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**St. Mary's University, Ethiopia**

**SCHOOL OF GRADUATE STUDENTS**

**THE IMPACT OF WORKING CAPITAL MANAGEMENT  
ON THE FINANCIAL PERFORMANCE OF LARGE TAX  
PAYER LEATHER PROCESSING COMPANIES IN  
ETHIOPIA**

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BUSINES LEADERSHIP)**

**MAY 2021 G.C.**

**ADDIS ABABA, ETHIOPIA**

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ETHIOPIA**

**A THESIS SUBMITTED TO ST.MARY'S UNIVERSTITY,  
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IN ACCOUNTING AND FINANCE**

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## DECLARATION

I declare that this thesis is my original work, prepared under the guidance of Mr. Simon Tareke (Asst. Professor). I have acknowledged all resources and works of other scholars that I used in the research. Furthermore, I assert that this paper has never been submitted partly or in full to any higher institution for the purpose of receiving any type of degree.

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## **ENDORSEMENT**

This paper has been submitted to St. Mary's University for examination with my approval as an advisor in the university.

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**St. Mary's University, Addis Ababa**

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## Abbreviations

- ACP: Average Collection Period
- APP: Average Payment Period
- CaR: Cash Ratio
- CCC: Cash Conversion Cycle
- CR: Current Ratio
- CTO: Creditors Turnover Ratio
- DE: Debt to Equity Ratio
- DTO: Debtors Turnover Ratio
- ECCSA: Ethiopian Chamber of Commerce and Sectoral Associations
- EFFORT: Endowment fund for Rehabilitation of Tigray
- EOQ: Economic Order Quantity
- FMS: Financial Management Service
- GOP: Gross Operating Profit
- ICP: Inventory Conversion Period
- ITD: Inventory turnover in Days
- ITO: Inventory Turnover Ratio
- JIT: Just in Time Manufacturing
- LLP: Leather and Leather Products
- Ln(TA): Natural Logarithm of Total Assets
- MRP: Management Resource Planning
- OPM: Operating Profit Margin
- OPT: Optimized Production Technology
- PDP: Payable Deferral Period
- RCP: Receivable Collection Period
- ROA: Return on Asset
- ROE: Return on Equity
- ROI: Return on Investment
- ROS: Return on Sales
- TOC: Theory of Constraints

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## **ABSTRACT**

*The aim of this paper is to identify the impact of working capital management on financial performance of leather processing firms of Ethiopia that have been registered in the large taxpayer office of Ministry of Revenue and were operating in the years from 2014 to 2018. The paper has been structured based on the four major components of working capital management namely: Cash Management measured by Cash Ratio; Accounts Receivable Management measured by Average Collection Period; Inventory Management measured by Inventory Turnover in Days; and Accounts Payable management measured by Average collection Period. In addition, the researcher measured financial performance using return on asset. The paper would fill the literature gap of inconsistent findings and scarcity of researches that incorporate cash ratio as a measure of cash management. The researcher used quantitative approach, and an explanatory research design in order to show causal relationships between independent and dependent variables. Data from financial statements covering the period from 2014-2018 of 14 sample companies out of a population of 18 firms has been analyzed using a fixed cross-section panel least squares multiple regression technique using the E-views 10 software package. The study has identified that, at a significance level of 5%, all the independent variables: Cash Ratio, Average collection Period, Inventory Turnover in Days and Average Payment have significant negative impact on the dependent variable; Return on Asset of large tax payer leather processing firms in Ethiopia. The researcher recommends the management of the firms to follow a working capital management policy that reduces idle cash, average collection period, inventory turnover in days and average payment period.*

**Key terms:** *working capital, financial performance, cash, accounts receivable, inventory, accounts payable*

# CHAPTER I

## INTRODUCTION

### 1.1. Background of the Study

The importance of the ‘current’ (short term) portion of a company’s balance sheet elements is emphasized by a number of researchers that addressed the area. The literature about working capital mainly addresses the management of its four common elements: cash, inventory, accounts receivables and accounts payables. Working capital or the net value of current assets is defined as the difference of current assets and current liabilities by Arnold (2005). According to Munyoro and Shaningwa (2019), working capital management is an important area of focus in the electricity distribution sector of Namibia, and he identified that liquidity and profitability are enhanced by an effective management of working capital both of which are claimed by the author to be essential for further investment and maximizing shareholder’s value respectively. In addition, Arachchi et al (2017) extend the importance of working capital by indicating that efficient working capital management results in an increase of the firm’s value, which is the ultimate goal of financial management.

According to Sagner (2014), management of working capital as more of a science than art of structuring the short-term resources of a company to give it a proper stance that handles the business’s daily activities, properly utilizes financial resources, and attains an appropriate liquidity position. It is employing current assets and current liabilities efficiently in every business cycle stage. He also adds that, working capital management is lowering the amount of investment in idle resources while managing the components of working capital.

The first component of working capital is cash, which is known to be the most liquid asset. Bragg (2014) argues that cash management shall be taken as the core focus in all businesses. He presents cash management as handling each cash inflow and outflow in a certain business with the aim of being adequately liquid for business operations, and identifying additional purpose for idle amounts. He adds, efficient access to information regarding where cash is stored, managing liquidity and managing risk as elements of cash management.

The other common element of working capital, which is accounts receivable, is presented as a component whose management is very essential in the work of Adusei (2017). This article indicates that the businesses are expected to recognize that an amount allowed to be given as a credit to customers is vulnerable to risk of bad debt. It classifies the account as delinquent, which has the potential to hinder the availability of cash in a certain business. Thus, the efficient management of accounts receivable is essential.

Inventory is defined by Sohali and Sheikh (2018) as the stock that includes raw materials, semi-finished products and final products sustained by firms to fulfill their operational demands. They also inform us that it is a major resource that requires a large amount of cost and can be a cause of loss. This shows that inventory management is a crucial aspect in a company with that determines a company's success. Priniotakis and Argyropoulos (2018) define inventory management as the course of maintaining the optimal inventory to fulfill what customers need and mention that it is an essential aspect because unsold inventory clogs the cash it costs and has an impact on performance.

Finally, in relation with the management of accounts payable. The study of Nwakaego and Ikechuku (2015) tells us that this section of working capital is essential because it results in sustainable business growth if it is effectively managed. In addition, Achode and Rotich (2016), argue that accounts payable can be used as a source of finance, and they found that its use as a financing method has a significantly positive effect on the performance in their study setting. This is supported by Petersen and Rajan (1996) who mention that payable financing, which is financing by suppliers, is the key short term financing for firms in the United States.

The researcher considers the importance of these working capital elements as a motivating factor to conduct a research on their influence on the performance of selected leather processing companies in the country, which are, according to Grumiller and Raza (2019), taken as one of the starting points of developing countries that aim to attain industrialization led by export. Grumiller and Raza (2019) also add that the Ethiopian government regards the Leather and Leather Products (LLP) sector as one of the main focus points in the journey to agricultural development led industrialization.

## **1.2. Statement of the Problem**

The aim of this research is to understand the impact of working capital management on financial performance in leather processing companies. A proper working capital management is essential because of the very high association of operational risk, credit risk, liquidity risk and information reporting risk with working capital as indicated by Sagner (2014). In addition, working capital composition is one of the basic focuses of strategic decisions of businesses according to Preve & Serria-Allende (2010), which mention that its standard definition is the difference between current assets and current liabilities although it is a wider concept which fails to be captured by this definition. Preve & Serria-Allende (2010) also suggest that the strategic decisions related to the working capital structure would affect the potential profitability of businesses. There are researches conducted regarding the impact of working capital management on financial performance. However there are some gaps in literature pool.

The first fact that calls for further study in the area is that there are differences of findings in related researches. An instance of mismatch in findings is, while Amanda (2019) concluded that inventory turnover has no influence on the company's profitability, the finding of Agha (2014) indicates that it has a positive and significant influence on financial performance. Likewise, with respect to accounts payables, although the study of Ikechukwu & Nwakaego (2015) indicates that the accounts payables ratio has a significant negative effect on financial performance, the article of Achode & Rotich (2016) concludes that in most of the firms under their study, accounts payable had a strongly positive influence to the financial performance.

There are also differences in the measurements, and application of incompatible analytical methods used in the studies of various researches. The measurement differences are noticed between the study of Ikechukwu & Nwakaego (2015), which measured accounts receivable management by using the percentage of receivables in sales, while the studies of Jindal et al (2017) and Amanda (2019) used debtors' turnover ratio to study the impact of receivables management on profitability. On the other hand, with respect to incompatible analytical methods, the study of Ahmed (2016) used correlational analysis; and Anshur et al (2018) used a descriptive analysis of questionnaires rather than using regressions.

The topic has been a focus of some research works in Ethiopia. However, there are some gaps that those works failed to address. Two of the related studies were that of Ketema (2018) and Mengesha (2014); the researcher has noticed that both works fail to include a measure of accounts payables management as an independent variable. On the other hand, other researches on the area of the impact of working capital management on profitability such as the articles of Rani& Abreha (2017) and Tesfay & Barta (2016), none of them conducted their researches in leather processing firms. The researcher argues this is a relevant gap because the Ethiopian leather processing sector has been facing a number of challenges, some of which are related to working capital. Grumiller & Raza (2019) have disclosed that, although the Ethiopian leather processing sector is incentivized, it faces problems of limited raw material quality and supply and increased competition of imported substitutes: a challenge that is related to inventory management; limited access to finance: a challenge that can be dealt with by using effective management of account payable. Thus, it can be agreed on the importance of understanding how the working capital management impacts financial performance in leather processors.

Another important but neglected aspect of working capital management is liquidity management with an emphasis on cash. Preve and Sarria-Allende (2010) reveal that although the return from holding cash is the lowest of any other means, companies are motivated to hold cash because it is a catalyst to the success of a business since it is essential for transactions, hedging and taking advantage of rare opportunities. Although this shows the importance of being liquid in terms of cash, there is a great deal inadequacy of researches on the impact of liquidity management on financial performance in Ethiopia. The studies on liquidity that could be accessed by the researcher, such as the case study of Workineh (2016); and Awulo et al. (2020), focus on the financial sector, specifically on commercial banks and not on the manufacturing sector. In addition, both studies didn't use a measure that specifically shows the cash aspect of liquidity.

### **1.3. Objectives of the Study**

#### **1.3.1. General Objective**

As it can be understood from the title of the research, the general objective of this study is to uncover the impact of working capital management on the financial performance of selected large tax payer leather processing firms in Ethiopia.



### **1.3.2. Specific Objectives**

The research has the following four specific objectives:

- A. To examine the impact of cash management on the financial performance of large tax payer leather processing firms in Ethiopia.
- B. To examine the impact of accounts receivables management on the financial performance of large tax payer leather processing firms in Ethiopia.
- C. To examine the impact of inventory management on the financial performance of large tax payer leather processing firms in Ethiopia.
- D. To examine the influence of accounts payables management on the financial performance of large tax payer leather processing firms in Ethiopia

### **1.4. Hypotheses**

Based on reviewed literatures the researcher proposes the following four hypotheses.

**H<sub>1</sub>:** Cash Ratio (CaR) has a positive and significant impact on Return on Asset (ROA);

**H<sub>2</sub>:** Average Collection Period (ACP) has a negative and significant impact on ROA;

**H<sub>3</sub>:** Inventory Turnover in Days (ITD) has a negative and significant impact on ROA;

**H<sub>4</sub>:** Average Payment Period (APP) has a positive and significant impact on ROA.

### **1.5. Significance of the Study**

According to ECCSA (2019) the leather and leather product sector is among the biggest manufacturing division of Ethiopia because of advantages such as availability of raw material, market width, competitive workforce with low wage rates, and strong export performance. The list of government incentives indicated in the document, such as duty and tax exemptions, and a long land lease term, shows the focus given to the sector and the prospect assumed by the government regarding the industry. That is why studies about factors influencing the financial performance of such sectors are essential.

This research is a helpful tool for the managers of the firms in the leather processing industry. This is because it gives insights regarding the influence of the working capital elements on their

financial performance. The managers can identify better working capital management techniques with a focus on enhancing an effective utilization of the findings revealed, and with a proper consideration of the recommendations of the researcher. In doing so, it contributes to the achievements of the goals of the government with respect to the sector including using it as gateway to agricultural development led industrialization. Furthermore, the findings of the research will contribute to the pool of literature in the area of working capital, liquidity and financial performance.

