HAWASSA UNIVERSITY COLLAGE OF BUSINESS AND ECONOMICS

DEPARTMENT OF ACCOUNTING AND FINANCE

FINAL THESIS SUBMITTED TO DEPARTMENT OF ACCOUNTING AND FINANCE IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF SCIENCE DEGREE IN ACCOUNTING AND FINANCE

THE EFFECT OF CREDIT RISK MANAGEMENT ON PROFITABILITY OF SELECTED PRIVATE BANKS IN ETHIOPIA

BY: TENAYE FANTU

ID No: GPACFNW/0034/12

ADVISOR: OBSA TEFERI (ASST PROF)

CO-ADVISOR: ALEMU TADESSE (MSc)

May 2024

Hawassa, Ethiopia

Hawassa, Ethiopia

APPROVAL SHEET

SCHOOL GRAGUATE STUDIES

HAWASSA UNIVERSITY

This is to certify that the thesis entitled ‘‘**Credit Risk Management and Profitability of selected Private Banks in Ethiopia**” submitted in partial fulfillment of the requirement for the degree of masters in Accounting and finance, and has been carried out by **Tenaye Fantu** under our supervision. Therefore, the researchers recommend that the student has fulfilled the requirements and hence here by can submit the thesis to the department.

Name of Major Advisor	Signature	Date
Obsa Teferi (Ass. Pr)	_____	_____
Name of Co-Advisor	Signature	Date
Alemu Tadesse	_____	_____

HAWASSA UNIVERSITY

SCHOOL OF GRADUATE STUDIES

EXAMINOR'S APPROVAL SHEET

We, undersigned, members of the Board of Examiners of the final open defenses by **Tenaye Fantu,** have read and evaluated the thesis entitled "**The Effect of Credit Risk Management on Profitability of selected private Banks in Ethiopia**" and examined the candidate. This is, therefore, to certify that the thesis has been accepted in partial fulfillment of the requirements for the award Degree of Master of science (Msc) in Accounting and Finance.

_____	_____	_____
Name of Principal Advisor	Signature	Date
_____	_____	_____
Name of Chairperson	Signature	Date
_____	_____	_____
Name of External Examiner	Signature	Date
_____	_____	_____
Name of Internal Examiner	Signature	Date

SGS Approval

Final approval and acceptance of the thesis is contingent upon the submission of the final copy of the thesis to the school of Graduate student (SGS) through the school of Graduate committee (DGC/SGC) of the candidate's department.

Stamp of SGS Date_____

ACKNOLEDGEMENTS

Deepest thanks for my advisor, Obsa Teferi (Asst Prof), for his unreserved supervision, irreplaceable support, constructive comments and persistent effort exerted in advising me throughout the research work. Also, I am also thankful to my co-advisor Alemu T. His continuous guidance, feedback, advice and encouragements were exceptional.

I also would like to thank the employees and management member of National Bank of Ethiopia who were cooperative in providing all the necessary data to carry out this project work.
Moreover, I want to thank and express my great gratitude to all those who helped with the completion of the thesis.

Tnaye Fantu,
May, 2024

1 Contents

LIST OF ACRONYMS

NBE	**National Bank of Ethiopia**
ROA	**Return on Asset**
ROE	**Return on Equity**
CRM	**Credit Risk Management**
CAR	**Capital adequacy ratio**
NPL	**Non-performing Loan**
NPLR	**Nonperforming loan ration**
LLPR	**Loan Loss Provision Ratio**
LTDR	**Loan to deposit ratio**
LR	**Cash reserve (liquidity ratio)**
TANR/CA/	**Capital Ratio**
LNTA	**Natural log of total assets (Bank Size)**
GDP	**Gross Domestic Product**
VIF	**Variance Inflation Factor**
FE	**Fixed Effect**
RE	**Random Effect**
AML	**Anti-money laundering**
CFT	**Counter-financing of terrorism**
INF/CPI/	**Inflation**
IR	**Interest rate**

ABSTRACT

The main objective of this study is to examine the effect of credit risk management on profitability of selected private banks in Ethiopia. The study purposely selected 14 private banks with 10 years dataset ranging from 2013 to 2022. In this study, credit risk is represented by three proxies namely: Nonperforming Loan Ratio (NPL), Loan Loss Provision (LLPR) and Loan to Deposit Ratio (LTR) and ROA and ROE as a measure of profitability. A quantitative approach with descriptive and explanatory design was applied to examine the underlying hypotheses. The dataset of the target banks was obtained from National Bank of Ethiopia. The results reveal that Non-performing loan and Loan loss provision have a negative and statistically significant effect on profitability while Liquidity ratio and bank size have a positive and statistically significant effect on profitability. However, the coefficient of tangibility ratio shows mixed and significant results on the two proxies (ROA &ROE) of profitability and statistically significant effect. The findings of the study has implication for bank managers, policy makers, regulatory body and practitioners in that it would give an important insight help do design a strategic plan. Future studies are suggested to be conducted in this research area by incorporating variables such as Macro-economic factors like: Exchange rate, political influence, etc.

Keywords: Non- Performing Loan, Profitability, Credit Risk, Bank, Ethiopia.

CHAPTER ONE

INTRODUCTION

1.1 Background of the study

Lending is an integral element of bank business; it is itself at the heart of an economy's financial architecture. It therefore behooves policymakers to continually review the credit market to minimize inefficiencies that hinder faster economic growth. Credit risk management is the current and prospective risk earnings or capital arising from an obligor's failure to meet the terms of any contract with the financier or otherwise to perform as agreed (Kargi, 2011).

Credit risk is one of the significant risks of banks by the nature of their activities. Through effective management of credit risk exposure, banks not only support the viability and profitability of their own business but also contribute to systemic stability and to an efficient allocation of capital in the economy (Psillaki, Tsolas, and Margaritis, 2010). In relation to discharging obligation "The default of a small number of customers may result in a very large loss for the bank" (Gestel & Baesems, 2008).

Credit management is the strategies one uses to collect and control credit payments from clients. Myers and Berkley (2013) define these practices as the strategies that organizations use to have an acceptable level of credit and to manage this level effectively. It is part of financial management that comprises the analysis of credit, rating of credit, classification and reporting of credit. When credit management is done right, then the capital with debtors reduces and the possibility of bad debts is also reduced. Edwards (2013) contends that if you are a business, and you have not included into your selling price any costs associated with late payment, or you have a way of recovering the costs by charging an interest, then your profit is bound to be affected by such costs.

When financial institutions grant loans, they expect the customers to repay the principal and interest on an agreed date. A credit facility is said to be performing if payment of both principal and interest are up-to-date in accordance with agreed repayment terms. The non-performing

loans (NPLs) represent credits which the financial institutions perceive as possible loss of funds due to loan defaults. They are further classified into substandard, doubtful or bad debts. Bank credit in lost category hinders bank from achieving their set target (Kolapoet al., 2012).Financial institutions are exposed to a variety of risks among them; interest rate risk, political risk, market risk, liquidity risk, operational risk and credit risk (Yusuf, 2013; Cooperman et al.,2010). In some instances, financial institutions have approved decisions that are not vetted; there have been cases of loan defaults and non-performing loans, massive extension of credit and directed lending.

According to Myers and Berkley (2013) credit management practices are the strategies used by an organization to ensure that the level of credit in the firm is acceptable, and it is managed effectively. It is part of financial management that comprises the analysis of credit, rating of credit, classification and reporting of credit. Nelson (2012) defines credit management as the practices used by an organization to manage the sales they make on credit. It is an essential practice for all the organizations that have credit transactions, since some have managed their credit activities so well that they have zero credit risk. The success of Banks more often is dependent on the effectiveness of credit management, which improves the repayment rates and leads to higher profits (Sifunjo & Simiyu, 2014).

Credit risk is defined by the Basel Committee on Banking Supervision as the probability that a bank borrower will not fulfill its obligations in line with the terms of the agreement or the potential for the outstanding loan to be lost entirely or partially as a result of credit events (Iwedi, & Onuegbu, 2014). According to Osuka and Amako (2015), ineffective credit management lowers bank profitability and causes bank distress and/or failure. And the success of Banks more often is dependent on the effectiveness of credit management, which improves the repayment rates and leads to higher profits (Sifunjo & Simiyu, 2014).

According to Myers and Berkley (2013), Credit risk management refers the strategies that organizations use to have an acceptable level of credit and to manage this level effectively. Through effective management of credit risk exposure, banks not only sustenance the viability and profitability of their own business but also support to systemic stability and to an efficient allocation of capital in the economy (Psillaki, Tsolas, and Margaritis, 2010).

Profitability is a parameter which shows the management approach and competitive position of a bank in market-based banking. This parameter helps the banks to tolerate some level of risk and support them against short-term problems. The profitability of banks is influenced by different factors, including management, size, location and time, according to a study conducted by Haslem (1968).

Private Banks play a crucial role in driving economic growth by acting as intermediaries between depositors and borrowers. In a study conducted by Keatinge (2014) and Yonas Yohannes Tamrat Guja Asale (2019), the impact of private Banks on economic growth in Ethiopia was examined, covering the period from 1994/95 to 2015/16. The results reveal a positive and significant relationship between deposit mobilization, investment, foreign remittance purchase and GDP. As a result, private Banks in Ethiopia are indispensable contributors to economic growth as they fulfill their primary functions in facilitating economic activities.

1.2 Statement of the problem

Scholars in the various fields of business and strategic management have paid close attention to the topic of financial performance. Due to the fact that financial performance affects an organization's health and, eventually, its ability to survive, it has also been the top issue for business practitioners across all organisational kinds (Amal, 2012). Ample performance is a sign of managerial efficacy and efficiency in allocating the company's resources, which considerably benefits the national economy. High success in this area results in good profits. Since maximising the owner's wealth and profitability is one of the main goals of financial management, profitability is one of the most significant objectives of financial management (Malik et al, 2011).

Without a question, credit risk continues to be the biggest source of risk for banking institutions worldwide (Padmalatha and Justin 2018). Therefore, prudent credit management is essential to ensuring that a banking institution's credit activities occur and minimising the institution's risk of failure. Thus, credit risk management continues to be a key indicator of the bank's success performance metric. According to Nathan (2013), default rate risk is the single most

significantpredictor of bank performance among the risk management indicators employed by financial institutions in the management of risk.

