228	174	78	10.73	21	0.55	15.464	1.18	1.863	6.400207	1.441141
2017	240	204	81	10.57	19	0.55	16.764	1.28	0.763	6.221355	1.542416
2018	184	166	97	10.62	44	0.15	15.766	1.18	1.863	6.832127	1.556229
2019	284	196	85	10.73	33	0.25	15.86	1.19	2.863	5.269909	1.639504
2020	295	216	78	10.62	44	0.55	16.864	1.28	0.863	6.610749	1.413388
2011	317	162	87	10.65	66	0.55	16.864	0.95	0.663	5.310292	1.691036
2012	328	159	78	10.62	77	0.65	16.664	0.96	0.863	6.113754	1.420671
2013	340	158	90	10.57	89	0.15	15.764	1.06	0.237	6.221365	1.690197
2014	306	156	89	10.73	55	0.35	16.764	0.97	0.237	6.587909	1.96747
2015	370	155	87	10.55	43	0.45	15.962	1.15	0.863	6.282676	1.653493
2016	249	159	86	10.73	88	0.35	17.567	1.06	0.863	6.586394	1.689289
2017	228	161	88	10.72	11	0.55	16.764	1.15	1.763	6.177393	1.545481
2018	284	173	98	10.57	33	0.15	15.764	0.99	0.763	6.676471	1.986759
2019	317	160	78	10.56	66	0.35	16.864	1.06	0.863	6.869108	2.011916
2020	339	152	96	10.73	88	0.25	17.864	0.95	0.263	7.138513	2.135456

2011	290	153	97	10.55	39	0.15	18.864	1.08	0.563	6.923957	1.440435
2012	227	157	87	10.57	2	0.95	21.764	1.08	0.563	6.80215	1.521827
2013	230	192	78	10.58	19	0.45	16.764	1.17	0.863	5.399484	1.648432
2014	195	160	89	10.57	88	0.55	17.764	1.06	0.663	6.260967	1.684334
2015	306	155	88	10.62	55	0.45	15.764	1.06	1.563	5.923918	1.513373
2016	377	158	86	10.62	56	0.15	15.864	1.06	0.663	5.377741	1.788945
2017	328	158	96	10.62	77	0.25	17.564	1.07	0.33	6.150085	1.645485
2018	340	157	78	10.64	89	0.45	23.764	0.98	0.337	6.029296	1.979969
2019	290	154	77	10.62	39	0.75	17.664	0.94	0.737	5.730246	1.798384
2020	295	154	76	10.62	44	0.35	16.566	1.12	0.537	6.045346	1.871869
2011	317	153	75	10.55	66	0.25	18.664	1.14	0.737	6.580177	1.722778
2012	395	162	74	10.56	55	0.25	17.964	1.12	1.763	5.546569	1.648494
2013	360	228	72	10.55	56	0.15	17.864	1.15	0.237	6.577988	1.740724
2014	239	173	78	10.63	18	0.25	16.864	1.1	0.863	6.222958	1.70362
2015	317	182	76	10.56	66	0.45	19.764	1.15	1.863	5.856988	1.730689
2016	318	162	79	10.57	67	0.45	21.564	0.98	1.863	5.333658	1.475964
2017	340	152	133	10.57	69	0.55	23.164	1.04	0.237	5.832874	1.594957
2018	284	153	131	10.58	33	0.05	18.464	1.06	0.923	6.30623	0.553307
2019	285	154	89	10.62	34	0.15	15.504	1.06	0.863	6.730076	0.524774
2020	317	154	96	10.58	66	0.55	15.684	1.03	0.137	7.164078	0.609094
2011	254	125	113	15.08	60	0.71	37.1	0.97	2.69	5.52858	0.71082
2012	240	103	123	5.05	65	0.81	48.1	0.19	2.27	4.923174	0.535799
2013	271	112	135	5.05	62	0.71	46.1	0.26	2.2	5.04706	1.067412
2014	231	93	216	5.14	15	0.61	47.1	0.16	1.96	6.728674	1.222483
2015	264	167	219	4.8	28	0.046	45.5	0.41	1.68	7.006501	1.497545
2016	369	236	137	5.1	45	0.64	30.1	0.22	4.13	6.86821	1.533816
2017	144	230	152	5.14	87	0.34	31.4	0.13	6.4	6.055557	0.531617