## **1.6. Scope of the Study**

The scope of this study is delimited in various ways. The first one is based on location. The study focused only on the large tax payer leather processing firms in Ethiopia. Secondly, with respect to the time period covered by the secondary data to be collected, the research is limited to a duration of five years starting 2014 to 2018. The conceptual boundary of the research incorporates the independent variables: CaR, APP, ACP and ITD; the dependent variable ROA and the control variables: Debt to Equity ratio and Ln (total assets). With respect to research methodology, the research process is limited to the quantitative analyses of descriptive statistics and a multiple linear regression through ordinary least squares, by using the quantitative data extracted using the metrics that are indicated in the conceptual scope. This is because the researcher intends to examine the cause and effect relationships of working capital management and financial performance.

## **1.7. Limitation of the Study**

The first limitation of the paper is the exclusion of additional measures of working capital management, financial performance and other control variables because of inadequacy of time. Had more variables been included for each class of variables, it would have enhanced the quality of the study through the provision of additional insights because of the unique dimensions that are shown by those variables. It would also have increased the explanatory power of the study. In addition, due to inability to access data of additional periods, the researcher was unable to widen the time dimension of the study beyond a five years period. Had a wider time interval been used, the findings of the research could have been strengthened, since higher number of years could have been represented by the output of the study.

## **1.8. Organization of the Paper**

This paper is organized into five chapters. In the first chapter, introductory components are included, comprising background of the study in which the various aspects of the research are introduced and the foundations are indicated; the statement of problem that clarifies the gaps the research intends to fulfill; the study's general and specific objectives; the hypotheses or tentative conclusions of the research; the aspects that make the research significant; the research's geographical, time period, conceptual and methodological scopes; and the study's limitation and organization.

In the second and third chapters, the literature reviews and research methodology and design are presented respectively. The second chapter addresses theoretical and empirical aspects related to the study and the research's conceptual framework. In the third chapter the research approach, design, population and sample, data collection and analysis techniques are included.

In the fourth chapter data presentation, analysis and interpretation are provided structured based on the specific objectives. Finally, in the fifth chapter, the researcher has included a condensed narration of the findings, the conclusions and recommendations based on the findings.

## CHAPTER II

### REVIEW OF LITERATURE

#### 2.1. Review of Theoretical Literature

##### 2.1.1. Working Capital Management

Working capital management is presented by Preve and Sarria-Allende (2010) as a business issue which is among the highly strategic ones in modern financial management. They label working capital as a concept related to the financing component of operating investment. According to their work, working capital is traditionally defined as the difference between short term assets and liabilities. They argue that working capital is part of capital that is assigned to finance a firm's current assets, and working capital decision is concerned with aspects like the portion of current assets that needs to be financed with long-term capital. They add that working capital decision is a basic factor for the performance and survival of firms, emphasizing that a wrong optimal financing leads to reduced profits.

The two poles of methods followed by firms to manage their working capital are termed as the aggressive strategy and the conservative strategy. Aggressive firms use short-term credit, which is often a cheap fund source, to finance a section of the permanent current assets, but finance all their non-current assets using long term capital. The extremely aggressive firms may finance all the permanent current assets and part of their fixed assets using short term liabilities. A conservative policy, on the other extreme, is an approach in which firms use totally long term finance to handle their permanent and seasonal assets. There is a lower amount of short term liabilities in conservative firms (Brigham & Houston, 2003).

##### 2.1.2. Cash Management

According to Sagner (2014) cash is constituted by any form of payment that has common national or worldwide acceptance including currencies, checks, and cash in the electronic form. He also mentions that there are three forms of cash. The first one is *bank cash* (float); which is the portion of cash being processed for receipt or payment. Then there is the portion of cash to be accessed

via a bank's credit line whenever there is shortage. Finally, there is the portion of cash invested in highly liquid marketable securities.

Bragg (2014) mentions that there are three elements that are definitive to the nature of cash management; the follow-up of every cash flow in and out a certain business. The three elements of cash management mentioned are *information aggregation*, *liquidity management* and *risk management*. Information aggregation involves structuring data regarding the location of cash and when it is expected (receivables) and the next time it will be used (payables). Liquidity management, is the decision regarding how to invest excess cash or get regular funding resulting in enough amount for daily activities. Finally, risk management is the process of assessing the business partners of the firm to understand whether their current financial situation results in failure of the firm.

The purpose of cash management, according to FMS (2002), includes: (i) avoiding cash balances that are idle with the argument that every available cash shall be used either to lower expenditures by ways such as redeeming issued debt instruments or enhance the revenue generation capacity through investments with the help of accurate information regarding likely receipts or payments; (ii) timely deposits of collected cash collections of receivables as fast as possible; (iii) to be able to made payments on the proper time, such as legal dates or agreed up on dates, in order to avoid legal liabilities and unnecessary engagements with vendors.

According to Brigham & Houston (2003), holding cash is essential for four motives. The first two are the essential ones which are: *Transactions*, which refer to the need of cash for operational activities; and *Compensation* to banks to providing loans and services. The other two reasons are: *precaution* and *speculations*. Precautionary motives of holding cash force firms to reserve cash in order to deal with unexpected sudden events that cause inflow-outflow variations. Speculative motives, on the other hand, are motives to hold cash to exploit opportunities of future bargain purchases.

Preve and Sarria-Allende (2010) indicate that it is very necessary to keep cash holding at a level that it is absolutely necessary. They emphasize that cash management is balancing the trade-off between opportunity cost of holding excess cash and facing cash deficits of a critical amount. This

can be attained by obtaining the balance of cash that can minimize the sum of opportunity cost and trading cost. Trading cost is an amount incurred to replenish the cash balance.

### **2.1.3. Cash Budget**

CIMA (2008) describes budget as a plan expressed quantitatively, including the plan of volume of sales, sales expressed in terms of money, quantities of resources, costs to be incurred and expired, resources, financial obligations and cash. It then defines cash budget as a detailed budget that indicates the estimate of cash inflows and cash outflows that includes revenue and capital items. In addition, Bond (2005) discusses the importance of cash budgets some of which include: helping make decisions about cash position and reserve; and assessment and preparation for financing requirements by addressing periods in the future operational cycle in which the firm becomes in need of short term financing. According to him, the three main components of cash budget are: (i) the time period the budget is prepared for; (ii) desired cash position which will be dependent upon the nature of the business, predictability of accounts receivable and forecasted frequency of events requiring significant cash reserve, and (iii) estimated sales and expenses, the most important being sales estimate. The estimates are required to be made based on former experiences and the goals of the business for the time period.

### **2.1.4. Liquidity Management**

Preve & Serria-Allende (2010) define liquidity as the ease of a certain asset to be transformed into cash by avoiding a substantial value loss. This makes cash the most liquid asset. They add that the result of liquidity analysis informs us the firm's capacity to pay its current liabilities back. In addition, they have mentioned that the selection of an optimal working capital level shall be dictated by the trade-off between liquidity and profitability.

### **2.1.5. Time Value of Money**

Shrotriya (2019) has well explained the time value concept. It indicates that, as the value of all assets decreases as the time since production, issuance, or acquisition increases. The author argues that, what makes money unique as compared to other assets is its involvement in every transaction, its purchasing power. According to the time value concept, the purchasing power of the money today (its present value) is greater than the purchasing power a similar amount, and currency of

money will have in the future (its future value). According to the author there are four dimensions that make up the time value concept, which are: (1) inflation, which is the increase in price of items as time passes; (2) the risk in connection with keeping idle money while it can be invested to earn a certain amount of return; (3) the preference of individuals to consume (accomplish their requirements) today as compared to an uncertain future, which makes the worth of acquiring money today more preferable than that in the future; and (4) investment opportunities, which create expectations of earning appropriate return in the future. These are all factors that lower the value of money at a certain future time as compared to its value now. Shrotriya (2019) also indicates that the time value concept is an essential element to the field of financial management because it allows firms to choose the one with the highest return among various investment opportunities, and to identify rate of return.

#### **2.1.6. Management of Cash Receipts and Accounts Receivables**

Northwestern University (2008) gives insights on how cash receipts and collections shall be managed. It discusses that the segregation of duties for the handling of cash receipts is among the individual that receives the cash; the individual that has the duty to maintain accounting records and the individuals working in the billing (accounts receivable) department. It also dictates that cash received has to be reconciled to the budget statements every month, and the reconciliation shall be reviewed by an independent individual. In addition, it indicates that vaults, locked cash drawers, cash registers, cashiers, locked metal boxes shall be used to physically protect collected cash. It also suggests, making deposits in a timely routine: the higher the amount of the cash collected is the faster it needs to be deposited to bank.

In addition, Reider and Heyler (2003) advise speeding cash collection. This means, it is essential to reduce the accounts receivables average collection period. Accounts receivables are indicated in their work as privileges to customers and not rights. Factors that have impact on achieving this goal comprise: the firm's credit policy regarding its credit terms and credit limit; invoicing (providing the customer with the invoices fast and preparing the invoices with accuracy accelerates the payment process); subsequent appraisal of accounts receivable; cash discounts in the credit terms; finance charges as a penalty for those who don't pay on time; and ceasing to deliver items unless existing obligations of customers are met.

Furthermore, the work of Schaeffer (2002) has addressed elements of dealing with accounts receivables from the very beginning which is approving the credit. She mentions that credits are important for a business because they influence policy, corporate culture, accounting profits, inventory management, and financial position of firms. She adds, approval of the credit involves verification of the company requesting receivables by using information from trade references, financial statements, performing ratio and trend analyses, and finally calculating the cash burn rate. Cash burn rate is preferred by credibility assessors because it indicates when a customer drained of cash, and it is calculated as:

$$\text{Cash Burn Rate} = \frac{\text{Cash+Accounts Receivables+Marketable Securities}}{\text{Daily Operating Expenses* (365)}} \quad (\text{Schaeffer, 2002})$$

Additionally, the five C's of credit; former events related to the customer; history of the customer in relation with meeting obligations; importance of required product for the approving firm's profitability; sales goals and where the approving firm is now; whether or not the product is currently actively being sold or not; are some of the non-financial aspects to be addressed when approving credit according to Schaeffer (2002). Just as indicated by Reider and Heyler (2003), Schaeffer (2002) recommends billing just after shipment. The final process is collection of the amount the credit customers owe us.

### **2.1.7. Management of Cash Disbursements and Accounts Payables**

Helms (2017) discloses that cash disbursement cycle consists of payments whose sources are accounting department sections such as purchases and receiving section that processes purchases of merchandise inventory; payroll section that deals with salaries and wages to be paid for workers; debt handling section that requires payments to meet financial obligations. The author adds, modes of payments include: the traditional way that involves issuing paper check; electronic data interchange; procurement cards. An internal control method used to prevent fraud related to disbursements, according to Helms (2017), is segregation of duties. It is indicated in his work that the four duties: bookkeeping, that needs to be done by departments of accounts payable and general ledger; access to checks, which must be issued by the cashier's department and signed by approved check signer; transaction authorization, which is a responsibility of the department that requested the transactions; and reconciliation of accounts payable to the control account, which is expected



to be done periodically by an independent employee, must be done by different individuals, and departments. Some of the other controls indicated in Helms (2017) include:

- checking whether or not amounts recorded accounts payable, vendor's invoice, goods receiving report, purchase order and packaging slip are similar;
- updates of subsidiary accounts payable account by the accounts payable department based on the vouchers and slips indicated above
- numerically sequenced checks which must be made sure by the cashier and check signer
- making sure checks are prepared by cashiers and signed by signers after careful review of every relevant documentation
- making sure checks are signed only after they are prepared (blank checks shall not be signed)
- ensuring cancelation and keeping of void checks
- investigation of checks to unknown vendors and/or addresses by appropriate personnel (Helms 2017)

In relation with management of cash disbursements, Schaeffer (2004) recommends the use of a properly managed petty cash system because it mitigates: (i) lending of money by anyone; (ii) employees having the chance to commit fraud because of having the advantage of issuing and cashing checks; (iii) access of the petty cash fund by any other than those allowed to; (iv) making payments without approval.

In addition, Schaeffer (2004), has addressed probably every aspect related to the management of accounts payables starting from the handling of invoices, which are documents that might be predated though they need to be similarly dated with shipments, and which are expected to match purchase orders filled by the purchasing departments and receiving documents, which are the author regards as the weakest link of the whole process. She also indicates that some of the employee frauds that can occur in the cash disbursement cycle include:

- making the company pay for the costs they incur
- alteration of vendor invoices to benefit themselves or a third party
- forgery of check signatures

- hiding or altering bank reconciliations
- fraudulent amount increments to hide bank account shortages (Schaeffer (2004),

### **2.1.8. Theories of Trade Credits**

Preve and Sarria-Allende (2010) explain why firms extend credits to their customers as a form of trade receivables and how it enhances their performance. One of the explanations is the *redistribution theory*, proposed by Mltzer(1960) that argues that firms that can more easily access finance redistribute their financial obligations to their customers with less access to finance through accounts receivables. Large and profitable firms use accounts receivables during times of financial distress and low profitability to grow into the market by beating their competitors, and thereby increase their profit although this can only continue until the firms face cash flow problem. This helps the firms to address customers with projects having bright prospects but that are unable to freely access finance.