According to Karakuza (2017), almost 100% of bank loans are either borrowed money or the money of shareholders, making the nature of the bank industry extremely fragile. From these inflows, financial institutions generate loans, which are a key source of revenue and profitability for the business. But there are significant risks involved with this activity for the deficit units as well as the financial institution. A significant increase in non-performing loans (NPLs), or bad debts, has been observed in the accounts of numerous financial institutions in Ethiopia as a result of loans and advances that were made but could not be repaid. These institutions did this in an effort to increase revenue and profitability as well as to acquire a sizable market share. The current state of affairs has concerned bank management and other.

The researcher have described previously, bank strength plays an important role in the stability and growth of the economy. And the stability of Bank Industry's depends on the profitability and liquidity adequacy (Tabari*et al*., 2013). A thorough study of previous research relating to the profitability of the Bank Industry's has made us aware of the lacking conclusion of relationship between credit risk management and profitability of Banks.

It is clear from the empirical literature ((Ali & Dhiman, 2019; Annor & Obeng, 2018; Gizaw et al., 2015; Almaqtari et al., 2019) that various scholars have analysed regarding the relationship between credit risk management and bank profitability worldwide that the findings regarding this relationship are not entirely conclusive. The study on the impact of credit risk management on profitability in the bank industry is ambiguous due to the inconsistent results found in the literature currently in publication. The aforementioned gaps in the literature pique our curiosity about how the risks that commercial banks encounter impact their profitability.

1.3 Objective of the study

1.3.1 General objective

The general objective of the study is to analyze the effect of credit risk management on the profitability of selected Private Banks in Ethiopia.

1.3.2 Specific objectives

- To analyze the effect of Bank specific factors / non-performing loan, loan loss provision, loan deposit ratio, bank size, liquidity, Capital adequacy ratio and tangibility / on profitability of private Banks

- To analyze the effect of macro-economic factor /GDP and inflation / on the profitability of private Banks

1.4 Research hypothesis

Drawing on theoretical views and empirical literature, the following hypotheses have been developed.

- H1: There is a significant positive relationship between Capital adequacy and profitability of a Bank
- H2: There is a negative significant relationship between non-performing loan and profitability
- H3: There is a positive significant relationship between Total loans to deposit ratio and profitability of a Bank
- H4: There is a negative significant relationship between loan loss provision and the profitability of a Bank
- H5: There is a significant positive relationship between bank size and the profitability of a Bank
- H6: There is a positive significant relationship between Liquidity ratio and profitability of a Bank
- H7: There is a positive/negative significant relationship between Tangibility Ratio and profitability of a Bank
- H8: There is a significant positive relationship between real GDP growth rate and the profitability of a Bank
- H9: There is a negative significant relationship between Inflation Rate and profitability of a Bank

1.5 Significances of the study

Credit risk, which is as a result of ineffective management and it, is one of the foremost catalysts of banks' letdown. Furthermore, the degree to which credit risk is controlled has a bearing on the progress and sustainability of that bank and the economy at large. This study examines the research gaps prevailing in the extant literature into the nexus credit risk and profitability. Thus, It would bears further research projects that could examine the subject in more broad manner. The paper might can also be used as a reference for bank managers, investors and bank supervisors, help to maximize their profit by dipping the impact of credit risks identified by the research, private investors to have a more comprehensive outlook of how and by what variables the profitability shall be affected also Bank supervisors get more evidence about the impact of credit risk management and to investigate if it is necessary to restrict or impose further regulation

1.6 Scope of the Study

This investigation has content, methodological and Geographical scopes. Content wise, this study is delimited to examine credit risk management and performance of banks. The study would delimit to assess the effect of credit risk management on a profitability of selected private Banks in Ethiopia. Methodologically, the study covers 14 private banks which have ten years data and activate for the time period from 2013 to 2022 and exclude very young banks

1.7 Organization of the study

The study was organized in to five chapters. The first chapter presents Introduction and gives the brief highlight of the study subject. The second chapter provides the review of related literatures. The research methodology with the description of variables, hypotheses of the study and model specifications is presented in the third chapter. In the fourth chapter, the results and discussions of empirical data collected and analyzed using descriptive statistics, correlation analysis, and tables are presented. In the last chapter, summary of findings of the study, conclusion, possible recommendations.

CHAPTER TWO

2 Related Literature Review

This chapter reflects other research works conducted on credit risk management and its impact on profitability. Additionally, it makes comparative analysis and tries to assess the credit risk management strategies in relation to Banks. This chapter reviews the concept of credit risk management and profitability. It also brings to bear some internal (Bank specific) and external (Macro) determinants of bank profitability.

2.1 Theoretical View

Credit plays a very vital part in the economic growth and development of a country by channeling resources from abundance to deficit areas. These roles credit plays can be categorized into two: it enables the transfer of funds to where it will be most effectively and efficiently used and secondly, credit economizes the use of currency or coin money as granting of credit has a multiplier effect on the volume of currency or coin in circulation (Aremuet al, 2010). Granting credit involves risks and profits. Banks must evaluate the risk/reward relationship and overall profitability of a credit. Specific individuals should monitor credit quality and provide necessary information for internal risk ratings. They should also monitor collateral and guarantees to make needed changes and maintain reserves for credit losses. Bank management should acknowledge potential conflicts of interest, especially for personnel judged on loan volume, portfolio quality, or short-term profitability.

2.1.1 The Concept of Credit Risk

Credit Risk: Lending involves a number of risks. Among these risks, credit risk plays the major role. According to Van Greuning and Bratan (2010), credit risk means, payment may be delayed or ultimately not paid at all which can in turn cause cash flow problems and affect a bank's liquidity. From these researchers‟ point of view, credit risk is the risk of loss that might occur if one party to an exchange fails to honor the terms under which the exchange shall be to take place. Credit risk comes up from uncertainty in a given counterparty to meet up with the

obligation of honoring the terms and conditions of the credit arrangement (Fatemi and Foolad, 2016). Han (2015) defines credit risk as the possible losses of banks coming from borrowers‟ failing to repay. According to him, credit risk is made of three main forms: principal loss risk, interest loss risk and profit loss risk. Al- khouri (2010) outlines some major causes of credit risk and they include; inadequate institutional capacity, unsuitable loan guidelines, unstable interest rates, inefficient management, unfitting regulations, increasing number in bank, negligence in credit valuation, ineffective lending methods, government interference and insufficient monitoring by the central bank.

Credit risk is the potential that a borrower frailer to meet obligations. Credit is the advancement of funds based on some financial expectations a borrower believes to gain and the assurance that the debt (principal and interest) will be paid in full. According to Tetteh (2012), sound credit-giving is one of the most essential principles which strengthen financial institutions in their financial standing. The goal is to maintain acceptable credit risk exposure to maximize return. Banks must manage risk in their entire portfolio and individual transactions. They should also consider the relationship between credit risk and other risks. Effective credit risk management is critical for a bank's long-term success.

Credit Risk: Lending involves a number of risks. Among these risks, credit risk plays the major role. According to Van Greuning and Bratan (2010), credit risk means, payment may be delayed or ultimately not paid at all which can in turn cause cash flow problems and affect a bank’s liquidity. From these researchers‟ point of view, credit risk is the risk of loss that might occur if one party to an exchange fails to honor the terms under which the exchange shall be to take place. Credit risk comes up from uncertainty in a given counterparty to meet up with the obligation of honoring the terms and conditions of the credit arrangement (Fatemi and Foolad, 2016). Han (2015) defines credit risk as the possible losses of banks coming from borrowers‟ failing to repay. According to him, credit risk is made of three main forms: principal loss risk, interest loss risk and profit loss risk. Al- khouri (2010) outlines some major causes of credit risk and they include; inadequate institutional capacity, unsuitable loan guidelines, unstable interest rates, inefficient management, unfitting regulations, increasing number in bank, negligence in

credit valuation, ineffective lending methods, government interference and insufficient monitoring by the central bank.

NBE directive 2024, a bank shall integrate sustainability in the overall risk management and control framework, including risk appetite and tolerance, the three line-of-defenses model, evaluate the impact of sustainability on their risk profile, capital adequacy and liquidity positions. This includes assessing the impact of sustainability on traditional risks facing financial institutions, including credit risk, liquidity risk, market risk, and operational risks. Banks must conduct a comprehensive risk assessment to accurately assess the adequacy of capital reserves and loan loss reserves. Failure to do so can make banks vulnerable to regulatory scrutiny, investor distrust, and significant financial losses.

2.1.2 Categories of Risks in Bank

According to Koch and MacDonald (2009), banks' risks can be identified as six types: credit risk, liquidity risk, market risk, operational risk, reputation risk and legal risk. Each of these risks might create harmfully influence the financial organization's probability, market value, liabilities and shareholder's equity.

Liquidity risk can be described as the risk of funding which is related to an unexpected event, for example large charge off or currency crisis (Santomero, 1997). Specifically, a bank is reducing the ability to meet expected and unexpected current and future cash flows, which indicates the liquidity risk (The Joint Forum, 2006).

Market risk can be hedged, but cannot be diversified completely away. In fact, it can be regarded as un-diversifiable risk (Santomero, 1997). It comes from many different forms, such as variation in interest rate and relative value of currencies (Santomero, 1997).

Operational risk relates to the issues of precisely processing, settling and taking delivery on trades for the exchange of cash (Santomero, 1997). It also involves the record keeping, processing system failures and fulfillment of the diversified regulations (Santomero, 1997). So that, individual operating problem is a small portion for a well-managed institution but causes effect which may be quite costly (Santomero, 1997).

Reputational risk arises from negative opinions, which may affect the profit and value of institutions (Protiviti, 2013). It demonstrates a decreasing value of an institution's brand or a lack of ability to persuade (Protiviti, 2013).

Legal risk generally happens in financial contracting which is separated from the legal implication of credit, counterparty and operational risk (Santomero, 1997). New status, tax legislation, court opinions and regulations can lead formerly well-established transactions into contention (Santomero, 1997).

Credit risk has commonly been identified as the greatest risk on a bank's performance (Boffey& Robson, 2007). It is a risk that counterparties in loan transactions and derivatives transactions might default, which means counterparties fail to repay the principal and interest on a timely basis (Koch & MacDonald, 2000).