2018	136	238	167	5.42	48	0.326	32.3	0.13	10.55	7.61227	0.716664
2019	117	326	172	5.45	73	0.47	40.5	0.09	7.65	6.422366	0.138269
2020	394	323	194	4.29	34	0.56	49.03	0.13	7.08	6.941328	0.11773
2011	134	92	118	4.68	44	0.066	38.03	0.64	11.8	6.988677	0.145651
2012	138	102	119	4.84	56	0.36	43.03	0.15	15.06	7.169275	0.338924
2013	150	89	125	4.98	98	0.46	92	0.14	9.47	7.237501	2.513292
2014	83	42	122	4.98	36	0.78	65.6	0.31	8.37	6.041544	1.83737
2015	173	92	124	4.52	49	0.32	75.6	0.13	4.84	5.543652	1.044562
2016	75	54	230	4.49	50	0.72	77.5	0.31	5.78	6.550559	1.811273
2017	82	101	131	4.94	65	0.6	71.5	0.28	1.95	6.584849	2.363871
2018	79	69	103	5.04	47	0.52	70.5	0.27	3.67	7.247299	2.333479
2019	64	153	193	4.94	64	0.67	78.5	0.14	15.54	6.333982	2.399355
2020	88	108	153	4.93	58	0.48	87.5	0.13	16.93	7.392946	2.087529
2011	206	188	234	4.9	58	0.66	77.5	0.12	17.17	7.346398	0.66022
2012	264	260	149	5.19	90	0.72	71.5	0.29	15.38	7.294255	1.049103
2013	179	206	281	5.25	95	0.87	70.5	0.38	13.49	7.234986	0.933479

2014	132	137	199	5.29	44	0.66	56.9	0.41	7.77	6.916878	1.264786
2015	224	299	188	4.81	14	0.47	47.1	0.04	15.61	8.137197	0.449204
2016	114	114	169	4.97	19	0.55	57.6	0.22	4.93	8.09098	1.920736
2017	146	64	220	6.65	10	0.059	40.5	0.23	2.64	7.73229	2.47345
2018	234	216	239	6.74	39	0.27	41.2	0.34	3.21	7.347575	2.517369
2019	143	118	227	6.79	32	0.37	40.5	0.34	3.27	8.087157	2.344332
2020	136	120	136	6.98	67	0.036	47.5	0.36	2.59	6.455883	2.554344
2011	273	262	140	7.04	43	0.069	42.5	0.32	3.66	7.327518	2.599569
2012	299	258	137	6.13	48	0.37	10.2	0.39	2.57	8.236693	2.536769
2013	148	55	176	5.53	66	0.37	13.5	0.21	5.77	7.73229	2.344332
2014	151	175	103	5.59	18	0.66	96.5	0.21	4.06	7.869039	0.260079
2015	154	200	137	5.54	29	0.53	69.7	0.19	3.99	7.417456	2.456932
2016	111	144	111	5.71	67	0.35	67.6	0.21	5.08	7.434251	1.821021
2017	82	86	272	3.91	70	0.703	70.5	0.2	6.98	7.477227	1.713819
2018	119	70	234	4.26	40	0.649	97.5	0.18	5.74	7.379875	1.532439
2019	48	96	232	4.45	100	0.4	80.5	0.66	6.71	7.260098	1.759533
2020	125	78	124	4.6	163	0.45	78.4	0.11	7.68	6.808572	0.713776
2011	134	56	212	4.75	78	0.803	60.5	0.12	4.56	7.741358	0.989171
2012	155	59	115	4.115	98	0.699	87.5	0.17	4.08	7.216054	0.679875
2013	173	92	124	4.22	88	0.4	80.5	0.13	4.84	7.195602	0.560098
2014	125	50	230	4.426	16	0.377	99.85	0.31	5.78	7.788891	0.539528
2015	122	40	231	4.268	54	0.261	95.6	0.28	1.95	7.353537	0.688943
2016	191	34	103	4.2	30	0.542	94.5	0.27	3.67	6.92043	3.646755
2017	114	153	193	5.165	66	0.467	129	0.14	15.54	7.166158	1.96582
2018	118	108	153	5.083	41	0.58	94.5	0.13	16.93	7.772798	1.024918
2019	206	188	124	5.25	152	0.404	86.7	0.12	17.17	7.743443	2.816008
2020	264	260	219	5.125	94	0.63	83.5	0.09	15.38	7.806545	3.280515