Another motive of firms that extend trade credits is explained by *the theory of information asymmetry*. Frank and Maksimovic (2004) illustrate that, there is an efficiency of acting as a financial intermediary for suppliers in a developing economy, indicating it allows firms to have an indirect access to finance through suppliers. The reason behind this is that the inefficiency of financial market in such economies empowers trade credit financing to allow the firms to go through more productive transactions than those when using direct financing. This efficiency is because of two reasons. The first one is the advantage of sellers that they are in the industry while the financial intermediaries aren't, and, in case of default, can recover more amount through repossession than the intermediaries. The second one is that firms face complications persuading financial markets on their actual value, while sellers can more easily identify the creditworthiness of their customers based on information from former relationships.

### **2.1.9. Inventory Management**

#### **2.1.9.1. Just-In-Time (JIT) Manufacturing**

McWatters & Fullerton, 2013 tell us that Just-In-Time (JIT) manufacturing is a technique that dictates the products of a certain company must be manufactured just to meet orders rather than to be kept as inventories. Kootanae et. al. (2013) inform us that JIT is an instrument that is helpful to

gain a maximum utility out of limited available resources. They also add that, the JIT philosophy of manufacturing philosophy has a Japanese origin, and it is applied in processes that requires the availability of the necessary items of the needed quality and quantity at the necessary time and place. According to Kootanae et al, 2013 JIT inventory management method enhances the quality of products, advances the scale of productivity and increases efficiency of manufacturing companies. In addition they indicate that JIT is a manufacturing management philosophy that improves communication and assists to reduce cost and waste. They inform us that some of the results of using JIT are higher productivity with the best possible quality.

According to Kootanae et al (2013) There are two ways in which quality is improved by Just in Time manufacturing technique: (1) in a JIT manufacturing system, quality control is not a responsibility left to some divisions of the firm but rather to all of the firm's employees. It requires each individual that works in the company and has a certain contribution to the production of a particular item to regulate the quality of that specific item during each and every production process. (2) firms that have implemented Just in Time manufacturing mechanism purchase inputs in small amounts that just need a small area to be stored so that they can be moved as fast as possible. A minimized storage need results in a reduced necessity of facility. In addition, the speed to move the inputs that is acquired by using the system reduces the amount of labor cost and scrap. In addition control and inspections are made easy as small amount of inventory is purchased in the JIT system and defects are identified very soon.

#### **2.1.9.2. ABC Model**

Ravinder & Misra (2014) describe ABC model as a method of inventory management that classifies and prioritizes the various inventories of the firm so that they can be effectively managed. They also present the model as an inventory management technique in which there will be a grouping of inventories into three as group A, Group B and Group C, so that it is possible to give a varying degree of management focus to the various items of the firm that fall under the three groups according to the group they are put in. It is indicated in their work that those grouped under group A are to have the highest level of focus; and those under group B are given lesser focus than those in group A but a higher management focus than those in group C, which shows that the items under group C are those that are least focused on by the inventory managers. In addition, they inform us that the traditional sorting of the inventories of a firm under the three groups is based on

dollar volume. In this method the items in the first group, group A are those that are of the smallest amount but of the highest demand and dollar volume. The group B represents items that have a lesser demand and dollar volume but a higher quantity than the items under group A, and a lower quantity and a higher demand and dollar volume than those under group C.

According to Indrasan et al (2018) there are 6 steps to classify inventory items under one of the three groups: A, B, and C. Those steps are: (1): identifying the unit cost of each inventory and its amount of usage within a certain period; (2) calculating the net value by multiplying the unit cost of a certain item by its usage amount; (3) preparing a list of all inventories in a descending fashion based on their net value; (4) calculating the percentage contribution of each inventory to the total net value and total quantity after identifying the sum of the net values of all inventories and the total inventory quantity; (5) preparing a graph that shows percentage in number and net value; (6) from the graph, rationally deciding on the interval that is represented by each group. 5% to 10% of the items that represent 70% to 75% of the total material usage are sorted under group A; 15% to 20% of the items that represent 15% to 20 % of the total material usage shall be put under group B; and 70% to 75% of the items that represent 5% to 10% of the total material usage are classified under group C.

On the other hand, Ravinder & Misra (2014) discuss the modern way of classifying items under the three groups of ABC model of inventory management involves other criteria in addition to dollar value based on which the inventory items are prioritized which makes it a multi criteria ABC analysis model. Some of these criteria include lead time, the number of suppliers, easiness to be stocked, batch quantities imposed by suppliers, durability, scarcity, reparability, substitutability, commonality, the likelihood of obsolescence and spoilage, and cost and mode of transportation.

### **2.1.9.3. Theory of Constraints (TOC)**

According to Balakrishnan et al (2008), the theory of constraints was originally addressed by Goldratt (1980) and its different sides have been discussed ever since. They inform us that the novel of Goldratt and Cox (1984) which was about production management summarized the ideas of Optimized Production Technology (OPT) and came up with a five-step continuous improvement process. The process concentrates on physical and managerial constraints of a

system. Those five steps are: (1) Determine the constraints of the system; (2) Select ways to take advantages of those limitations (increase system performance); (3) Make all other decisions keeping those selections in step 2 in mind; (4) Elevate the system constraints (implement rigorous improvement ); (5) Return to the first step to identify new constraints caused by the improvements. This step makes the theory a continuous process.

The above five steps are discussed in detail by Rahman (1998). In addition he described TOC as a comparable inventory control system with Material Requirement Planning (MRP) and JIT; although it is hard to decide which inventory control mechanism is the best of all, his reviews show that a combined use of the three helps companies to exploit the superior qualities of each of the three techniques.

The article by Melendez et al (2018) presents a study conducted with the objective of identifying the trends and applications of the theory by using bibliometric and content analysis of the information found from reviewed literatures; it concludes that the application of this theory has found recognition by managements of different business areas including project management, production, logistics and distribution etc. whose processes involve step by step administration and operation. This acceptance is because of the adaptability of the theory and its potential to help understand the bottleneck of production systems.

#### **2.1.9.4. Lean Manufacturing**

Gupta et al (2015) label lean manufacturing as a competent and a fast developing method. It also informs us that lean manufacturing focuses on waste elimination in different factories in order to make its production better and be effective with lower cost. It is implemented in order to provide higher quality products with minimal expenditures by focusing on the reason behind wastage and improving its disposal through its different procedures. The four steps of practicing lean manufacturing as listed by Dixit et al. (2015) include: (1) Understanding that there exists waste that needs to be eliminated; (2) Evaluating and understanding the fundamental reasons that resulted the waste; (3) Looking for and selecting ways to deal with the causes; (4) Implementing those ways and reaching to our original goals

Just as TOC, we are expected to redo the steps continuously, which makes it a continuous process. In addition Dixit et al. (2015) have included tools and philosophies such as total quality

management, JIT, Kaizen and Five S for quality ambience as essential techniques that are used in lean production in order to identify waste problems and their causes and provide methods to solve those problems.

#### **2.1.9.5. Material Resources Planning (MRP)**

Sapry et al. (2018) show the effectiveness of MRP to predict the correctness of needed inventory. They describe it as a mechanism of controlling inventory that tries to hold optimum levels of inventory to make sure that specific materials are available when required. It is a system that is applied in conditions in which there are various materials with complex bills and not effective for closely connected uninterrupted procedures. It is particularly efficient in inevitably consequential environments. Nevertheless, there is uncertainty of demand in reality, which forces it to combine lot sizing, safety stock and safety lead time. Yet, using faulty data causes overstock, shortage and large variations.

Manthou et al (1996) described Material Requirements planning as an information system founded on computers with the objective of regulating manufacturing activities in companies. In addition Sarkar et al. (2013) describe MRP as a method used to determine material requirements with the information from bill of material, inventory data and master schedule and considers the combination of bill of material structure and assembly lead times and its consequence is a material plan that includes the amount and the time when materials that are listed in the bill of material structure are required.

#### **2.1.9.6. Economic Order Quantity (EOQ)**

According Kumar (2016) economic order quantity (EOQ) is an inventory management method that helps companies to get the maximum amount of profit through optimizing the amount of ordered input. He adds that the method is important in determining the quantity of inventory to be held, the optimal amount of inventory to order each time, and to decide the ideal number of orders that should be placed in a period so that the related costs are minimized. His work also informs us that ordering cost and carrying cost are regarded as the two most important costs in the field of inventory management.

Kumar (2016) describes ordering costs as costs incurred to acquire the inventories including costs of communication, traveling cost, salary and wage of employees of the purchase department, costs of inspecting the inventories and so on. Besides, carrying costs are costs incurred for activities like warehousing, insurance, obsolescence which are used to keep the inventory

Ordering costs are inversely related with carrying costs, a rise of one will lead to a decline of the other. Economic Order Quantity (EOQ) is the amount of inventory needed to be ordered so that the carrying cost becomes equal to the ordering cost. The equation to find this quantity, which is known as *the Wilson formula*, after R.H. Wilson who is claimed by Lapin ((1994), to be the first person to use it, is presented as follows:

$$\text{Total ordering cost} = C_0(D/Q)$$

$$\text{Total carrying cost} = C_H (Q/2)$$

(The sum of total ordering cost and total carrying cost gives us the total cost of stocking inventory.)

As discussed earlier, at the level of Economic Order Quantity;

- total carrying cost = total ordering cost, that is;
  - $C_H (D/Q) = C_0 (Q/2)$
  - $Q^2 = 2C_0 (D)/C_H$  ;
  - $Q = \sqrt{(2C_0 \frac{D}{C_H})}$

Where,  $C_0$  = Ordering Cost,  $Q$  = Order Quantity,  $C_H$  = Carrying Cost,  $D$  = Annual Demand

Thus, according to the Wilson formula  $EOQ = \sqrt{(2C_0 \frac{D}{C_H})}$

## **2.2. Review of Empirical Literature**

### **2.2.1. Existing Researches**

The topic of the impact of working capital management on financial performance has attracted various researchers worldwide. One of the works that addresses the issue is that of Garcia-Teruel and Solano (2007). They studied the impact of working capital management on profitability in 8,872 Small and Medium Enterprises in Spain using a panel data of the 1996-2002 interval. The

major variables they used are similar to that of the research, except for using Cash Conversion Cycle (CCC) rather than Cash Ratio to measure cash management. The result of their regression indicates that lowering number of days of inventory, number of days accounts receivables, and CCC enhances the firm's profitability.

A different literature that is related to the this paper is that of Agha (2014), which is an article regarding the effect of working capital management on profitability using secondary data from Kline pharmaceutical. What makes the work more related to this research is that the author used return on asset (ROA), to measure profitability, and this research used a similar measure to address financial performance. The four independent variables of the research were creditors' turnover ratio (CTO), debtors' turnover ratio (DTO), inventory turnover ratio (ITO) and current ratio (CR). The author concludes that all the variables other than CR have a significantly positive impact on ROA, but incomprehensibly recommends to lower CTO with the aim of increasing ROA.

Another related work is that of Ponsian et al (2014), with a similar motive as that of Agha (2014), but with different variables. The research is conducted in three sample manufacturing firms listed on the Dar es Salaam Stock Exchange. There are common independent variables in their research and those used in this research: average collection period (ACP), inventory turnover in days (ITD) and average payment period (APP). In addition CCC is used to measure cash management. There is also an additional fifth main independent variable in their research that they used to measure liquidity, which is current ratio (CR). They used Gross Operating Profit (GOP) to measure profitability, the dependent variable. They performed both correlational and regression analysis. Their regression indicates that the impact of: ACP is significant and positive; CCC is significant and positive; ITD is significant and negative; and APP is significant and positive on GOP although that of CR is not a significant factor.

The work of Golas (2020) is one of the very recent works with respect to the impact of working capital management on working capital management on the profitability of firms in the dairy industry of Poland. Data from 76 companies covering the ten year period from 2008-2017 were used to reveal the impact of the independent variables; ITD, ACP, APP and CCC on the dependent variable, ROA. The findings of this work indicate that ITD and CCC have negative impacts on ROA, while ACP, and APP have positive impacts on ROA.



Another article that studied the influence of the management of working capital on profitability of corporations is that of Nobanee and Haddad (2014), which was a study conducted on Japanese non-financial firms listed at the Tokyo Stock Exchange for the 1990-2004 interval. They used Receivables Collection Period (RCP); Inventory Conversion Period (ICP); Payable Deferral Period (PDP); and Cash Conversion Cycle (CCC). The former three are components of the calculation of CCC. The dependent variable of their work was Return on Investment (ROI). They concluded that shorter CCC, RCP and ICP enhance profitability.