2.1.3 Credit Risk Management

Credit Risk Management: Many researchers had come out with reasons backing bank failures and recognized numerous issues (Chijoriga, 2017, Santomera 2017, Brown Bridge and Harvey, 2018). According to Onaolapo (2012), the Basel Committee on banking supervision sees CRM as a way of reducing the likelihood that the deficit unit cannot meet the agreed payment and time of payment. Credit risk management is an essential element of a bank financial standing. That is, the performance of bank is highly dependent on effective and efficient credit risk management (Prakash and Poudel, 2012). CRM is very important in the bank sector because, it forms a fundamental part of the credit process. As a result of Basel III (2017) requirements, the banking sector is required to maintain sound financial management practices and adopt aggressive credit management practices aimed at reducing non-performing loans (Basel, 2017). Credit risk management encompasses; appraisal, identification, measurement, matching, mitigation, monitoring and control of the credit risk exposure (Lalon, 2015).

2.1.4 Credit Risk Management Strategies

The credit risk management strategies are procedures banks and financial institutions adopt in the mitigation or reducing the negative effect of credit risk. A comprehensive credit risk management structure is vital because, as stated, it helps increase the revenue and survival. According to Lindergren (2017), the main ideologies in credit risk management strategies take

the following form, they include formation of a clear structure, delegation of powers, discipline, and communication at all level and holding people accountable.

2.1.5 Profitability

Bank Profitability may show managers attitude toward risk. Bank that makes vast profits were not screwed when venturing into risky activities. In a similar fashion, banks that were not effective in their management encounter higher bad debt. Profitability measure is important to the investors. The level of profitability is very significant for shareholders of bank because it shows how effective management has utilized their investments (Devinaga, 2010). In determining the financial strength of Bank Industry's, the level of profitability is predominant. According to Codjia (2010), profitability performance shall be concentrate on the income statement which shows how much is generated (revenue), how much is spent (expenses) net income. This may be prepared by the bank on a monthly, quarterly or annual basis (Codjia, 2010).

According to Rushdi and Tennant (2013), profitability can be measured in a number of ways. They include return on assets (ROA), return on equity (ROE). But over the year, most researchers prefer using return on asset (ROA). Godlewski (2014) used ROA in measuring profitability. It shall be disclose that; the performance of a bank shall be negatively affected by the level of nonperforming ratio. In theory, ROA shows the capacity of a bank management to make profits using the level of asset available. It may be unfair because of the other events that take place outside the balance sheet (Athanasoglouet al., 2015).

(John Bosco Rwayitare, Dr Jaya Shukla and Dr Charles Ruhara), (2020), A study on Credit Risk Management and Profitability in Selected Savings And Loans Companies In Ghana, formulated four hypotheses to test the relationship between each of the credit risk indicators, macro-economic variables and moderate factor used in the study on each of the three profitability indicators. Three models were therefore formulated to test such relationship of explanatory variables against each of the three performance indicators, namely, net profit margin (NPM), return on asset (ROA), and return on equity (ROE). Credit risk indicators are non-performing loans (NPLR), ratio of loan loss provision (LLPR), capital adequacy ratio (CAR), as internal bank factors and external (macro-economic) factors that is real gross domestic products (RGDP),

inflation (CPI) and interest rate (IR) as a moderate factor, the essence is to ascertain whether the credit risk indicators impact significantly on each or all of the three performance indicators in the one way or otherwise. The results show that using the above mentioned explanatory variables representing the credit risk indicators both internal and external factors, there is a short and long run significant impact on all the three profitability indicators used in this study.

According to Karkra and Ameyaw (2010), these external factors are the macroeconomic factors and can affect the profitability of a bank. The macroeconomic policy stability, Gross Domestic Product (GDP), Inflation Rate, Interest Rate, Exchange rate and Political instability are some of macroeconomic variables that affect the profitability of banks. In this research, only Gross Domestic Product was adopted as the external determinants.

John et al. (2016) investigated the co-integration and causal relationship between the credit risk indicators, macroeconomic variables and profitability of Rwandan commercial banks measured by Return on Assets (ROA), Return on Equity (ROE) and Net Profit Margin (NPM). Non-performing Loan (NPL), Loan Loss Provision (LLP), and Capital adequacy ratio (CAR) were the credit risk variables, whereas Inflation (CPI), Gross Domestic Product (GDP) and interest Rate were the macroeconomic variables. It emerged from their analysis that the relationship between non-performing loan ratio, return on assets and return on equity will negative and significant; indicating that high NPL reduces the commercial bank profitability and a sound credit-risk management is a precondition for safeguarding the assets and equity of the banking sector. LLPR positively related to ROA, but negatively to ROE. All the external factors employed, thus Interest rate, Inflation, and GDP related positively with ROA and ROE.
Moreover, the performance of a business is normally estimated using their profitability standings. These researchers used both return on asset and return on equity as a measure for profitability.

2.2 EMPIRICAL LITERATURE

Credit risk management has a significant impact on the profitability of commercial banks in the majority of the studies. Taiwo, J. N., et al. (2017): investigates the effect of credit risk management on bank performance and lending growth in Nigeria. It shows that generous credit management strategies can enhance investors and savers confidence in banks and lead to a development in funds for loans and advances which leads to increased bank profitability. Therefore, the success of the bank in terms of profitability depends on its credit risk management. (International Journal of Finance and Commerce, 2023). However (R Hurka – 2017) In Nordic commercial banks, it has shown that the macroeconomic environment plays a bigger role in the decrease in profitability after the financial crisis than credit risk management does. And Rastogi, Shailesh, et al. (2022) "A literature review of risk, regulation, and profitability of banks, found that concentration banking, market power, large banks and less computation significantly affect banks' financial stability, profitability and risk.

Shibiru Tade (2020), studies on the impact of credit risk management on the profitability commercial banks in Ethiopia. Used ten years data from (2010-2019). The dependent variable Return on Asset as a measure profitability, bank specific factors (Capital adequacy, Loan and Advances to total deposit, Non- Performing Loans, Bank size and Liquidity and macroeconomic factors (Inflation and Gross Domestic Product) as indicators of credit risk management. The result showed that Credit Risk Management in terms of bank specific and macroeconomic factors had strong impact on the profitability of commercial banks in Ethiopia. Also the result displayed that profitability of commercial banks is not affected by the amount of non-performing loans during the study. Bank size has negative and significant impact on profitability of banks..

Róbert Hurka (2017), Investigates the effect of credit risk management on profitability in Nordic commercial banks. Used credit risk indicators namely loan loss provision ratio and capital adequacy ratio, ROA and ROE as a measure of performance. Thirteen banks in number examined across 16 year time frame from 2000-2015. The result indicates, Loan loss provision ratio have negative effect on the performance of banks, while capital adequacy ratio presents mixed results (CAR is found to have positive and significant effect on ROA while negative and statistically significant in relation to ROE).

Asima Siddique, Muhammad Asif Khan and Zeeshan Khan (2022), the study aims to capture the effect of credit risk management on South Asian commercial banks' financial performance. The credit risk measures used: NPLs and CAR, while cost-efficiency ratio, average lending rate and liquidity ratio were used as bank-specific factors. On the other hand, ROE and ROA were taken as a measure of financial performance. Design/methodology/approach – Secondary data were collected from 19 commercial banks (10 commercial banks from Pakistan and 9 commercial banks from India) in the country for a period of 10 years from 2009 to 2018. The generalized method of moment (GMM) is used to the coefficient estimation. Findings –The results indicated that NPLs, CER and LR have significantly negatively related to ROA and ROE.

Ogunlade Olabamiji1 and Oseni Michael (2018), the study examined the influence of credit management practices on financial performance of Nigerian banks. The result revealed that credit management practices have a significant positive influence on the financial performance. The result concluded that client appraisal, credit risk control, and collection policy are major predictors of financial performance of First bank.

Zamira, Veizi. European journal (2016) Bangladesh: explores that NPLs have a significant negative impact on profitability. Also R Hurka – (2017) Nordic, Fakir Tajul (2018), Ul Mustafa, Ahmed Raza (2012) and Mohammad, and Saba Alsahawneh (2016), there result shows that the profitability is very significantly influenced by the independent variables. NPLs and LLPs maintained by the commercial banks negatively related with the profitability of the business, especially LLPs shown statistical significance to impact on profitability negatively.

Afriyie et al. (2013), the study examines the impact of credit risk management on the profitability of rural and community banks in the Brong Ahafo Region of Ghana. By using five years data from 2006 to 2010, the panel regression model was employed for the estimation. In the model, Return on Equity (ROE) and Return on Asset (ROA) were used as profitability indicator while Non-Performing Loans Ratio (NLPR) and Capital Adequacy Ratio (CAR) as credit risk management indicators. The result NPLR shows a strong positive association between non-performing loans and RCBs' profitability. This implies that, rural banks do not have effective institutional measures to deal with credit risk management. The high levels of the

NPLs, their profit levels keep rising as an indication of the transfer of the loan losses to other customers in the form of large interest margins.

In contrast, Lucky, A. L. and Anele Andrew Nwos (2015), found that non-performing loans have positive impact. Also Zamira, Veizi. European journal (2016) Bangladesh: explores that loan loss provision (LLP) has a significant positive impact. And in Nepal's one of the study expresses that loan loss provision ratio and non-performing loan ratio have an in-significant negative impact on profitability. But, according to Pelealu, Irsa Weinechita, and Frederik G.Worang (2017). loan loss provision has influence but has not significant effects on bank profitability, the result of output of multiple regression shows the influence of loan loss provision is positive.

The research examines the effect of credit risk management on financial performance of banks used ten years data from 2012 to 2021 with a sample of ten banks. Non-Performing Loans (NPLs), Capital Adequacy Ratio (CAR), Loan Loss Provision Ratio (LLPR), and Loan to Deposit Ratio were utilized as credit risk indicators while Return on Equity (ROE) was used as a performance indicator. The result showed that non-performing loans and the capital adequacy ratio have a negative, significant effect on ROE. Loan Loss Provision Ratio has negative but statistically insignificant, whereas the loan to deposits ratio significantly improves ROE ((β = 0.9222)). Kassahun Bekele (2023)

Matewos (2013) and Tekalagn Getahun (2015), Found there is positive relation between Loan loss provision and bank profitability performances. Which contradicts with theoretical view, Loan loss provision is contra profit account which leads to negative effect on profitability performance of bank, and thy suggest that the managers clearly recognized the risk arising from lending business and strengthens their credit risk management capacity in addition to allowing high loan loss provisions and it could turn to high profit.