A more recent article with a similar title to this research is that of Le et al. (2018). Their work was focused on 69 Ho Chi Minh Stock Exchange listed firms, using secondary data for the 3 years interval 2014-2016. The only independent variable was CCC, and its impact on the three variables Return on Asset (ROA); Return on Equity (ROE) and Return on Sales (ROS). Although CCC influences ROE and ROS significantly positively, it influences ROA significantly negatively. However, the authors conclude that working capital management has a positive and significant influence on financial performance because it positively affects two out of the three measures of financial performance in their research.

The literature regarding the impact of working capital management on financial performance mostly overlooks the use of cash ratio as a measure of cash management. However, in the study of Chintia and Prasad (2021) cash management has been measured by cash ratio. They studied the correlation of cash ratio, which has a mean value of 0.49, with return on asset based on 36 manufacturing firms listed in Muscat Securities Market in the six years from 2014 to 2019, and identified that the variables have a significantly positive relationship using Pearson's correlation analysis. This finding is similar to the study of Durrah et. al.(2016) that used the same analysis technique to study the relationship between ratios of liquidity management and financial performance indicators of food industrial firms listed in Amman Bursa in the three years period (2012-2014).

The Impact of cash ratio on return on asset has been addressed by the works of Dadebo and Afolabi (2020) and that of Rahman et al. (2015). The work of Dadebo & Afolabi (2020) focused on 10 Nigerian manufacturing companies and a data of the five years (2012-2016) period. They analyzed the impact of cash ratio on return on asset along with other liquidity ratios using SPSS version-16, and they identified that it has a significant positive impact the dependent variable. In addition, the

mean value of CaR in there study was 0.207. On the other hand, Rhaman et al (2015) conducted a similar research using a five years (2008-2012) data from 99 companies listed in Tadawul via the E-views package and their regression results show that cash ratio has a negative but insignificant impact on Return on Assets. The mean value of CaR in their study is 0.802.

Another research that aimed to address the tradeoff between liquidity and profitability is the work of Kong et al (2019). Their study addressed 15 listed non-financial firms in Ghana, using panel data from audited financial statements representing the period from 2008-2012. They measured profitability with Return on Capital Employed and one of the measures of liquidity used in their research is Cash Ratio, and its mean value was 0.328. The researchers used STATA version-15 package to run their regression and identified that cash ratio has an insignificant negative impact on profitability.

One of such works that has been conducted in Africa, regarding the impact of working capital management on profitability, is that of John and Chukwumerije (2011), which is undertaken in Nigeria. They addressed six manufacturing firms in the Nigerian Stock Market, collecting a data covering the years 2006 to 2010. Although they claimed to study the cause and effect relationships of working capital management and profitability in their objectives, the method they used were correlational. The only independent variable of their research was CCC, with which they measured working capital management. Their correlation analysis made them conclude that CCC is negatively related to profitability.

Sadiq (2017) also studied the impact of working capital management in companies that are in Africa particularly Nigeria. The data used for the study was that of small and medium enterprises in Osun State, Nigeria. The research covered a five years period from 2010-2014. The author measured financial performance using ROA; and used ACP, APP, CCC, ITD and net trading cycles as independent variables. The findings in this article clam that APP, CCC and net trading cycle have positive effect on ROA, while ACP and ITD have negative impact on ROA.

Another related African research is that of Mbawuni et al. (2016), which is a research conducted in Ghana. The article aims to identify the effect of the management of working capital on the profitability of petroleum retail firms over the six years of 2008-2013. Both the dependent and independent variables used are similar to that of the research, except they used CCC to measure

cash management, while this research used Cash Ratio. Their Multilevel Mixed-effects linear regression results show that CCC has an insignificant positive relation with ROA; ITD has an insignificant negative relationship with ROA; ACP has an insignificant positive relationship with ROA; on the other hand the APP has a significant negative relationship with ROA.

Another research that is based in Africa is the work of Mabandla & Makoni (2019); which was a study done based on the 10 years data (from 2007-2016) of food and beverage manufacturers in South Africa. The secondary data for their work were collected from McGregor databases of firms listed in the Johannesburg Stock Exchange. According to the findings of their regression analysis, which they computed manually, the impact of ITD and APP is positive on ROA while that of ACP is negative.

There is also a Kenyan research conducted by Makau et al (2017). They studied the impact of working capital on financial performance based on the secondary data from 9 manufacturing firms listed at Nairobi Securities Exchange covering the periods 2011-2015. They analyzed their data via multiple linear regression analysis using SPSS 24.0. The independent variable in their study related to this research is ACP, and they found that ACP has a negative significant impact on the dependent variable, ROA.

Related Ethiopian researches include that of Rani & Abreha (2017). Their study addressed the effect of working capital management on performance in 9 Endowment Fund for Rehabilitation of Tigray (E.F.F.O.R.T) manufacturing companies with data covering the interval 2011-2015. They used random effect estimates model of econometric model to test the influence of ACP, ICP, APP and CCC on ROA, ROE and Operating Profit Margin (OPM). Their results indicate that CCC, ACP and ICP have a significant negative impact on performance, whereas, APP affects performance significantly positively.

Tesfay and Batra (2018), studied the impact of working capital management on profitability considering the 353 firms in the Ethiopian corporate sector including those in both merchandising and manufacturing business. Their major dependent and independent variables are similar to those of this research, except they used cash conversion cycle as a cash management measure while this research used cash ratio. Their findings are consistent with a number of literatures in the area. They concluded a shortening CCC, ICP and ACP and lengthening APP increases profitability.

A research in the area specific to the city of Addis Ababa was conducted by Mengesha (2014), who studied the impact of working capital management on performance of 19 selected private metal manufacturers in Addis Ababa, for a thesis as a partial requirement of Master of Science in Accounting and Finance. The data used covered the interval of 2008-2012. He used ROA and Return on Investment (ROI) as measures of performance and its independent variables, except CCC, were similar to those of this study. The regression results show that all the independent variables; ICP, ACP, APP, CCC; have a negative and significant influence on the firm's financial performance.

Another research that on the area that conducted in Ethiopia is the work of Ketema (2018). He studied the impact of working capital management on performance of large taxpayer printing firms in Addis Ababa. The independent variables of the study were CCC, ITD, ACP and CR, and the researcher failed to incorporate any measure for account receivables management. ROA was the dependent variable of the research. Both descriptive and regression analysis of a five years data (from 2011-2015) collected from ERCA, of 9 cross-sections, were analyzed using E-views 9. According to his findings, CCC has a significant positive impact on ROA, while all the other three variables have significant negative impact on ROA.

Ahmed (2016) also addressed the issue by using selected manufacturing companies in Addis Ababa. The independent variables of his work were CCC, ACP, ITD and APP, while ROA was the only independent variable. He selected a sample of 16 firms out of 34 manufacturing companies, and used a data representing the years 2008-2014, a seven years period. The researcher's regression analysis using Eviews-9 indicate that ACP and CCC have significant negative impact on ROA while APP has an insignificant positive impact and ITD has an insignificant negative impact on ROA.

Another similar research done in the topic is the thesis of Kumelachew (2018) which was conducted on category A construction companies. Of a total of 45 construction companies, 17 sample firms were selected for the study, and the panel data was collected from Ethiopian Revenue and Custom Authority (ERCA) for a period covering the eight years from 2008-2015. The independent variables used in the research were ACP, ITD, APP and CCC, while the independent variable were ROA. The analysis was done using STATA and E-views and the results indicated

that ACP, and CCC have significant negative impact on ROA, while the other two variables were found to have no significant impact on ROA.

Estifanos (2015) also studied a similar topic on the sugar manufacturing industry of Ethiopia. A twelve years data covering the years from 2002 to 2013 were collected from three sugar manufacturing companies, and regression of the independent variables CCC, ACP, ITD and APP and the dependent variable ROA were done using the software packages SPSS and STATA-12. The regression results show that, APP has a significant negative impact on ROA in the sugar manufacturing companies, while ACP has a significant positive impact on ROA. The other two independent variables, CCC and ITD were found to have no significant impact on ROA of the addressed manufacturing firms.

In addition, the article of Hailu and Venkateswarlu (2016) also addressed the effect of the management of working capital on the profitability of manufacturing firms in the eastern Ethiopia region. The independent variables used in their study were similar to most of the studies in the area: ACP, ITD, APP and CCC, and their independent variable was ROA. Data that covers the five years period from 2010-2014 were collected from thirty manufacturing firms. According to the regression analysis results, CCC and ACP has a significant negative effect on Return on Asset, while ITD has a positive effect on ROA. However, the impact of APP on ROA was found to be insignificant in their work.

With respect to descriptive statistics results, mean values of similar major variables to those used in this research taken from the Ethiopian studies reviewed are;

- ROA=0.32; ACP=134.283; ITD=133.105; APP= 544.379 (Mengesha, 2014)
- ROA=0.179; ACP=60.588; ITD=232.99; (Ketema,2018)
- ROA=0.149; ACP=87.919; ITD=230.985; APP= 176.823 (Kumlachew,2018)
- ROA=0.048; ACP=187.57; ITD=403.94; APP=238.40 (Estifanos,2015)
- ROA=0.179; ACP=95.6; ITD=47.1; APP=52.9 (Hailu and Venkateswarlu, 2016)
- ROA=0.142; ACP=116.643; ITD=248.384; APP=114.089 (Ahmed, 2016)
- ROA=0.0739; ACP=77.022; ITD=200.82; APP=358.326 (Rani & Abreha, 2017)

### **2.3. Conceptual Framework of the Study**

The measures of the efficiency of the management of each component of working capital used in this research are:

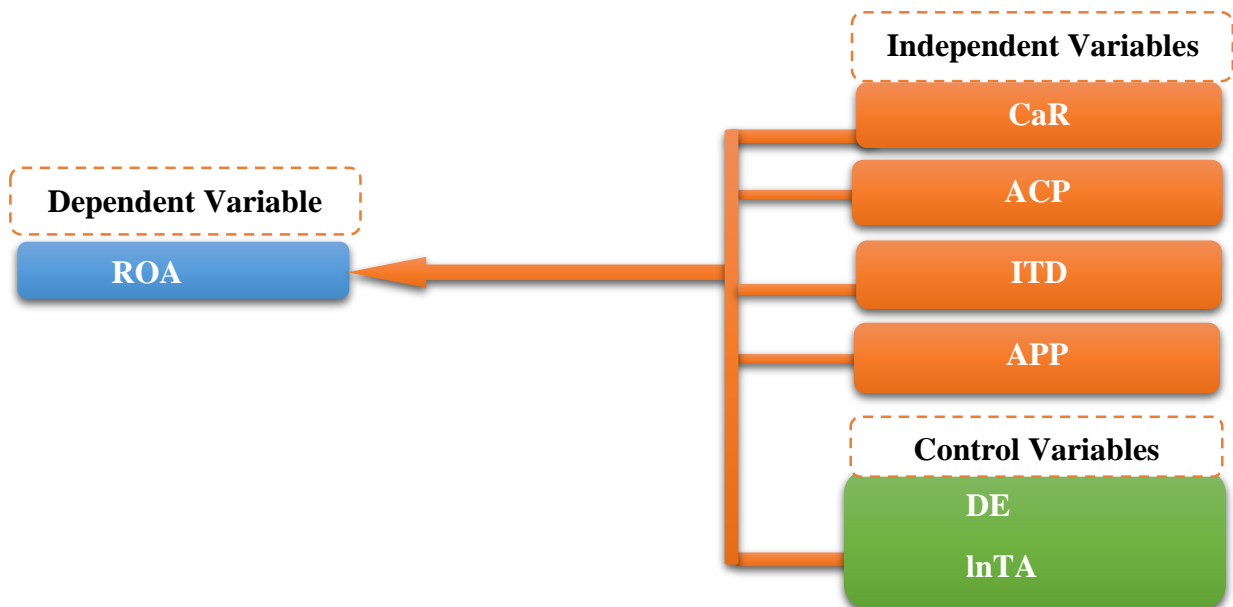
- Cash Ratio (CaR) to measure management of cash as used by Chinthia and Prasad (2021);
- Average Collection Period (ACP) to measure the management of accounts receivables;
- Inventory Turnover in Days (ITD) to measure the management of inventory;
- Average Payment Period (APP) to measure accounts payables' management.

The three measures: ACP, ITD and APP are specified as indicators of working capital management strategies in Nia et al. (2012).

The control variables Debt to Equity Ratio (DE) that measures leverage and firm size measured by natural logarithm of total assets (lnTA) are taken from the list of the determinants of financial performance identified by the work of Omondi and Muturi (2013). In addition, the variables were used as control variables in the works of Mengesha (2014); Kumelachew (2018); Estifanos (2015); Hailu and Venkateswarlu (2016); and Ketema (2018).

On the other hand, financial performance of the firm was measured using return on assets (ROA) similar to that used in most of the studies in the literature pool to measure how efficiently has the management performed in terms of profit considering the amount of total assets under the firm's control.

**Figure 2.1: Illustration of the Conceptual Framework of the Study**



**Source: The Researcher's Own Construct based on Reviewed Literature**

## **CHAPTER III**

### **RESEARCH DESIGN AND METHODOLOGY**

#### **3.1. Research Approach**

A business research may use one of the three types of research approaches namely, quantitative, qualitative and mixed methods approach. Quantitative research is a means for testing objective theories by examining the relationship among variables (Creswell, 2009). Qualitative research approach is one in which the investigator often makes knowledge claims based primarily on the multiple meanings of individual experiences, socially and historically constructed meanings, participation in issues, collaboration or change oriented with an intent of developing a theory or pattern (Creswell, 2003). Mixed research is an approach to inquiry that combines or associates both qualitative and quantitative forms (Creswell, 2009). Considering the research problem and objective quantitative research approach is found to be appropriate for this particular study.

#### **3.2. Research Design**

According to Kothari (2004), research design refers to the strategy of the research project that enables the researcher to collect, measure and analyze data. This study used explanatory research design. An explanatory research design is utilized in hypothesis testing research studies to identify the extent and nature of cause-effect relationships between independent and dependent variables.

#### **3.3. Population of the Study**

Khotari (2004) defines population as the total of the items that constitute any field of inquiry. The population for this study consists of all large tax payer leather processing firms in Ethiopia that were under operation from 2014-2018. According to the information the researcher acquired from the large taxpayers office, there are 18 leather processing firms registered as Large Taxpayers and which were undertaking business operations in the years 2014-2018. Thus, the total number of the population of the study is 18.



### **3.4. Sampling Technique**

The research uses a purposive sampling to select 14 companies out of the 18 that constitute the population. It is a sampling technique that is used to select samples that are information rich (Patton, 1990). The reason behind this selection is a target to include firms with no missing data in the five years interval. Thus, this number of samples, along with the time dimension of five years makes the number of observations taken for the purpose of this study to be 70.

### **3.5. Method of Data Collection**

This study have used secondary data which were found from the financial statements of the large tax payer leather processing companies in Ethiopia that were operating in the years from 2014-2018. The time frame is limited to a five years period because of lack of access of data that represent wider period of time. The 5 year data covering the interval 2014 up to 2018 has been collected from the Large Taxpayers office of Ministry of Revenue, which makes the structure of the data to be a balanced panel.

### **3.6. Method of Data Analysis**

The quantitative data that has been collected from the financial statements were analyzed by using the E-views 10 analytical package. The E-views package was chosen to analyze the data of this study because of the reviews in Brooks (2014) that suggests it a flexible, simple and user-friendly software because it's programming language and suitable interface. The researcher has processed a descriptive statistics to describe the state of the variables in the study setting. More importantly, multiple regression analysis has been conducted so as to understand whether financial performance of selected large tax payer leather processing firms in Ethiopia is impacted by the management of each major component of working capital.

### **3.7. Regression Model of the Study**

The regression model for the research is presented as follows.

$$ROA = \beta_0 + \beta_1 (CaR_{it}) - \beta_2 (ACP_{it}) - \beta_3 (ITD_{it}) + \beta_4 (APP_{it}) - \beta_6 (DE_{it}) + \beta_7 (\ln TA_{it}) + u_{it}$$

Where,

$\beta_0$  = Constant

$\beta_1$  = Regression coefficient of CaR

$\beta_2$  = Regression coefficient of ACP

$\beta_3$  = Regression coefficient of ITD

$\beta_4$  = Regression coefficient of APP

$\beta_6$  = Regression coefficient of DE

$\beta_7$  = Regression Coefficient of lnTA

u = Error term

t= time (1-5, representing years 2014-2018)

### Metrics for the Variables

For the purpose of this study the independent and dependent variables are calculated using the following equations.

- $CaR = \frac{Cash + Marketable\ securities}{total\ current\ liabilities}$
- $ACP = \frac{365\ days}{credit\ sales / accounts\ receivable}$
- $ITD = \frac{365\ days}{cost\ of\ goods\ sold / inventory}$
- $APP = \frac{accounts\ payable}{cost\ of\ goods\ sold / 365\ days}$
- $ROA = \frac{Profit\ before\ interest\ and\ tax}{total\ assets}$
- $DE = \frac{Total\ Debt}{Total\ Equity}$
- $lnTA = \log_e\ total\ assets$  (where  $e=2.71828$ )

## 3.8. Description of Variables

### 3.8.1. Return on Asset

According to Farfan et. al. (2017) return on asset is a profitability ratio that determines the earning rate that has been resulted from its operational activities. In addition, they indicate that return on asset is calculated by the division of net income before interest and tax to the value of the total assets. According to CFI (n.d.), a higher ROA indicates that the management is more efficient in exploiting the economic resources controlled by the firm. As indicated in the empirical review, ROA is a frequently used measure of financial performance in the literature regarding how financial performance is impacted by working capital management, which is why the researcher chose to use it as the dependent variable of the research; a measure of financial performance.

### **3.8.2. Cash Ratio**

Cash ratio is described by Farfan et. al. (2017) as a measure of the liquidity available if inventory and receivables are removed from the current assets, and tells us the amount of cash held by a business with respect to its current liabilities. It is calculated by dividing cash and cash equivalents to current liabilities. The researcher was motivated to use it as a measure of cash management with the intention to address a cash management aspect that has been less usually addressed, so that it adds a unique element for the study. As indicated in the empirical review, there is a small amount of studies that addressed the impact of cash ratio on financial performance. As perceived from the findings of: Dadebo and Afolabi (2020), which is the only research that the researcher could access that identified a significant impact of cash ratio on return on asset, the researcher has proposed the first hypothesis.

*H<sub>1</sub>: Cash Ratio (CaR) has a positive and significant impact on Return on Asset (ROA)*

### **3.8.3. Average Collection Period**

According to CFI (n.d.), average collection period, which is calculated by dividing the number of days in the period under consideration (which is 1 year period for the purpose of this research) to accounts receivable turnover ratio, is a ratio used to indicate the average number of days it takes for a firm to collect the amount of on account sales. It is used frequently in the literature regarding the impact of working capital management on financial performance as a measure of accounts receivable management. The findings of Garcia-Teruel and Solano (2007); Nobanee and Haddad (2014); Makau et al (2017); Rani & Abreha (2017); Tesfay and Batra (2018); Mengesha (2014); Ketema (2018); Ahmed (2016); Kumelachew (2018); and Hailu & Venkateswarlu (2016) indicate that ACP has a significant negative impact on ROA, thus the second hypothesis of the research is proposed as;

*H<sub>2</sub>: Average Collection Period (ACP) has a negative and significant impact on ROA;*

### **3.8.4. Inventory Turnover Days**

Inventory turnover days is a measure of the average number of days that it takes for a certain business to convert its inventories into sales, and is determined by dividing the number of days of the period under consideration by the inventory turnover ratio. Just as ACP, ITD is also a very widely used measure of inventory management in the literatures. As discussed in the empirical review, it is indicated in the findings of: Nobanee and Haddad (2014); Ketema (2018); Rani & Abreha (2017); Tesfay and Batra (2018); Mengesha (2014) that ITD has a significant positive impact on ROA which is why the researcher proposed a third hypothesis that states;

*H<sub>3</sub>: Inventory Turnover in Days (ITD) has a negative and significant impact on ROA;*

### **3.8.5. Average Payment Period**

Farfan et. al. (2017) describe average payment period as the average number of days by which a certain company pays the amount owed to suppliers for items purchased on account. They add that average payment period for a year is calculated by 360 days divided by payables turnover ratio. Average payment period, as indicated in the empirical reviews, is a commonly used measure of accounts payable management, in the literatures regarding the impact of working capital management on financial performance. As shown in the empirical review, the findings of: Rani & Abreha (2017); Mabandla& Makoni (2019); Tesfay and Batra (2018); Sadiq (2017); and Golas (2020), indicate that average payment period has a positive impact on return on asset. Thus, the researcher has proposed the fourth hypothesis of this research.

*H<sub>4</sub>: Average Payment Period (APP) has a positive and significant impact on ROA.*

### **3.8.6. The Control Variables**

The control variables of this study are debt to equity ratio and firm size measured by natural logarithm of total assets. The two variables were selected from the control variables that were used as control variables in the literature pool that focuses on examining the impact of working capital on financial performance. The works of Mengesha (2014); Kumelachew (2018); Estifanos (2015); Hailu and Venkateswarlu (2016); and Ketema (2018) have incorporated either one or both of the variables as control variables in their work.

The first variable, debt to equity ratio, is a variable calculating total liabilities (including both long and short term liabilities) to total shareholders' equity of a certain business. It is a leverage ratio that shows whether a certain company is indebted or not as compared to its shareholders' equity. The study of Omondi and Muturi (2013), which is regarding determinants of financial performance as measured by ROA, identified that DE has a negative impact on ROA. Thus, it is proposed to have a negative coefficient in the regression output as indicated in the model in section 3.7. of this report.

On the other hand, the second control variable, firm size is measured by using the natural logarithm of assets similarly to the studies of Ketema (2018) and Kumelachew (2018). In addition, the work of Omondi and Muturi (2013) indicates that firm size has a positive impact on ROA. This is why, as shown in the model in section 3.7. of this report, it is proposed that firm size would have a positive coefficient in the regression output.

## CHAPTER IV

### DATA ANALYSIS, PRESENTATION OF RESULTS AND DISCUSSION

#### 4.1. Result and Discussion of Descriptive Statistics

Kothari (2003) informs us that descriptive statistics is one of the two major types of statistics that focuses on presenting specific numerical expressions of the available data. It also indicates that the two categories of quantitatively summarizing data in statistics are measures of central tendency (mean and median) and measures of dispersion (standard deviation). The results of the descriptive statistics of the dependent variables and the independent variables of this research are presented in table 4.1.

**Table 4.1. Descriptive Statistics Results**

	ROA	CAR	ACP	ITD	APP	DE	LNTA
Observations	70	70	70	70	70	70	70
Mean	0.086	1.096	110.323	201.646	134.640	1.339	19.872
Median	0.070	0.359	98.435	181.635	116.620	0.917	19.732
Maximum	0.300	6.449	254.710	469.700	264.984	6.116	21.750
Minimum	-0.096	0.013	38.780	20.230	94.580	0.195	18.284
Std. Dev.	0.096	1.558	56.265	113.353	47.445	1.153	0.791

**Source: E-views 10**

As it can be seen from table 4.1., the number of observations of each of the research variables were 70. This is because the number of large tax payer leather processing firms from which the data is collected is 14 and the time period that is represented by the data is from 2014-2018; a five years period.

The first variable presented in table 4.1. is the only dependent variable of the research, Return on Asset. Return on asset is a measure of the percentage of annual net income before interest and tax as compared to the total assets of the firm. From the table we can see that the mean value of return on assets is equal to 0.086, and the median is equal to 0.07. The maximum return on asset of the firms is 0.3 and the minimum return is equal to -0.096. In addition the standard deviation of the return on asset values in the panel data is 0.096. The mean value tells us that, on average, the percentage of net income before interest and tax with respect to the total assets of large taxpayer leather processing firms is 8.6%. On the other hand, by referring

to the standard deviation, we can understand that the return on asset values of large taxpayer leather processing firms in Ethiopia are dispersed with respect to the mean value by an average of 9.6%. The mean value ROA of the firms addressed in this research is greater than only two of the Ethiopian researches reviewed in this research which are that of the works of Estifanos (2015) and Rani & Abreha (2017), which suggests that the large tax payer leather processing firms have shown lesser financial performance, as measured by ROA, than most of the other firms addressed by the reviewed researches.

Cash Ratio is the independent variable that makes this research to have a unique dimension in relation with comparable researches in Ethiopia. The researcher could not find any work based in the country that used the ratio to measure cash management. From table 4.1., it can be understood that the mean value for cash ratio is equal to 1.096, its median is 0.359, its maximum is 6.449, its minimum is 0.013 and it has a standard deviation of 1.558. The 'mean' tells us that on average the cash balance of large tax payer leather firms in Ethiopia could cover ETB 1.096 of every ETB 1 current liability they incur. On the other hand, the standard deviation, which is equal to 1.558 tells us that, on average, the data of Cash Ratio is dispersed 1.558 units with respect to the mean. The mean value of cash ratio in this study (1.096) which is greater than that of the firms addressed by Chintha and Prasad (2021), which is 0.49; Rehman et. al. (2015), which is 0.8072; Kong et al (2019), which is 0.328; and that of Dadepo & Afolabi (2020), which is 0.207. This suggests that the large tax payer firms are more liquid in terms of Cash Ratio than the studies that are reviewed in this report.