According to Yonas Nigussie (2022), (Adhikari, Johnson 2023) and Suheyli (2015), Liquidity, which measures ability to cover current obligations using current asset has a positive and statistically significant effect on the profitability of banks in Ethiopia. Likewise Abbas, Faisal, Shahid Iqbal, and Bilal Aziz (2019), the impact of liquidity in Asian banks is positive whereas, the impact of liquidity on profitability is negative in the case of USA commercial banks in the

post crisis period. The negative relationship indicates that holding of liquidity reduces profit in the USA whereas the availability of liquidity leads to an increase in profit in Asian developed economies commercial banks.

However, Asima Siddique, Muhammad Asif Khan, Zeeshan Khan (2021), Abbas, Faisal, Shahid Iqbal and Bilal Aziz (2019). Found that liquidity ratio (LR) have significantly negative effects on financial performance. And also Islam & Nishiyama (2016), result provide that bank liquidity ratio has an inverse and statistically significant impact on bank profitability.

Yonas Nigussie Isayas (2022) and Abdelkader (2014), Asset Tangibility has a positive and statistically significant effect on the profitability of banks, in contrast, Abdelkader (2014) and Abate (2012), documented that banks profitability is negatively associated with asset tangibility.

Bank size has positive impact on profitability (Adhikari, Johnson, 2023). And the relation of bank size is found to be insignificant but positive with profitability Ul Mustafa, Ahmed Raza (2012). However according to Alhadab, Mohammad, and Saba Alsahawneh(2016), Bank size, no evidence is found that this variable is associated with bank profitability.

The real GDP growth rate found to have positive and statistically significant impact on profitability of commercial banks in Ethiopia. Birhanu (2012), GDP has highly statistically significant and positive impact on ROA, liquidity risk and ROA has positive and significant at 10% significance level. This result implies that, banks those have less liquid assets earned higher ROA than banks those have high liquid assets in Ethiopia. According to the result private banks are more utilized idle cash and cash equivalent assets effectively. But this require wise manager with effective liquidity management system.

Nugraha, Nugi Mohammad, et. (2021), and Hermaya Ompusunggu 2022. Found that Loan to Deposit Ratio has a positive and significant effect on the Profitability. And Anggari, Ni Luh Shintya, and I. Made Dana. " American Journal HSSR (2020). Loan to Deposit Ratio has a positive and insignificant effect on the Profitability of Banking Companies in the Indonesia Stock Exchange during the 2016–2018 periods. Higher the LDR of a bank, the bank's profitability will also increase, and its financial performance will remain good. In contrast the study by Andesfa, Debby, and Erni Masdupi. (PICEEBA-2 2018). Atlantis Press, 2019.Andesfa, Debby, and Erni Masdupi (2018), found that LDR has a negative and significant effect on ROA in Indonesian banks.

2.2.1 Internal determinants of profitability of bank

According to Makkar and Hardeep (2018), Internal determinant variables included in the study were liquid assets to total asset, current ratio, capital adequacy ratio, non-performing assets to total assets, profit per employee, business per employee, and bank size. The findings displayed that: liquidity, solvency, efficiency and size were the key factors significantly influencing the profitability of Indian commercial banks, studied the factors influencing the profitability of Indian commercial banks, by using ROA as the profitability measure.

(Viktoria Nikolaus, 2015) examines determinants of firm performance of Indonesian and Dutch firms over the period of 2009-2013. By Using fixed effect regression analysis, results showed that credit risk, liquidity risk and capital risk are the major factors that affect bank performance when profitability is measured by return on assets while the only risk that affects profitability measured a return on equity is liquidity risk (Al-Khouri, 2011).

Ahmet Karakuza (2017) examined bank-specific determinants of profitability in Turkish banks. ROA will the measure used as a proxy for profitability. The bank-specific variables that served as the independent variables include equity, total deposit, total loans and receivables, net interest income, provision for loan loss, liquidity assets and consumer loans all these variable ratio to total assets. The result indicated that the ratio of net interest income to operating income influenced ROA positively.

2.2.2 External determinants of profitability of bank

Bank achievement is influenced by the global economic circumstances. These external determinants are the outside factors that affect the standing of a bank. These factors are beyond the control of the bank; however, a bank which is proactive can position them very well to make the best out of the anticipated changes. Such factors are economic growth or recession, Changes in interest rate, deflation or Inflation rates, loan portfolios, Intense competition among banks , market share, Banking regulations, capital requirements, political instability and supervisory policies play a significant role in determining profitability. The environment in which bank operate have a significant influence on the financial performance and their strategies employed. Vesna Karadžić , Nikola Đalović (2020) Journal of Central Banking Theory and Practice, 2021, and FERROUHI, El Mehdi (2018)

2.2.3 Study variables for the secondary data

According to (Nsobilla, 2015), banks' profitability is measured by different indicators like Return on Assets (ROA) and Return on Equity (ROE). The financial performance traditionally has been measured through ROA and ROE, and most studies prefer ROE more because this indicator combines profit, efficiency, and financial leverage (Mathuva, 2009). Both ROA and ROE are calculated as net profit divided by assets, respectively by bank equity. Banks with greater ROA and ROE have better performance and financially are more stable. ROA measures the effectiveness of assets usage by bank management to generate income. The problem with ROA as a measure is that it does not factor off-balance sheet items into the total assets. ROE as a measure of earnings per unit equity capital also has its shortcomings. ROE does not always indicate the exact position of the bank, as it can have financial leverage influence. Again, regulations also affect ROE.

To compensate for the shortfalls of the two prominent profitability measures, both Return on Assets (ROA) and Return on Equity (ROE) served as proxies for profitability. The independent variables, which are credit-risk management measures, consist of bank specific like: Non-Performing Loan Ratio (NPLR), Loan Loss Provision (LLP) and Loans to Deposit Ratio (LTDR,) and macro factor GDP. Banks' profitability depends on both internal and external determinants. This study took into consideration both internal and external determinants to avoid the possibility that other external factors influenced the relationship between credit risk management and profitability. In an attempt to control the situation, there would the need to introduce a control variable. The control variable used would be Liquidity, Tangibility and Bank size. The researcher adopted the three variables as the control variable. Researchers in previous studies used various measures for bank size, but the interchangeably used measure of bank size is the natural log of total assets (Shalit and Sankar, 2017).

GDP: according to Vonget al (2019), the real GDP growth rate is used as a measure for economic growth of a country and has a positive impact on the profitability of bank. These authors hassled that, when there is a favorable economic growth, the probability of borrowers defaulting is very low and vice versa. However, some studies have revealed a diverse relationship between the profitability of a bank and GPD.

A study conducted by Sufianet al (2018) on Philippian banks revealed a positive relationship between banks' profitability and GDP. This is in line with the work done by Athanasoglouet al., (2018) which exhibited a positive correlation between the variables. On the other hand, a study by Husni (2011) on the banks in Jordan showed a significant and an inverse relationship between ROA and GDP. And also the finding of Vonget al (2019) disclosed an insignificant relationship between the two variables.

- **Return on Assets (ROA)**

Return on Assets (ROA):-Al-Matari, Al-Swidi and Fadzil (2014) indicated that the most widely used performance measure in risk management literature in terms of accounting-related determinants is Return on Assets (ROA). This is estimated as the net income divided by total assets and is a pointer of short-term performance. Return on Assets of the company is the ratio of the net income to the total assets. It measures the efficiency of the banking company's management in generating profit out of its scarce resources. Kenny et al. (2014) posit that ROA is an indicator that evaluates assets employed efficiency and conveys to investors the earnings that have been generated by funds that have been invested in capital assets. The higher the profit generated from the employed assets, the more efficient the company.
Mathematically,

$$\mathbf{ROA} = \frac{\boldsymbol{Net\ income\ after\ tax}}{\boldsymbol{total\ asset\ \ (total\ asset\ y1 + total\ asset\ y2)/2}} * \mathbf{100}$$

- **Return on Equity (ROE):**

Return on Equity (ROE): Al-Matariet al. (2014) indicated that Return on Equity (ROE) is a profitability ratio measured by dividing net profit over shareholders' equity.

According to Vanroose and D'Espallier (2013), Return on Equity (ROE) is another major accounting-related indicator of a company's performance which is employed in risk management studies. Al-Matariet al. (2014) stipulated that ROE is depicted as having some restrictions and ROE is not risk-sensitive (for instance, the amount of risky assets and the solvency event is not captured in ROE figures) and it does not consider the company's long-term strategy or essential

extraordinary components. This research also used both ROA and ROE as a measure of profitability.

$$\textbf{ROE} = \frac{\textit{Net income after tax}}{\textit{total equity}\ (\textit{total equity}\ y1 + \textit{total equity}\ y2)/2} * \mathbf{100}$$

- **Non-Performing Loan Ratio (NPLR)**

Non-performing loans are the total sum of all borrowed money upon which the debtor has not made payments as scheduled for at least 90 days. A non-performing loan is either in default or near to being in default. The term Default is the failure by a borrower to pay principal or interest on a loan when due. Brewer et al. (2006) regarded NPLR, as a significant economic indicator. NPL implies a loss to the company, which requires provision. The profit takes care of the provision amount, and that reduces the profit margin. NPLR shows the level of banks' exposure to credit risk. A ratio of above 25% implies that the bank is getting into a weak credit risk control zone (Agborade, 2002 as cited in Tegegne Abera, 2018).

Asset quality deterioration is a common cause of bank failure. Poor asset quality (NPL) can seriously jeopardize the financial position of a bank and adversely affect the operation of the bank (Lafunte, 2012). Assets quality deterioration distresses the performance and survival of banks (Mileris, 2012). Miller and Noulas (1997) suggest that as the exposure of the financial institutions to high-risk loans increases, the accumulation of unpaid loans also increase and profitability would decrease. The quality of loan status has to be determined from time to time in order to differentiate between performing from non-performing loans.

- **Loans to Deposit Ratio (LTDR)**

The Loans to deposit ratio is a ratio between the bank's total loans and advances and total deposit. LTDR is a measure of the liquidity of the bank. LTDR indicates how efficiently the bank made use of depositors fund on credit activities, which is always at the mercy of default risk. LTDR indicates the ability of the bank to withstand the bank customers' withdrawal needs, and the readiness of the bank to meet the loan demands by reducing cash assets. Bank regulators utilize this ratio as a thumb rule to measure the adequacy of the banking institution's level of capital strength (Hassan & Bashir, 2003).

$$\textbf{LTDR} = \frac{\textbf{total loan and avance}}{\textbf{total deposit}}$$

LTDR = 1 means that the bank uses its mobilized deposits to provide loans to its customers without borrowing from outside to supplement.