The second independent variable, Average Collection Period, which is also known as Accounts Receivable Days in some books, tells us the average number of days that is needed by a firm to collect the amount of its on-account sales. The descriptive statistics results of the second variable, Average Collection Period, which is used to measure efficiency of account receivable management, indicate that its mean value equals 110.323days, its median is equal to 98.435days, its maximum value is equal to 254.71 days, its minimum value equals 38.78 days and the standard deviation is equal to 56.265 days, as perceived from table 4.1. The mean value tells us, on average, it takes large taxpayer leather processing firms in Ethiopia 110.323 days per period to receive the amount of sales from their credit customers. From the standard deviation, we can understand that the Average Collection Period values are dispersed from the

mean by an average of 56.265 days. Of the Ethiopian studies reviewed in this report, the mean value of ACP in this study is greater than that in Ketema (2018); Kumlachew (2018); Hailu and Venkateswarlu(2016); and Rani & Abreha (2017), while it is less than that of Ahmed (2016); Mengesha (2014); and Estifanos (2015). This shows that the mean value of the ACP of the firms in this study is within the range of the other studies reviewed.

On the other hand, Inventory Turnover Period, which is the third independent variable, is a working capital management efficiency measure that shows the number of days that are needed to finish selling the inventory of an accounting period. Table 4.1. indicates that the mean value of inventory turnover period is equal to 201.646 days; its median equals 181.635 days; its maximum value is equal to 469.700 days; it has a minimum value of 20.230 days; and the standard deviation of the data for inventory turnover period is equal to 113.353 days. Based on the mean value, we can understand that large tax payer leather processing firms in Ethiopia, on average, complete selling their inventory in 201.646 days per year. In addition, the standard deviation tells us that the values of the panel data for inventory turnover period are, on average, dispersed from the mean by 113.353 days. Of the studies done in Ethiopia which were reviewed in this report, the mean value of ITD in this study is greater than that in the studies of Mengesha (2014); Hailu and Venkateswarlu (2016); and Rani & Abreha (2017), while it is lesser than the mean value of ITD in the other studies reviewed.

Another working capital management efficiency measure addressed in table 4.1. is the Average Payment Period, which is the fourth independent variable of this study. Average payment period measures the amount of days it takes for a firm to pay its liability back to its on-account suppliers. The mean value of average payment period is 134.640 days, the median is equal to 116.620 days, the maximum average payment period is 264.984 days, and it has a minimum value of 94.580 days. The standard deviation is 47.445 days. The mean value reveals that the Ethiopian large taxpayer leather processing firms, on average, settle their liabilities to suppliers in 134.640 days per year. From the standard deviation, it can be understood that, the data of average payment period is distant from the mean an average of 47.445 days. The APP in this study is greater than that in the studies of Hailu and Venkateswarlu (2016) and that of Ahmed (2016). However, the APP in this report is lesser than that of all of the other studies reviewed.



Which shows the APP of the firms in this study is less than most of the firms addressed in the empirical review of this report.

One of the two control variables used in this study is the Debt to Equity ratio, which is a measure of leverage. It tells us the percentage of total debt with respect to stockholders equity. Table 4.1. indicates that the mean of Debt to Equity ratio is equal to 1.339 while its median is equal to 0.917. On the other hand, the maximum debt to equity ratio in the panel data is 6.116 and the minimum value is 0.195. The standard deviation of debt to equity ratio is 1.153, as indicated in Table 4.1. According to the mean value, it can be understood that the average proportion of debt versus equity in Ethiopian large taxpayer leather processing firms is 1.339, which shows that they are indebted as compared to their equity balances. On the other hand, from the standard deviation we can understand that the average distance of the debt to equity values of Ethiopian large tax payer leather processing firms from the mean value is 1.153.

The second control variable in this research is firm size, which is measured by natural logarithm of total assets. The average  $\ln$  (total assets) is equal to 19.872, its median is equal to 19.732, its maximum value is 21.750 and its minimum value is 18.284, and its standard deviation equals 0.791. Thus, according to the value of the mean, the average size of Ethiopian large tax payer leather processing companies is 19.872 as measured by the natural logarithm of their individual total asset and the standard deviation tells us that the other values of firm size, on average, are dispersed from the value of the mean 0.791 units.

## **4.2. Tests, Results and Interpretation of Regression Analysis**

In order to understand the causal relationship between the independent variables, which are the components of working capital management and the control variables; with the dependent variable, return on asset, a measure of overall firm financial performance, the researcher has developed the following explanatory model to be processed using the E-Views 10 package, under a confidence level of 95%.

$$ROA = \beta_0 + \beta_1 (CaR_{it}) - \beta_2 (ACP_{it}) - \beta_3 (ITD_{it}) + \beta_4 (APP_{it}) - \beta_6 (DE_{it}) + \beta_7 (\ln TA_{it}) + u_{it}$$

### 4.2.1. Hausman Test

It can be understood from this model that this research is conducted using panel data, because the model incorporates a cross sectional (i) and time series (t) dimensions. And the panel is a balanced panel, since it has equal cross sectional and time series observations. It is discussed in Brooks (2014) that regressions can be undertaken under either the fixed effects or random effects models. In order to identify whether the random effects model or fixed effects model is appropriate the researcher has performed the Hausman test as suggested by Brooks (2014). The result is presented in table 4.2.

**Table 4.2. Hausman test Results**

Correlated Random Effects - Hausman Test			
Equation: EQ01			
Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	16.497649	6	0.0113

**Source: output of E-views 10**

From this result we can see that the p-value of cross-section random is 0.0113, which is below the significance level (5%). This is interpreted as the random effects model is not suitable for this regression. Thus, the researcher has regressed the variables using the cross section fixed effects model.

### 4.2.2. Diagnostic tests for Classical Linear Regression Model Assumptions

Brooks (2014) has presented the following five assumptions that are needed to be fulfilled by a certain classical linear regression model so that the estimator in the model is equipped with the four characteristics known by the acronym BLUE (Best, Unbiased, Linear, and Estimator).

- $E(u_i)=0$ ; interpreted as: *the mean of the error terms is equal to zero,*
- $var(u_t)=\sigma^2<\infty$ ; interpreted as: *the errors have constant and finite variance over all values of  $X_{it}$*
- $cov(u_t, u_0)=0$ ; interpreted as; *there is a linear independence between the errors*
- There is no multicollinearity (*the independent variables are not correlated*)

- $u_t \sim N(0, \sigma^2)$ ; interpreted as; *the residuals are normally distributed*

(Brooks,2014)

The results of the diagnostic tests with respect to the regression model of this research is presented in the following sections.

#### 4.2.2.1. Test for $E(u_t)=0$

According to Brooks (2014), if the regression equation includes a constant term, then the assumption that the mean of the residuals must be equal to zero can never fail to be fulfilled. As it is to be shown in table 4.6, and the regression equation, the result of the estimation incorporates a constant (intercept) that is equal to 0.13.

#### 4.2.2.2. Test for the Presence of Heteroscedasticity

Brooks (2014) indicates that the assumption that dictates the variance of the error terms to be constant is referred to as the homoscedasticity assumption. The researcher has tested for homoscedasticity at both cross section and period dimensions. Although there are various ways to test whether the residuals either have a constant variance (are homoscedastic) or they don't have a constant variance (are heteroscedastic), the researcher used likelihood ratio test because it was the only available homoscedasticity test method in the software package. The results of cross-section heteroscedasticity test and period heteroscedasticity test are presented in tables 4.3. and 4.4 respectively.

**Table 4.3. Cross-section Heteroscedasticity Test**

Panel Cross-section Heteroskedasticity LR Test			
Null hypothesis: Residuals are homoskedastic			
Equation: EQ01			
Specification: ROA C CAR ACP ITD APP DE LNTA			
	Value	df	Probability
Likelihood ratio	20.99829	14	0.1017

**Source: output of E-views 10**

As it can be seen in table 4.3. the null hypothesis of the likelihood ratio test for cross section heteroscedasticity is that the residuals are homoscedastic. The p-value shows that we need to

accept the null hypothesis because a p-value of 0.1017 is greater than the significance level of 5%. Thus, the residuals don't have cross sectional heteroscedasticity.

**Table 4.4. Period Heteroscedasticity Test**

Panel Period Heteroskedasticity LR Test			
Null hypothesis: Residuals are homoskedastic			
Equation: EQ01			
Specification: ROA C CAR ACP ITD APP DE LNTA			
	Value	df	Probability
Likelihood ratio	1.444565	14	1.0000

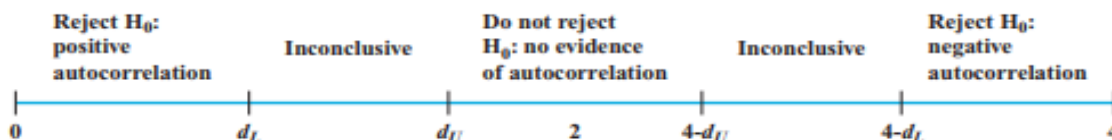
**Source: output of E-views 10**

Similarly, the null hypothesis in table 4.4. is that residuals are periodically homoscedastic. As it can be seen, the p-value of the likelihood ratio test is 100% which is greater than the significance value of 5%. Thus, the residuals of the estimation output of this study are homoscedastic.

#### 4.2.2.3. Test to Detect Autocorrelation

According to Brooks (2014) autocorrelation is an instance in which there is a certain pattern in the residual series which shows that the error terms of consecutive periods fail to be independent of one another. The researcher has performed the Durbin-Watson test to detect whether or not there is a first order autocorrelation between residuals.

**Figure 4.1. Durbin-Watson test Rejection and Non-rejection Regions**



**Source: Brooks (2014)**

The depiction in figure 4.1. is used to decide whether or not there is autocorrelation by using the Durbin-Watson test. As it can be seen in the figure, one can decide on not rejecting the null hypothesis that there is no autocorrelation between the error terms, if Durbin-Watson stat falls between, the upper critical value ( $d_U$ ) and  $4-d_U$ . The upper and lower critical values can be found from Savin and White table of critical values for Durbin-Watson statistic presented in

Savin and Watson (1977). The upper and lower critical values for Durbin-Watson stat test of 6 regressors (excluding the intercept), and 70 number of observations at a significance level of 5%, just as in the case of the estimation of this research, are 1.433 and 1.802 respectively. Thus, if the Durbin-Watson stat of the estimation equation is between 1.802 and  $4 - 1.802 = 2.198$ , then we do not reject the null hypothesis. As it can be seen from the estimation output in table 4.6, the value of the Durbin-Watson stat of the estimation model of this research is equal to 2.032, which is a value between 1.802 and 2.198. Thus, we can decide that there is no first order autocorrelation.

#### 4.2.2.4. Test to Detect the Presence of Multicollinearity

The presence of multicollinearity indicates that there is correlation between independent variables as indicated by Brooks (2014). The researcher has checked for the presence of multicollinearity by using the correlation matrix of the independent variables. The correlation matrix is presented in table 4.5.

**Table 4.5. Correlation Matrix of Independent Variables**

	CAR	ACP	ITD	APP	DE	LNTA
CAR	1.000000	0.200167	0.001824	0.271441	0.051005	-0.107117
ACP	0.200167	1.000000	0.193097	-0.014895	-0.134558	0.132504
ITD	0.001824	0.193097	1.000000	0.259752	0.038517	0.335120
APP	0.271441	-0.014895	0.259752	1.000000	0.237409	0.073082
DE	0.051005	-0.134558	0.038517	0.237409	1.000000	0.051072
LNTA	-0.107117	0.132504	0.335120	0.073082	0.051072	1.000000

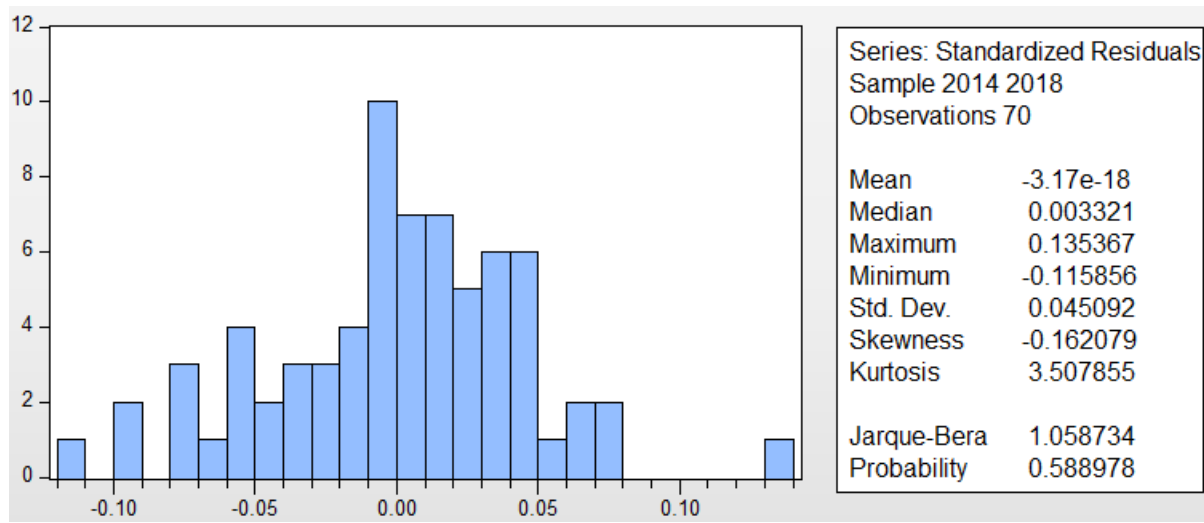
**Source: output of E-views 10**

As it can be seen from table 4.5. the absolute values of all of the values of correlation coefficients are less than 0.9. Thus, there is no problem multicollinearity in the estimation.