LTDR < 1 means that the bank borrows money to grant loans to its customers. Such a position leads to higher interest on loans compared to loans generated from deposit funds.

LTDR > 1, means that the banks might not have enough liquidity to meet any unforeseen funding requirements or economic crisis.

- **Bank Size (LNTA)**

Nagaraju and Boateng, (2018) indicated that a researcher could measure the size of a firm using its assets, sales, or employee strength. However, according to Saunders *et al.,* (1990), Bank size is usually measured by the natural log of the total assets (LNTA) of the bank, hence the higher the bank size, the higher its ability to absorb risk. Researchers usually take the Natural logarithm of the total assets before adding it into the model, since researchers deflate the dependent variable (ROA) by the total asset. Large companies can manage better and put in place better financial structures. In the banking sector, potential economies and diseconomies of scale are generally captured using the size of the bank. Size (LNTA) therefore controls for the variations in cost, product, and risk diversification. According to Sufian and Chong, (2008), bank size may have a positive effect on bank profitability if there are significant economies of scale. However, if an increase in diversification results in higher risk, the variables may exhibit a negative effect.

$$\textbf{Bank Size} = \textbf{LnTA} ln(TA)$$

Liquidity Ratio

The ratio of liquid assets to total assets is employed, in accordance with Bougatef (2017), Chowdhury and Rasid (2017), Jara-Bertin et al. (2014), and Menicucci and Paolucci (2016), to measure bank liquidity. A higher ratio of liquidity indicates that banks have more liquidity, which could result in a higher return on opportunity cost. One main factor thought to be responsible for bank failures is inadequate liquidity. Previous research have revealed both

positive and negative connections between banks' profitability and liquidity (Ebenezer et al., 2017; Loh, 2017).

$$\textbf{Liquidty Ration} = \frac{\textbf{Liquid Asset}}{\textbf{Total Asset}}$$

Tangibility Ratio /Capital Ratio/ and Capital Adequacy Ratio

According to agency theory Singhal et al. 2022, Jensen and Meckling argue that a higher capital ratio results in higher agency costs and lower profits. High capital ratios have the potential to make banks more cautious, which could lead to missed opportunities and slower growth. High capital ratios negatively impacted the profitability of 108 banks in the UK, Germany, and the USA, according to research by Martins et al. Tan and Floros discovered a similar correlation in 101 Chinese banks between higher capital ratios and lower profitability. The authors also pointed out that declining profit margin coincided with the banking sector's increased capitalization in China. An inverse relationship between banks' capital levels and their global performance has been consistently demonstrated by numerous studies on this topic.

Basel III introduces a range of fresh capital, leverage, and liquidity requirements aimed at enhancing the oversight, supervision, and risk mitigation within the banking industry. The updated capital standards and additional capital buffers will necessitate banks to maintain increased levels of capital and of superior quality compared to the existing Basel II regulations. Various studies have presented conflicting findings regarding the correlation between capital and risk in the banking sector. Some research indicates a positive relationship, suggesting that regulators advocate for banks to boost their capital in proportion to the level of risk they undertake, known as the 'regulatory hypothesis'. Conversely, other studies have shown a negative relationship,

According to Jensen and Meckling [22], a higher capital ratio raises agency costs and lowers profit in accordance with the agency theory. High capital ratios may cause banks to become more cautious and to miss out on opportunities and experience [16]. Martins et al. found that 108 banks in the UK, Germany, and the USA saw a decline in profits as a result of their high capital

ratio. [28] Agency theory states that a higher capital ratio increases agency costs, which in turn restricts managers' ability to work harder to add value for shareholders and lowers bank profitability.

Basel III introduces a range of fresh capital, leverage, and liquidity requirements aimed at enhancing the oversight, supervision, and risk mitigation within the banking industry. The updated capital standards and additional capital buffers will necessitate banks to maintain increased levels of capital and of superior quality compared to the existing Basel II regulations. Various studies have presented conflicting findings regarding the correlation between capital and risk in the banking sector. Some research indicates a positive relationship, suggesting that regulators advocate for banks to boost their capital in proportion to the level of risk they undertake, known as the 'regulatory hypothesis'. Conversely, other studies have shown a negative relationship,

Singhal et al. Future Business Journal 2022, research on Capitalization and profitability: applicability of capital theories in BRICS banking sector. These models are applied in the panel and individual settings on BRICS banking sector data from 2000 to 2020. For BRICS (Brazil, Russia, and India), CAR and CR (tangibility or capital ratio) have a significant positive impact on profitability. This supports the signaling and bankruptcy cost theories, which assume that capitalization has a positive effect on profit. This implies that bank profitability increases in tandem with capitalization. This could be the case because a bank's capital sufficiency gives the market a signal that the bank is profitable and has promising futures. A bank with sufficient capital lowers the cost of bankruptcy because it does not rely on borrowed money. The agency theory, which contends that capitalization has a negative impact on profit, is supported by the observation that CAR and CR appear to have a significant negative impact on profitability in China and South Africa.

The authors assert that the higher capitalization of China's banking system is the cause of the country's declining profit margins. There is an inverse global correlation between banks' capital and performance, according to a plethora of research on the subject. Most countries, including the BRICS, require banks to keep the minimum amount of capital in order to stay in a well-capitalized position. Although capitalization has a significant detrimental impact on profitability

in South Africa and China, this supports the agency hypothesis, which contends that capitalization has a significant detrimental impact on profitability. "Capitalization and profitability: applicability of capital theories in the banking sector of the BRICS countries," by Nikita Singhal and colleagues. (2022).

Banking institutions with a greater capital ratio incur higher agency costs and operate more cautiously, perhaps missing out on growth opportunities. However, significance does not exist for the impact of ROE on capitalization in South Africa. Profitability does not have any influence on capitalization in Russia and China. Profitability had a detrimental effect on South Africa's and India's capitalization. In the short term, none of the models show a statistically significant correlation between capitalization (CAR and CR) and performance ability (ROA and ROE). Nonetheless, the regression coefficient's positive value indicated that capitalization had a beneficial short-term effect on profitability. Nikita Singhal and colleagues. (2022).

Since internal funds are the least information-intensive source of funding, a more prosperous corporation may be able to maintain earnings to finance known investment prospects, leading to better capital ratios [34]. This is in line with the pecking order theory. When Annor, Obeng, and Nti [4] looked into what influences capital decisions in a sample of commercial banks in Ghana, they found that ROA and capital ratio have a positive relationship. Better capital ratios can result from a prosperous corporation maintaining earnings to finance known investment prospects, as internal funds are the least information-intensive source of funding [34]. This is consistent with the theory of the pecking order. An investigation by Annor, Obeng, and Nti [4] into the factors influencing capital decisions in a sample of Ghanaian

$$\textbf{Tangibility Ratio (Capital Ratio)} = \frac{\text{Capital}}{\text{Total Asset}}$$

$$\textbf{Capital Adequacy Ratio (CAR)} = \frac{\text{Tier1 Capital+ Tier2 Capital}}{\text{Risk weighted Asset}}$$

Tier-1 Capital, also known as core capital, is composed of equity capital, ordinary share capital, intangible assets, and audited revenue reserves. It serves as the capital that is permanently and readily available to absorb and cushion losses incurred by a bank, allowing it to continue operating without interruption.

On the other hand, Tier-2 Capital consists of unaudited retained earnings, unaudited reserves, and general loss reserves. It functions as the capital that absorbs and cushions losses in the event of a bank winding up. However, it provides a lower level of protection to depositors and creditors compared to Tier-1 capital. Tier-2 capital is utilized only when a bank exhausts all of its Tier-1 capital.

Risk-weighted assets play a crucial role in determining the minimum amount of capital that banks and other institutions must hold to mitigate the risk of insolvency. The capital requirement is determined based on a risk assessment for each type of bank asset. For instance, a loan secured by a letter of credit is considered riskier and requires a higher amount of capital compared to a mortgage loan secured by a house.

Off-balance sheet agreements, such as foreign exchange contracts and guarantees, also carry credit risks. These exposures are converted into credit equivalent figures and weighted in a similar manner to on-balance sheet credit exposures. The total risk-weighted credit exposures are obtained by combining the off-balance sheet and on-balance sheet credit exposures.

Gross Domestic products

Real GDP for the year the most used macroeconomic metric for assessing how macroeconomic variables affect bank profitability is GDP. Additionally, according to Francis (2013), Marijana et al. (2012), Masood & Ashraf (2012), Petria et al. (2015), Rani & Zergaw (2017), Saona (2016), A. Singh & Sharma (2016), it is a measure of the whole economic activity inside an economy.

GDP: according to Vonget al (2019), the real GDP growth rate is used as a measure for economic growth of a country and has a positive impact on the profitability of bank. These authors hassled that, when there is a favorable economic growth, the probability of borrowers defaulting is very low and vice versa. However, some studies have revealed a diverse relationship between the profitability of a bank and GPD.

A study conducted by Sufianet al (2018) on Philippian banks revealed a positive relationship between banks' profitability and GDP. This is in line with the work done by Athanasoglouet al., (2018) which exhibited a positive correlation between the variables. On the other hand, a study by Husni (2011) on the banks in Jordan showed a significant and an inverse relationship between

ROA and GDP. And also the finding of Vonget al (2019) disclosed an insignificant relationship between the two variables.

Inflation

Inflation refers to the general increase in prices of goods and services over time. When inflation occurs, the purchasing power of money decreases, leading to higher costs for consumers and businesses. In the context of **banks' profitability**, inflation can have several implications:

M Juliani, R Tanwijaya - Global Financial Accounting Journal, 2022, concluded that there is negative correlation between inflation and banks profitability, when inflation raises interest rates also raises and Increase in interest rates provide greater opportunity for banks to increase their profits. Meanwhile their cost of funds also increases which can reduce profits. From the study, Inflation does not affect the profitability of banks.