#### 4.2.2.5. Test for the Presence of Non-normality

As indicated earlier, the fifth assumption of classical linear regression models so that the estimators of the regression output are 'BLUE' is that the error terms are expected to be normally distributed. Figure 4.2. shows the histogram of the residuals of research's estimation along with the values of descriptive statistics elements and the Bera-Jarque test results.

**Figure 4.2. Histogram - Normality Test**



**Source: output of E-views 10**

Brooks (2014) discusses that if the p-value for the Bera-Jarque stat is greater than the level of significance, then the null hypothesis that the residuals are normally distributed will not be rejected. As it can be seen in Figure 4.2, the p-value of the Bera-Jarque stat is 58.90%, which is greater than the level of significance (5%). Thus, the estimation of the regression does not have the problem of non-normality of residuals.

### **4.2.3. Presentation and Interpretation of Estimation Output**

The introductory section of this report presents the four hypothesis of the study. The regression that has been undertaken using the E-views 10 package satisfies the five assumptions of classical linear regression model as indicated in the previous parts of this study. Thus, the estimators in the output of the regression analysis have been proven to be Best, Unbiased, Linear, Estimators. Table 4.6. shows the estimation output of the regression analysis of the impact of working capital management of Ethiopian large taxpayer leather processing firms on their financial performance.

**Table 4.6. Result of the Panel Least Squares Regression Analysis**

Dependent Variable: ROA  
Method: Panel Least Squares  
Date: 05/29/21 Time: 15:35  
Sample: 2014 2018  
Periods included: 5  
Cross-sections included: 14  
Total panel (balanced) observations: 70

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.130462	0.527755	0.247201	0.8058
CAR	-0.011907	0.005799	-2.053267	0.0453
ACP	-0.000814	0.000222	-3.661923	0.0006
ITD	-0.000392	0.000143	-2.732499	0.0087
APP	-0.001419	0.000387	-3.667233	0.0006
DE	0.022328	0.011491	1.943141	0.0576
LNTA	0.015049	0.027129	0.554741	0.5815

Effects Specification

Cross-section fixed (dummy variables)			
R-squared	0.779344	Mean dependent var	0.086392
Adjusted R-squared	0.695495	S.D. dependent var	0.095994
S.E. of regression	0.052972	Akaike info criterion	-2.803165
Sum squared resid	0.140300	Schwarz criterion	-2.160738
Log likelihood	118.1108	Hannan-Quinn criter.	-2.547985
F-statistic	9.294583	Durbin-Watson stat	2.031953
Prob(F-statistic)	0.000000		

Source: output of E-views 10

#### 4.2.3.1. Goodness of Fit

It is indicated in Brooks(2014) that the extent to which the change in dependent variable is explained by the independent variables in a regression function can be measured by  $R^2$  and ‘adjusted  $R^2$ ’, the latter being a better measure. As it can be seen in table 4.6., the ‘adjusted  $R^2$ ’ is equal to 69.55%, which shows that the independent variables in the regression function (Cash Ratio, Average Collection Period, Inventory Turnover in Days, Average Payment Period, Debt to Equity Ratio and Firm Size) explain 69.55% of the changes in Return on Asset, the dependent variable, while a change of the remaining 30.45 % of the dependent variable is explained by other variables that haven’t been included as parts of the model in the study.

#### **4.2.3.2. F-test**

According to Brooks (2014), the F-statistic of a regression function is a result of a null hypothesis that states: the regression coefficients of the independent variables other than the intercept equal zero. As it can be seen in table 4.6. this null is to be rejected since the p-value of the F-stat is equal to 0. Thus, the coefficients of the regression function are to be values other than zero, with a great deal of significance. The test of each hypothesis of this research has been presented in the sections that follow.

#### **4.2.3.3. H<sub>1</sub>: CaR has a positive and significant impact on ROA**

The impact of cash ratio on return on asset is one of the least addressed issues in the literature regarding the impact of working capital management on financial performance. One of the aims of this research has been to identify the impact of cash ratio, which is used as a measure of cash management, on return on asset of large taxpayer leather processing firms in Ethiopia. The proposed alternative hypothesis that predicts a significantly positive impact on return on asset was based on the findings of, one of the two papers that studied the impact of CaR on ROA that the researcher could have access of, Dadebo & Afolabi (2020), because the study setting of their research included only manufacturing firms in an African country, as compared to the other research, Rhaman et al (2015), which was conducted based on firms in Saudi, Asia.

However, as indicated in table 4.6., since the p-value of the t-stat is equal to 0.0453, and a coefficient of -0.012, the hypothesis that states: cash ratio has a positive and significant impact on return on asset, shall not be accepted. The finding of this study indicated that cash ratio has a negative and significant impact on return on asset. This can be interpreted as: if the cash ratio of the companies increases by a single unit, the return on asset would be reduced by 1.2%. This negative impact of cash ratio over return on asset can be explained through the theory of tradeoff between liquidity and profitability. Since holding cash is a business activity that would yield the least return, the finding that liquidity, as measured by Cash Ratio, would have a negative impact over return on asset wouldn't be unacceptable.



#### **4.2.3.4. H<sub>2</sub>: ACP has a negative and significant impact on ROA**

The second independent variable, Average Collection Period, is hypothesized to have a significant negative impact on return on asset based on reviewed literatures. The findings presented in table 4.6. indicate that the coefficient for ACP in the regression function is equal to -0.000814 and a p-value of 0.0006. This is interpreted as ACP has a very significant negative impact on return on asset in large taxpayer leather processing firms in Ethiopia at 5% significance level. Thus, the researcher doesn't have sufficient evidence to reject the second hypothesis. In addition, the coefficient of ACP tells us that, keeping the other variables in the model constant, a one day increase of time to collect the average accounts receivables of a period from customers reduces the return on asset of large tax payer leather processing firms in Ethiopia by 0.081%.

The finding of this study is similar to the findings of Garcia-Teruel and Solano (2007); Nobanee and Haddad (2014); Makau et al (2017); Rani & Abreha (2017); Tesfay and Batra (2018); Mengesha (2014); Ketema (2018); Ahmed (2016); Kumelachew (2018); and Hailu & Venkateswarlu (2016); Mabandla& Makoni (2019); and Sadiq (2017). However, it contradicts with the findings of Mbawuni et al. (2016) that concluded ACP has an insignificant positive relationship with ROA, and the findings of Agha (2014); Golas (2020); Estifanos (2015); which concluded that ACP has a significant positive impact on ROA.

According to the result, which indicates average collection period significantly impacts return on asset negatively, a fast collection of the amount of sales from credit customers increases the financial performance of leather processing in firms Ethiopia. This would be due to the unfavorable effect of the cost of not being able to have access to the cash from credit sales, and legal costs of dealing with credit customers that don't pay on time. The negative impact of Average Collection Period on Return on Asset is also explained by the time value of money, which indicates a money acquired sooner has more value than that collected late.

#### **4.2.3.5. H<sub>3</sub>: ITD has a negative and significant impact on ROA**

It is presented in table 4.6. that, the third independent variable, Inventory Turnover in Days, shows a coefficient of -0.000392 and a p-value of 0.0087. Since the coefficient has a negative sign and the p-value is greater than the significance level of 5% which indicates that ITD has

a negative and significant impact on ROA, just as proposed in the hypothesis. In addition, the coefficient suggests that, keeping the other variables of the estimation model fixed, a single day increase of the inventory turnover in days reduces the return on asset of large tax payer leather processing firms of Ethiopia by 0.039%.

This finding is supported by those of Nobanee and Haddad (2014); Ketema (2018); Rani & Abreha (2017); Tesfay and Batra (2018); and Mengesha (2014). However, the finding of this study differs from that of Estifanos (2015); Kumelachew (2018); Ahmed (2016); Mbawuni et al. (2016), who concluded that ITD has no significant impact on ROA, and that of Mabandla& Makoni (2019); and Hailu & Venkateswarlu (2016) which concluded that ITD has a positive effect on ROA.

The negative impact of inventory turnover in days shows, in order to improve their financial performance, firms shall sell their inventories on hand as fast as possible. Inventory is the major income source for the firm. Thus, if there is a speedy sales of inventory in a single period, the firm can generate a huge amount of revenue as long as it can keep on producing more and more inventories, which in turn enhances the return on asset of the firms.

On the contrary, failure to sell the leather products fast enough would lower their qualities because of being stored in warehouses for a very long time. This would reduce the value of the products and might even force the firms to sell the products below the intended price. This would have an adverse impact on return on asset by lowering their profit.

#### **4.2.3.6. H4: APP has a positive and significant impact on ROA**

The coefficient and the p-value of the fourth independent variable, Average Payment Period, as presented in table 4.6., are -0.001419 and 0.0006 (significant at a significance level of 5%) respectively. Thus, there is enough evidence that suggests the fourth hypothesis shall not be accepted, since the output shows a significant negative impact of APP on ROA in large tax payer leather processing firms. In addition, The coefficient tells us that a one day increase in APP reduces the ROA of leather processing firms by 0.142%. The finding of this research differs from the findings of : Rani & Abreha (2017); Mabandla& Makoni (2019); Tesfay and Batra (2018); Sadiq (2017); and Golas (2020) which concluded that APP has a positive effect on ROA.

The negative impact of APP shows that large taxpayer leather processing firms in Ethiopia can enhance their financial performance by paying their liability to suppliers as early as possible since they can exploit the benefits of trade discount. In addition, creating a healthy relationship with their input suppliers by repaying their liabilities early would encourage the suppliers, who understand the time value of money, to enhance quality and speed of delivery of the raw materials, which then improves the quality of their finished products, thereby enhancing their financial performance since it increases sales because of a higher demand for products with better quality. This is an important point considering the practical gap of scarcity and low quality of raw materials in the leather processing sector as indicated in the statement of problem of this study. The finding is also supported by the conclusions in the works of Mbawuni et al. (2016); Mengesha (2014); and Estifanos (2015), which indicate that APP has a significant positive impact on ROA.

#### **4.2.3.7. The Impact of the Control Variables on ROA**

The two control variables of the research, are debt to equity ratio and company size measured by ln (total assets). As presented in table 4.6. the p-value for DE is equal to 0.0576 and that of LNNTA is equal to 0.5815, while their coefficients are 0.022328 and 0.015049 respectively. Thus, both of the control variables, Debt to Equity ratio and firm size have insignificant positive impact on the Return on Asset of large taxpayer leather processing companies in Ethiopia, at a significance level of 5%.

**Table 4.7. Summary of Regression Results of Major Independent Variables**

No.	Independent Variable	Hypothesized Impact on ROA	Analysed impact on ROA (at 5% significance level)
1.	CaR	Significantly positive	Significantly negative
2.	ACP	Significantly negative	Significantly negative
3.	ITD	Significantly negative	Significantly negative
4.	APP	Significantly positive	Significantly negative

**Source: Researcher's Analysis**

## CHAPTER V

### SUMMARY, CONCLUSIONS AND RECOMMENDATION

#### 5.1. Summary

Working capital can be defined as a portion of total capital constituted by the short term elements of balance sheet, current assets and current liabilities. The focus of this paper is understanding the impact of working capital management on the financial performance of large taxpayer leather processing firms. Literatures show that an effective and efficient working capital management has contributions to the maximization of a firm's value. The paper is structured based on the four major components of working capital management, which are management of: cash, accounts receivable, inventory and accounts payable.

The gap seen in the literature is inconclusiveness of former studies because of differences with findings and measurements, and the existence of studies that use inappropriate techniques and methodology. In addition, lack of any study conducted in the leather processing manufacturing sector has been taken as a relevant gap by the researcher because of practical problems noticed in the sector like limited raw material quality and supply, increased competition of imported substitutes and limited access to finance which may be related to management of working capital components like inventory and account payable. On the other hand, the literature of working capital hasn't given emphasis on the impact of cash liquidity of firms on their financial performance.

Thus, the researcher aimed to fill this gaps by setting four specific objectives each showing a goal to understand the impact of one of the four major elements of working capital listed earlier. The operationalization of the research has included cash ratio to measure management of cash, average collection period to measure management of accounts receivable, inventory turnover in days to measure inventory management and average payment period to measure the management of account payable. The hypothesized impacts of the working capital components on return on asset are: significant positive for cash management; significant negative for account receivable management; significant negative for inventory management; and significant positive for the management of accounts payables.

The research followed a quantitative research approach, with an explanatory research design to identify the extent and nature of the causal relationships of explanatory and dependent variables, including debt to equity ratio and company size as control variables. Although there were 18 large taxpayer leather processing firms in Ethiopia that were operating in the years 2014-2018, because of issues of data incompleteness, a sample of 14 firms was selected using purposive sampling technique. The financial statements of the sampled firms that represent the five years from 2014-2018 were collected from large taxpayers office of the Ministry of Revenue. The researcher has processed the data using descriptive statistics and multiple regression analyses through the E-Views 10 package.

The descriptive statistics analysis shows that the mean values of: return on asset is 0.086; cash ratio is 1.096; average collection period is 110.323 days; inventory turnover in days is 201.646 days; average payment period is 134.640 days; debt to equity ratio is 1.339; and firm size as measured by  $\ln(\text{total assets})$  is equal to 19.872. The model used by the researcher fulfills the five classical linear regression model assumptions. On the other hand the modified  $R^2$ , which is equal to 0.695495, indicates that 69.55% of the changes in return on assets of the addressed firms can be explained by the research's independent variables, and the remaining 30.45% by other unaddressed variables.

The regression used a fixed cross-section panel least squared technique and presented that the coefficient & p-values of, cash ratio equal -0.011907 & 0.0453; average collection period equal -0.000814 & 0.0006; inventory turnover in days equal -0.000392 & 0.0087; average payment period equal -0.001419 and 0.0006; debt to equity ratio equal 0.022328 & 0.0576 and firm size equal 0.015049 & 0.5815 respectively. Thus, the researcher identified that all the independent variables that are used to measure the efficiency of working capital management; cash ratio, average collection period, inventory turnover in days and average payment period have significant negative impacts on the independent variable, return on asset. In addition, it can be understood from the finding that both the control variables, debt to equity ratio and firm size have insignificant impact on the return on asset of the firms at a significance level of 5%.

## **5.2. Conclusion**

In order to address the determination of the impact of working capital management on financial performance of large taxpayer leather processing firms in Ethiopia, this study mainly focused on the four working capital management elements which are cash management (measured by CaR); accounts receivable management (measured by ACP); inventory management (measured by ITD); and accounts payable management (measured by APP). The dependent variable used to measure financial performance in the study is ROA. The researcher hypothesized that the impact of CaR and APP on ROA would be significantly positive and that of ACP and ITD would be significantly negative. However, the results of the regression using E-views 10 indicate that all of the independent variables have a significant negative impact on ROA.

## **5.3. Recommendations**

The essence of undertaking business researches is that their findings provide important information to the management of the firms in the study setting so that they can decide on courses of action that enhance their performance in the modern competitive business environment. Based on the findings of this research, and their implications, the management of large taxpayer leather processing firms in Ethiopia can adjust their working capital policies in such a way that would result in the improvement of their financial performance. The researcher recommends the firms to consider the following points for an efficient and effective working capital management that enhances their financial performance and, thereby, the worth of their firms.

- The significant negative impact of cash ratio indicates that an increase in cash with respect to the current liabilities would lead to a lower financial performance. This is because when excess cash is held it becomes idle and saved at a very low return than other investment options. Thus, the researcher recommends the firms to consider identifying opportunities so that they can invest their idle cash.
- The significant negative impact of average collection period shows that the delay of payment of accounts receivable reduces the financial performance of the firms. Thus, the researcher recommends the management of the companies to speed up collections

of accounts receivable. This can be achieved by using methods like proper invoicing; proper follow-up of accounts receivable; reasonable increment of cash discount in the credit terms; penalizing customers that fail to pay on time in terms of financial charges and delay of obligation delivery until customer debts are settled.

- The significant negative impact of inventory turnover in days indicates that a higher duration before completing sales of inventories lowers the financial performance of the firms. This indicates fast sales means more sales, thus, more profit in a period. On the other hand, slow sales may cause the stored products to get damaged or lose their value. Therefore, the researcher recommends the management of the leather processing firms to increase the speed of sales by using techniques like lowered costs, engagement in mass sales and marketing activities such as advertisement, and increased quality of products.
- The significant negative impact of average payment period indicates that the longer it takes the firms to settle its liabilities to suppliers, the lower will be their financial performance. It also shows that a better relationship of the firms with their suppliers that is nurtured by on-time payment of liabilities is an important factor for the enhancement of the financial performance of the firms. Therefore, the firms are advised to pay their liabilities as fast as possible in order to have a better financial performance.

#### **5.4. Considerations for Further Studies**

This research may be an inducing factor for further researches to be conducted in the area of working capital management. Further studies may primarily consider performing a research that solves the two major limitations indicated in the introductory part. The first aspect that is expected to be addressed is enhancement of the quality of data by persuading leather processing firms to provide their data, so that the data of the research is more appropriate. Furthermore, additional studies may be done using a data that covers more than a five years period in order to increase the time period that the findings represent.

On the other hand further studies may address additional variables both in the dependent and independent sides. Additional financial performance measures like return on investment; return on equity; gross and net profit margin; and total asset turnover shall be considered in

further studies. Other measures of working capital management like the current ratio can also be incorporated in further researches. To enhance the explanatory power of their model, further studies may incorporate additional control variables, from the literature of financial performance determinants.



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## Appendix

The data of the operational variables used for the research

<b>ID</b>	<b>FYEAR GC</b>	<b>ROA</b>	<b>CaR</b>	<b>ACP</b>	<b>ITD</b>	<b>APP</b>	<b>DE</b>	<b>lnTA</b>
10 071	2014	-0.010	1.401	49.340	283.250	202.080	0.694	19.424
10 071	2015	0.070	1.553	39.310	265.480	189.980	0.727	19.455
10 071	2016	0.070	1.440	41.850	296.760	221.400	0.682	19.425
10 071	2017	0.040	1.135	52.180	256.250	210.290	0.683	19.425
10 071	2018	-0.010	0.862	55.620	289.750	172.950	0.855	19.515
10 133	2014	0.100	0.712	174.080	394.240	126.800	0.383	19.175
10 133	2015	0.010	0.157	188.440	469.700	122.750	0.550	19.474
10 133	2016	0.010	0.349	203.900	461.330	121.540	0.320	19.515
10 133	2017	-0.030	0.127	208.670	442.630	119.610	0.593	19.795
10 133	2018	0.010	0.214	230.660	418.800	121.110	0.616	19.824
10 166	2014	0.020	0.361	55.070	158.990	117.110	0.300	18.665
10 166	2015	0.030	2.564	55.310	163.530	111.530	0.928	19.054
10 166	2016	0.020	6.072	41.580	175.130	122.120	0.949	19.215
10 166	2017	-0.020	0.859	58.280	107.840	118.490	0.816	19.254
10 166	2018	0.010	0.531	40.870	198.270	141.970	0.979	19.355
10 260	2014	0.190	1.132	66.390	50.500	107.120	1.037	18.894
10 260	2015	0.160	0.109	67.440	47.040	107.910	0.964	18.864
10 260	2016	0.150	0.167	139.740	43.890	109.630	1.319	19.114
10 260	2017	0.020	3.033	229.600	39.760	111.000	1.775	19.414
10 260	2018	0.010	1.526	189.430	33.580	109.880	1.376	19.314
10 459	2014	0.100	0.266	106.030	139.260	125.770	3.088	19.184
10 459	2015	0.080	0.043	56.630	171.500	158.700	3.516	19.344
10 459	2016	0.140	0.358	56.980	236.820	144.140	6.116	19.724
10 459	2017	0.160	0.206	52.490	188.760	114.830	2.671	19.775
10 459	2018	0.100	0.161	93.780	151.570	114.650	3.617	20.075
10 475	2014	0.220	0.067	75.830	259.630	114.160	0.484	21.024
10 475	2015	0.220	0.077	63.170	168.650	108.950	0.651	21.115
10 475	2016	0.240	0.225	72.980	161.090	108.800	0.708	21.164
10 475	2017	0.200	1.578	76.990	298.280	108.490	1.194	21.354
10 475	2018	0.270	0.084	73.670	318.170	128.670	1.352	21.414
10 881	2014	-0.020	0.137	112.870	173.070	225.760	1.369	20.505
10 881	2015	0.090	1.170	139.720	175.820	135.570	0.273	19.904
10 881	2016	0.070	1.590	173.580	179.240	147.280	0.354	19.965
10 881	2017	0.090	1.720	147.330	136.140	133.890	0.280	19.914
10 881	2018	0.080	0.223	108.480	107.630	124.580	0.539	20.084

10 958	2 014	0.040	0.016	40.940	144.760	109.940	3.706	18.284
10 958	2 015	-0.060	0.018	38.780	73.720	111.420	0.577	18.635
10 958	2 016	-0.010	0.086	40.890	49.810	107.700	0.907	18.824
10 958	2 017	0.010	0.593	48.310	21.440	108.450	1.144	18.975
10 958	2 018	0.050	0.167	51.250	20.230	106.730	0.859	19.124
12 934	2014	0.040	0.041	65.980	207.620	129.430	2.087	19.689
12 934	2015	0.220	0.156	91.500	59.850	94.580	0.873	19.229
12 934	2016	0.190	0.144	92.550	56.390	95.370	0.816	19.199
12 934	2017	0.180	1.549	164.850	53.240	97.090	1.014	19.449
12 934	2018	0.050	0.963	254.710	49.110	98.460	1.749	19.740
13 364	2014	0.040	6.449	214.540	42.930	97.340	0.825	19.649
13 364	2015	0.030	0.714	95.990	240.240	95.750	0.765	19.639
13 364	2016	0.011	2.153	110.560	299.040	96.890	0.635	19.609
13 364	2017	-0.010	1.491	142.780	414.120	98.530	1.333	19.899
13 364	2018	0.010	1.202	160.790	362.990	99.190	0.833	19.960
5 108 440 002	2014	-0.050	4.567	149.700	307.700	106.570	2.667	20.000
5 108 440 002	2015	0.130	3.352	131.140	148.610	113.230	1.035	19.519
5 108 440 002	2016	0.110	2.516	81.740	180.850	146.160	1.469	19.680
5 108 440 002	2017	0.170	0.684	82.090	246.170	131.600	2.400	20.060
5 108 440 002	2018	0.190	0.160	77.600	198.110	102.290	2.201	20.109
100 081 390 010	2014	0.130	0.127	118.890	160.920	102.110	0.220	20.409
100 081 390 010	2015	0.250	0.129	100.940	268.980	101.620	0.560	21.359
100 081 390 010	2016	0.250	0.291	88.280	178.000	96.410	0.580	21.449
100 081 390 010	2017	0.270	0.086	98.090	170.440	96.260	0.686	21.499
100 081 390 010	2018	0.230	0.024	102.100	307.630	95.950	1.041	21.690
100 515 320 010	2014	0.300	0.013	98.780	327.520	116.130	4.887	21.750
100 515 320 010	2015	0.010	0.231	137.980	182.420	213.220	1.393	20.840
100 515 320 010	2016	0.120	0.084	164.830	185.170	123.030	0.309	20.239
100 515 320 010	2017	0.100	0.369	198.690	188.590	134.740	0.363	20.300
100 515 320 010	2018	0.120	0.088	172.440	145.490	121.350	0.195	20.249
101 317 540 010	2014	0.059	1.742	134.141	255.278	262.825	1.819	20.065
101 317 540 010	2015	-0.072	6.108	137.048	267.008	263.053	2.064	20.034
101 317 540 010	2016	-0.096	1.974	143.476	289.967	263.380	2.826	20.336
101 317 540 010	2017	-0.048	6.129	147.069	279.767	263.511	3.012	20.398
101 317 540 010	2018	0.191	0.089	144.856	268.736	264.984	3.143	20.440

Source: Large taxpayers' office of ministry of revenue