2.3 Research Gap

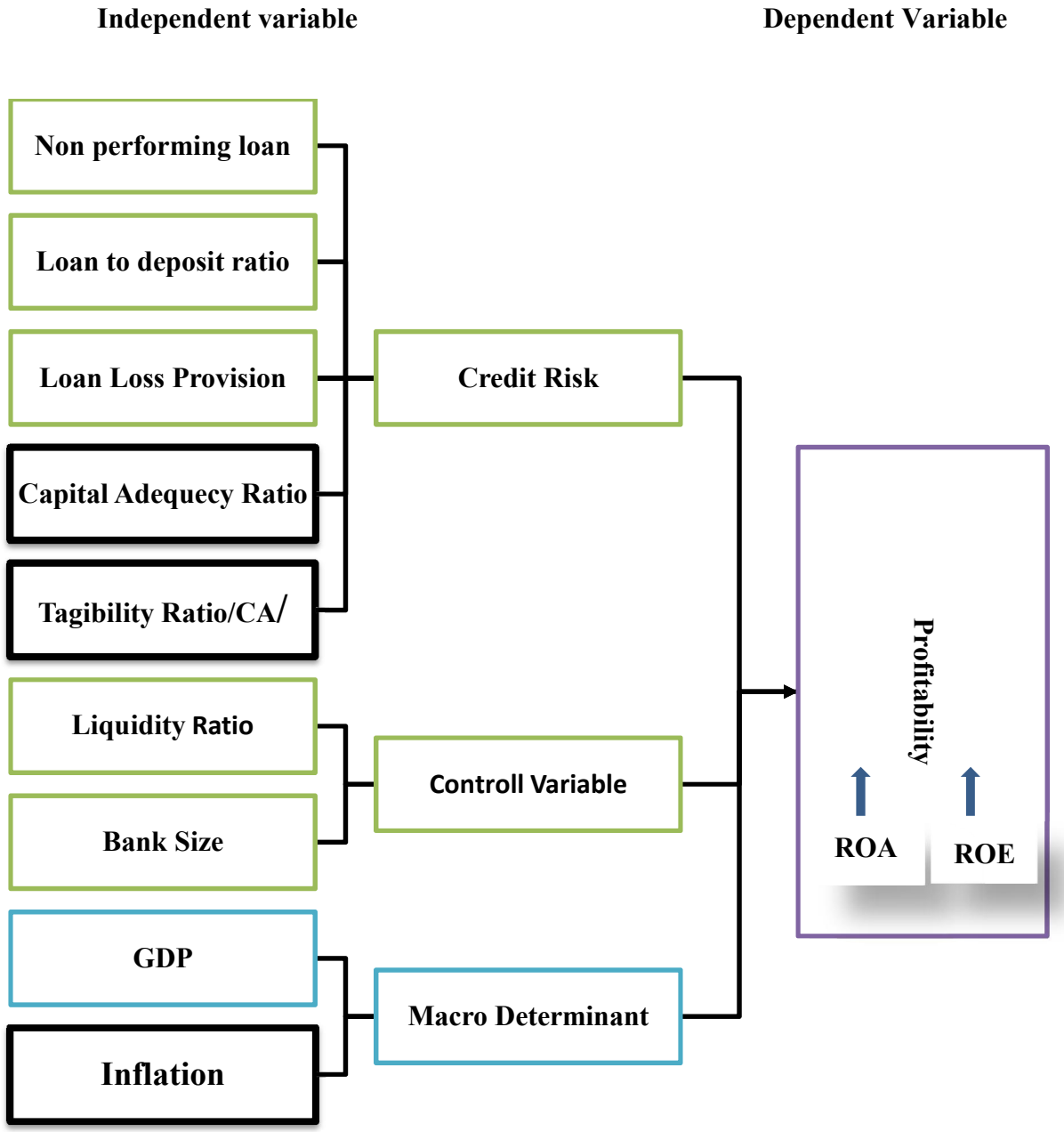
From empirical literature reviewed by different researchers relating to the credit risk management and profitability of Bank across the globe, it has evident that there is lack of conclusiveness on the findings of the relationship between credit risk management and profitability. There is a combination of results from the existing literature, which makes the study on the effect of credit risk management and profitability of Bank. The literature gaps stated above create a great interest to see how the profitability is affected by the risks faced by private commercial banks.

2.4 Conceptual framework

To get a comprehensive understanding of a phenomenon by visually explaining the key concepts or variables and their relationships, an analytical tool called conceptual framework is normally used (Grant & Osanloo, 2014). It is usually a framework developed based on an existing theory a special field of inquiry that relates the hypothesis of a study or research, serving as a guide to prevent deviations from the researcher's objectives (Grant & Osanloo, 2014). In this study, risk management practices were the independent variables and the Profitability were ROA and ROE.

From Fig.2.1 below, it is evident that the model of this research stands on the foundation of credit risk management. This research had the objective of finding out the effect of credit risk management on profitability of Ethiopian Banks. There would be the need to quantify both credit risk management and profitability in order to be able to disclose the relationship statistically. To achieve the above aim of the study, the two indicators for profitability and two indicators of credit risk management, namely Bank specific(CAR, NPLR, LTDR, TANR, LLP, LR and BS) Macro economic factors (GDP & Inflation) form of the foundation of the model.

From Fig.2.1 Conceptual framework



CHAPTER THREE

3 RESEARCH METHODOLOGY

The researcher mainly employed quantitative method to estimate the impact of credit risk management on profitability. These approaches are deemed appropriate for studying credit risk management and its impact on profitability, as it gave the researcher more vivid space.

3.1 Research Design

Research design is essentially the blueprint of conducting the entire study (Ngechu, 2017). Descriptive research is relevant as it explains the current status of a phenomenon and is concerned with finding out the what, where and how of a phenomenon. In contrast to descriptive design, the researcher is facing with "causes-and-effects" problems. The main task is to separate such causes and to say to what extent they lead to such effects (Ghauri and Grønhaug, 2005). In other words, it is to explain the causal relationship between variables (Saunders et al., 2009).

Descriptive statistics for dependent variables and all independent variables is to be used to check whether there is a significant variation in the data set. A correlation statistics is also needed to observe the direction and magnitude of relations among variables. However, this method does not give assurance of a causal relation between the dependent and independent variables. Inferential statistics is used to test the hypotheses.

3.2 Research Approach

A research approach is a plan and procedure that consists of the steps of broad assumptions to detailed method of data collection, analysis and interpretation. It is, therefore, based on the nature of the research problem being addressed. Deductive approach offers the following advantages: explain causal relationships between concepts and variables, measure concepts quantitatively and generalize research findings to a certain extent, it provides advantages such as explaining causal relationships, quantitative measurement, and generalizability of findings to some extent. Deductive approach means reasoning from the particular to the general. If a causal relationship or link seems to be implied by a particular theory or case example, it might be true in many cases. A deductive design might test to see if this relationship or link did obtain on more general circumstances. Therefore, the researcher used a quantitative research approach.

3.3 Types and Sources of Data

3.3.1 Sources of Data

The present study used secondary data obtained from National bank of Ethiopia, The dataset includes financial statement (Income statement and Balance sheet) of 14 private banks. The data of macro variables such as GDP and Inflation was accessed from National Bank of Ethiopia official website.

3.3.2 Types of Data

This research is designed to examine credit risk management on profitability of private commercial banks in Ethiopia. The nature of the study is quantitative, and it employs a panel data that is pooling of time series and cross-sectional observations. There are important advantages to making full use of this research structure. First, and perhaps most importantly, the researcher can address a broader range of issues and tackle more complex problems with panel data than would be possible with pure time-series or pure cross-sectional data alone (Chris.B, p.487, 2008). Second, it is often of interest to examine how variables, or the relationships between them, change dynamically (over time). To do this using pure time-series data would often require a long run of data simply to get a sufficient number of observations to be able to conduct any meaningful hypothesis tests.

However, by combining cross-sectional and time series data, one can increase the number of degrees of freedom, and thus the power of the test, by employing information on the dynamic behavior of numerous entities at the same time. The additional variation introduced by combining the data in this way can also help to mitigate problems of multi collinearity that may arise if time series are modeled individually. Finally, as will become apparent below, by structuring the model appropriately, researcher can remove the impact of certain forms of omitted variables bias in regression results (Chris, 2008).

3.4 Target Population

The target population for this study is all private commercial Banks in the list of NBE total population established ten years ago up to 2022 GC.

3.4.1 Sample size and sampling techniques

From those target population the researcher purposely selected a panel data of fourteen (14) private banks. This sampling technique is reasonably because banks were selected in terms of financial data availability for ten years and the banks with less than ten years operating life were excluded. The time period would cover from 2013 to 2022. As a result, the study has 140 observations.

3.5 Data Analysis and presentation

After secondary data collected from NBE, regression model were employed. STATA version 15 was used for data analysis.

3.6 Model Specification

Following prior studies, this study Return on Equity (ROE) and Return on Assets (ROA) are used as proxies for profitability, the dependent variable whiles, Non-performing Loan Ratio (NPLR), Loan Loss Provision (LLP), Capital Adequacy Ratio (CAR), Tangibility Ratio (TANR) and Loan to Deposit Ratio (LTR) are independent variables, and Liquidity Ratio (LR), bank size (BS) used as control variables and Macro economic factors(GDP & Inflation). Due to the two dependent variables (ROA, ROE), two different models were propounded for the analysis. The introduction of an error term (ε) into the model accounts for the unexplained variation in profitability by the credit risk management measures and other control variables introduced in the model.

The model for the study would therefore be in the same form of the regression equation as shown below:

1. $ROA_{it}=\beta 0-\beta 1LLP_{it}+\beta 2LDR-\beta 3NPLRit+\beta 4LRit+\beta 5BSit+\beta 6TANRit+\beta 7GDP_{it}-\beta 8INF_{it}+\beta 9CAR_{it}+\varepsilon i$
2. $ROE_{it}=\beta 0-\beta 1LLP_{it}+\beta 2LDR-\beta 3NPLRit+\beta 4LRit+\beta 5BSit-\beta 6TANRit+\beta 7GDP_{it}-\beta 8INF_{it}+\beta 9CAR_{it}+\varepsilon i$

Where;

- the dependent variable, = constant term
- coefficient of the independent variable
- coefficient of the independent variable the control variable, and
- **ε** = the disturbance or error term

Summary of Variables and Expected Sign

S/N	Variable	Abreviation	Measurement	Expected sign
1	Return on asset	ROA	$\frac{\boldsymbol{Profit\ after\ tax\ (Net-income)}}{\boldsymbol{total\ asset}}$	NA
2	Return on equity	ROE	$\frac{\boldsymbol{Profit\ after\ tax\ (Net-income)}}{\boldsymbol{total\ equity\ capital}}$	NA
3	Loan to Deposit Ratio	LDR	$\frac{\boldsymbol{total\ loan\ and\ avance}}{\boldsymbol{total\ deposit}}$	+
4	Loan Loss Provision	LLP	$\frac{\boldsymbol{Loan\ loss\ provion}}{\boldsymbol{total\ loan\ and\ avance}}$	-
5	Capital Adequacy Ratio	CAR	$\frac{(\boldsymbol{Tier1\ capital+Tier2\ capital})}{\boldsymbol{Risk\ weighted\ Asset}}$	+/_
6	Non-Performing Loan Ratio	NPL	$\frac{(\boldsymbol{Non-performing\ Loan})}{\boldsymbol{total\ loan\ and\ avance}}$	-
7	Tangibility /capital Ratio/	TANR	$\frac{\boldsymbol{Capital}}{\boldsymbol{total\ Asset}}$	+/-
8	Bank Size	LnBS	Log of Total Assets	+
9	Liquidity Ratio	LR	$\frac{(\boldsymbol{Cash}\ \&\ \textbf{Cash Equivalents})}{\boldsymbol{total\ Asset}}$	+
10	Growth domestic product	GDP	Real GDP	+
11	Inflation	INF		-

CHAPTER FOUR

4 RESULTS AND DISCUSSION

In this chapter, the results and discussion regarding the effect of credit risk management on profitability of selected private banks in Ethiopia were presented and discussed. The data for this study is fundamentally drawn from secondary sources. Structurally, the chapter is organized into three parts. The first part of the chapter discusses the banks credit risk management and their profitability. The second part analyses the relationship between banks credit risk management and their profitability. The last part examines the effect of credit risk management on profitability of selected private banks.

4.1 Descriptive Statistics Results

Under this section, the selected banks credit risk management and their profitability were analyzed using descriptive statistics such as mean, standard deviation, minimum, and maximum values as follows:

Table 4.1: *Descriptive Summary of Study Variables*

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	140	2.769	0.791	0.33	5.13
ROE	140	19.414	5.396	2.50	38.42
NPL	140	240.558	280.399	3.29	1506.16
LR	140	20.906	8.04	5.47	52.41
LDR	140	63.011	20.502	.54	97.97
LLPR	140	1.709	1.478	.01	8.83
TANR	140	14.406	3.399	7.87	25.95
BS	140	27437	29767	916	183391
GDP	140	8.39	1.702	6.1	10.4
CAR	140	19.836	6.456	8.8	40.91
INF	140	14.75	7.766	7.4	33.8

Source: National Banks of Ethiopia Annual Report, 2023

The Return on Assets (ROA) for the selected private commercial banks ranged from 0.33 to 5.13, with a mean of 2.769 and a standard deviation of 0.791. This metric signifies the profitability of the banks relative to their total assets. The average ROA of 2.769 indicates that, on average, for every unit of assets held by these banks, they generated a profit of approximately 2.77%. The standard deviation of 0.791 suggests that there were variations in the profitability levels among the banks, with some banks performing above or below the average.

The Return on Equity (ROE) for the selected private commercial banks exhibited a wide range, from 2.5% to 38.42%, with a mean of 19.414% and a standard deviation of 5.396%. This metric reflects the profitability of the banks relative to their total assets. The average ROE of 19.414% indicates that, on average, for every unit of equity held by these banks, they generated a profit of approximately 19.414%. However, the standard deviation of 5.396% suggests that there were variations in profitability levels among the banks, with some banks performing above or below the average. This variance underscores the diverse performance within the sector, with some banks achieving notably higher returns on their equity investments compared to others, potentially due to differences in business strategies, management efficiency, or market conditions.

The Non-Performing Loans (NPL) across the selected private commercial banks showed considerable variability, ranging from 3.29 to 1506.16, with a mean of 240.558 and a standard deviation of 280.399. This metric reflects the proportion of loans that are in default or close to being in default, indicating the asset quality of the banks. The average NPL of 240.558 suggests that, on average, a significant portion of the banks' loan portfolio may have been non-performing during the specified period. The large standard deviation of 280.399 indicates substantial variability among the banks regarding the level of non-performing loans, with some banks experiencing higher levels of loan defaults compared to others.

Liquidity Ratio (LR) of the selected private commercial banks ranged from 5.47 to 52.41, with a mean of 20.906 and a standard deviation of 8.04. This ratio represents the proportion of a bank's loans to its deposits and indicates the bank's liquidity position and lending activities. The average LR of 20.906 suggests that, on average, these banks held loans equivalent to approximately 21

times their deposit base. The standard deviation of 8.04 indicates variability among the banks in terms of their loan-to-deposit ratios, with some banks maintaining more conservative lending practices compared to others.

The Loan-Deposit Ratio (LDR) for the selected private commercial banks ranged from 0.54 to 97.97, with a mean of 63.011 and a standard deviation of 20.502. This ratio measures the amount of loans a bank has compared to its deposits, indicating its lending activity relative to its funding base. The average LDR of 63.011 suggests that, on average, these banks had loans amounting to approximately 63 times their deposit base. The standard deviation of 20.502 indicates variability among the banks in terms of their reliance on deposits for funding their lending activities.

The Loan Loss Provision Ratio (LLPR) among the selected private commercial banks ranged from 0.01 to 8.83, with a mean of 1.709 and a standard deviation of 1.478. This ratio reflects the proportion of a bank's income that is set aside as provisions for potential loan losses, indicating the bank's prudence in managing credit risk. The average LLPR of 1.709 suggests that, on average, these banks allocated approximately 1.71% of their income towards loan loss provisions. The standard deviation of 1.478 indicates variability among the banks in terms of their risk management practices, with some banks being more conservative in provisioning for loan losses compared to others.

The tangibility ratio (TANR) among the selected private commercial banks ranged from 7.87 to 25.95, with a mean of 14.406 and a standard deviation of 3.399. This ratio measures the efficiency of a bank's asset utilization relative to its net revenue and indicates its ability to generate revenue from its assets. The average TANR of 14.406 suggests that, on average, these banks generated revenue equivalent to approximately 14.41% of their total assets. The standard deviation of 3.399 indicates variability among the banks in terms of their efficiency in generating revenue from their assets, with some banks being more effective than others.

The Bank Size (BS) for the selected private commercial banks varied significantly, with values ranging from a minimum of 916 to a maximum of 183,391. This wide range indicates substantial differences in the sizes of these banks. The average bank size among the sample was 27,437,

demonstrating a moderate central tendency across the group. However, the standard deviation of 29,767 reveals a high level of variability around this mean, suggesting that while some banks are close to the average size, many others are either significantly smaller or larger. This substantial standard deviation highlights the diversity in the scale of operations among the private commercial banks included in the analysis.

The Gross Domestic Product (GDP) among the selected private commercial banks ranged from 6.1 to 10.4, with a mean of 8.39 and a standard deviation of 1.702. This metric represents the total monetary value of all goods and services produced within a country's borders over a specified period and serves as a key indicator of economic activity. The average GDP of 8.39 suggests that, on average, the economy grew at a rate of approximately 8.39% annually during the study period. The standard deviation of 1.702 indicates variability in the economic growth rates experienced by the banks over time, with some periods witnessing stronger economic expansions compared to others.

The Capital Adequacy Ratio (CAR) among the selected private commercial banks ranged from 8.8 to 40.91, with a mean of 19.836 and a standard deviation of 6.456. This metric measures a bank's capital relative to its risk-weighted assets, ensuring that the bank can absorb a reasonable amount of loss and complies with statutory capital requirements. The average CAR of 19.836 suggests that, on average, the banks maintained a capital buffer well above the minimum regulatory requirements, indicating strong financial health and stability. The standard deviation of 6.456 points to considerable variability in the capital adequacy among the banks, with some maintaining significantly higher ratios than others.

The Inflation rate (INF) among the selected private commercial banks ranged from 7.4 to 33.8, with a mean of 14.75 and a standard deviation of 7.766. This metric represents the rate at which the general level of prices for goods and services is rising, and subsequently, eroding purchasing power. The average inflation rate of 14.75 suggests that, on average, the economy experienced relatively high inflation during the study period. The standard deviation of 7.766 indicates substantial variability in the inflation rates observed, with some periods experiencing

significantly higher inflation than others, reflecting fluctuations in economic conditions and monetary policies.

4.2 Correlation Analysis

The possible values of correlation coefficients range from –1 (a perfect negative relationship) to +1 (a perfect negative relationship). Bhattacheriee (2012) further classified the strength of correlation between ±.81 and ±1.00 as very strong, between ±.61 and ± .80 as strong, between ±.41 and ±.60 as moderate, between ±.21 and ±.40 as weak, and between ±.00 and ±.20 as none. In this section, the independent variables were analyzed one by one using correlation analysis to identify their relationship with the dependent variable (bank profitability interms of ROA and ROE). For this purpose, independent variables such as NPL, LR, LDR, LLPR, TANR, LNBS, and GDP were tested their degree of relationship with bank profitability (return on asset) as follows:

Table 4.2: *Correlation Analysis Result (ROA)*

VARIABLES	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) ROA	1.000									
(2) LR	0.659	1.000								
(3) LDR	-0.196	-0.252	1.000							
(4) LLPR	-0.142	0.171	0.079	1.000						
(5) TANR	0.664	0.421	0.057	-0.166	1.000					
(6) LNBS	-0.610	-0.718	0.097	-0.092	-0.714	1.000				
(7) GDP	0.355	0.464	-0.277	-0.015	0.249	-0.606	1.000			
(8) INF	-0.273	-0.323	0.276	0.083	-0.199	0.535	-0.818	1.000		
(9) NPLR	-0.435	-0.107	0.322	0.284	-0.367	0.156	0.084	-0.085	1.000	
(10) CAR	-0.602	-0.573	0.095	-0.019	-0.790	0.837	-0.514	0.495	0.188	1.000

Correlation analysis in this study was used to measures the degree of linear association between two variables at a time. Therefore, the following paragraphs discuss the results of the correlation analysis between variables of the study using the Pearson correlation coefficient.

As depicted in the correlation analysis, the findings unveiled a statistically significant association between the Liquidity Ratio (LR) and the Return on Assets (ROA) of banks ($r = 0.659$, $p < 0.01$). The correlation coefficient between LR and bank profitability is 0.659, denoting a strong positive correlation. This suggests that as the liquidity ratio increases, there tends to be an increase in the profitability of banks. A higher liquidity ratio indicates better liquidity management, which is often associated with improved financial performance.

As presented in the correlation analysis, the findings unveiled an association between the Loan-to-Deposit Ratio (LDR) and the Return on Assets (ROA) of banks ($r = -0.196$, $p < 0.05$). The correlation coefficient between LDR and bank profitability is -0.196, indicating a weak negative correlation. This suggests that as the loan-to-deposit ratio increases, there is a slight tendency for the profitability of banks to decrease. This may reflect higher risks associated with a higher proportion of loans relative to deposits.

As depicted in the correlation analysis, the findings unveiled an association between the Loan Loss Provision Ratio (LLPR) and the Return on Assets (ROA) of banks ($r = -0.142$, $p < 0.05$). The correlation coefficient between LLPR and bank profitability is -0.142, denoting a weak negative correlation. This suggests that as the loan loss provision ratio increases, there is a slight tendency for the profitability of banks to decrease. This could indicate that higher provisions for potential loan losses are associated with lower profitability.

As presented in the correlation analysis, the findings unveiled a statistically significant association between the Tangibility Ratio (TANR) and the Return on Assets (ROA) of banks ($r = 0.664$, $p < 0.01$). The correlation coefficient between TANR and bank profitability is 0.664, denoting a moderate positive correlation. This suggests that as the tangibility ratio increases, there tends to be an increase in the profitability of banks. A higher tangibility ratio indicates a greater proportion of physical assets, which might contribute positively to financial performance.

As depicted in the correlation analysis, the findings unveiled a statistically significant association between the bank size (LNBS) and the Return on Assets (ROA) of banks ($r = -0.610$, $p < 0.01$). The correlation coefficient between LNBS and bank profitability is -0.610, denoting a moderate

negative correlation. This suggests that as the loans to net banking sector assets ratio increases, there tends to be a decrease in the profitability of banks.

As presented in the correlation analysis, the findings unveiled a statistically significant association between Gross Domestic Product (GDP) and the Return on Assets (ROA) of banks ($r = 0.355$, $p < 0.05$). The correlation coefficient between GDP and bank profitability is 0.355, indicating a weak positive correlation. This suggests that as GDP increases, there tends to be a slight increase in the profitability of banks. This relationship underscores the importance of economic growth in enhancing the financial performance of banks.

As depicted in the correlation analysis, the findings unveiled a statistically significant association between Inflation (INF) and the Return on Assets (ROA) of banks ($r = -0.273$, $p < 0.05$). The correlation coefficient between INF and bank profitability is -0.273, denoting a weak negative correlation. This suggests that as the inflation rate increases, there tends to be a decrease in the profitability of banks. Higher inflation can erode the value of financial assets and increase costs, negatively impacting profitability.

As depicted in the correlation analysis, the findings unveiled a statistically significant association between the Non-Performing Loan Ratio (NPLR) and the Return on Assets (ROA) of banks ($r = -0.435$, $p < 0.01$). The correlation coefficient between NPLR and bank profitability is -0.435, denoting a moderate negative correlation. This suggests that as the non-performing loan ratio increases, there tends to be a decrease in the profitability of banks. Higher levels of non-performing loans typically indicate poorer asset quality, which can negatively affect financial performance.

As depicted in the correlation analysis, the findings unveiled a statistically significant association between the Capital Adequacy Ratio (CAR) and the Return on Assets (ROA) of banks ($r = -0.602$, $p < 0.01$). The correlation coefficient between CAR and bank profitability is -0.602, indicating a moderate negative correlation. This suggests that as CAR increases, there tends to be a decrease in the profitability of banks. This negative relationship might reflect that higher

capital buffers, while enhancing financial stability, could be associated with lower returns on assets due to the conservative management of resources.

Table 4.3: *Correlation Analysis Result (ROE)*

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1) ROE	1.000									
(2) LR	0.772	1.000								
(3) LDR	-0.393	-0.252	1.000							
(4) LLPR	-0.101	0.171	0.079	1.000						
(5) TANR	0.236	0.421	0.057	-0.166	1.000					
(6) LNBS	-0.401	-0.718	0.097	-0.092	-0.714	1.000				
(7) GDP	0.326	0.464	-0.277	-0.015	0.249	-0.606	1.000			
(8) INF	-0.217	-0.323	0.276	0.083	-0.199	0.535	-0.818	1.000		
(9) NPLR	-0.403	-0.107	0.322	0.284	-0.367	0.156	0.084	-0.085	1.000	
(10) CAR	-0.305	-0.573	0.095	-0.019	-0.790	0.837	-0.514	0.495	0.188	1.000

As presented in the correlation analysis, the findings unveiled a statistically significant association between the Liquidity Ratio (LR) and the Return on Equity (ROE) of banks ($r = 0.772$, $p < 0.01$). The correlation coefficient between LR and bank profitability is 0.772, denoting a strong positive correlation. This suggests that as the liquidity ratio increases, there tends to be a substantial increase in the profitability of banks. A higher liquidity ratio indicates better liquidity management, which is often associated with improved financial performance.

As depicted in the correlation analysis, the findings unveiled an association between the Loan-to-Deposit Ratio (LDR) and the Return on Equity (ROE) of banks ($r = -0.393$, $p < 0.05$). The correlation coefficient between LDR and bank profitability is -0.393, indicating a moderate negative correlation. This suggests that as the loan-to-deposit ratio increases, there is a tendency for the profitability of banks to decrease. This may reflect higher risks associated with a higher proportion of loans relative to deposits.

As presented in the correlation analysis, the findings unveiled an association between the Loan Loss Provision Ratio (LLPR) and the Return on Equity (ROE) of banks ($r = -0.101$, $p < 0.05$).

The correlation coefficient between LLPR and bank profitability is -0.101, denoting a weak negative correlation. This suggests that as the loan loss provision ratio increases, there is a slight tendency for the profitability of banks to decrease. This could indicate that higher provisions for potential loan losses are associated with lower profitability.

As depicted in the correlation analysis, the findings unveiled an association between the Tangibility Ratio (TANR) and the Return on Equity (ROE) of banks ($r = 0.236$, $p < 0.05$). The correlation coefficient between TANR and bank profitability is 0.236, denoting a weak positive correlation. This suggests that as the tangibility ratio increases, there tends to be a slight increase in the profitability of banks. A higher tangibility ratio indicates a greater proportion of physical assets, which might contribute positively to financial performance.

As depicted in the correlation analysis, the findings unveiled a statistically significant association between the Loans to Net Banking Sector Assets Ratio (LNBS) and the Return on Equity (ROE) of banks ($r = -0.401$, $p < 0.01$). The correlation coefficient between LNBS and bank profitability is -0.401, denoting a moderate negative correlation. This suggests that as the loans to net banking sector assets ratio increases, there tends to be a decrease in the profitability of banks. This negative relationship may indicate that a higher proportion of loans relative to net assets can be associated with increased risk and lower returns.

As depicted in the correlation analysis, the findings unveiled a statistically significant association between the Gross Domestic Product (GDP) and the Return on Equity (ROE) of banks ($r = 0.326$, $p < 0.05$). The correlation coefficient between GDP and bank profitability is 0.326, denoting a weak positive correlation. This suggests that as GDP increases, there tends to be a slight increase in the profitability of banks. This relationship underscores the importance of economic growth in enhancing the financial performance of banks.

As presented in the correlation analysis, the findings unveiled a statistically significant association between Inflation (INF) and the Return on Equity (ROE) of banks ($r = -0.217$, $p < 0.05$). The correlation coefficient between INF and bank profitability is -0.217, denoting a weak negative correlation. This suggests that as the inflation rate increases, there tends to be a decrease

in the profitability of banks. Higher inflation can erode the value of financial assets and increase costs, negatively impacting profitability.

As depicted in the correlation analysis, the findings unveiled a statistically significant association between the Non-Performing Loan Ratio (NPLR) and the Return on Equity (ROE) of banks ($r = -0.403$, $p < 0.01$). The correlation coefficient between NPLR and bank profitability is -0.403, denoting a moderate negative correlation. This suggests that as the non-performing loan ratio increases, there tends to be a decrease in the profitability of banks. Higher levels of non-performing loans typically indicate poorer asset quality, which can negatively affect financial performance.

As presented in the correlation analysis, the findings unveiled a statistically significant association between the Capital Adequacy Ratio (CAR) and the Return on Equity (ROE) of banks ($r = -0.305$, $p < 0.01$). The correlation coefficient between CAR and bank profitability is -0.305, indicating a weak negative correlation. This suggests that as CAR increases, there tends to be a decrease in the profitability of banks. This negative relationship might reflect that higher capital buffers, while enhancing financial stability, could be associated with lower returns on equity due to the conservative management of resources.

4.3 Regression Analysis

In this section of the study, panel data regression analysis was applied since panel data models provide information on individual behavior, both across individuals and over time. However, before applying regression analysis to test the effect of national banks regulation on the financial performance of banks, diagnostic tests such as Multicollinearity, normality, heteroskedasticity, and auto-correlation tests are made for identifying misspecification of data if any so as to fulfill research quality as follows:

4.3.1 Multicollinearity Test

Under this section, the multicollinearity test was checked. Multicollinearity indicates a linear relationship between explanatory variables, which may cause the regression model to be, biased (Gujarati, 2004). If an independent variable is an exact linear combination of the other

independent variables, then we say the model suffers from perfect collinearity, and it cannot be estimated by regression analysis. Therefore, the following table presents the results of the multicollinearity using variance inflation factor (VIF) and tolerance.

Table 4.4: *Multicollinearity test*

Variable	VIF	1/VIF
lnbs	6.44	0.155231
car	5.21	0.191947
tanr	4.65	0.214868
inf	3.71	0.269527
gdp	3.71	0.269846
lr	2.48	0.402867
nplr	1.63	0.612875
ldr	1.55	0.646193
llpr	1.36	0.733512
Mean VIF	3.42	

As can be seen from Table 4.4, Variance Inflation Factors (VIFs) were calculated to detect the presence of Multicollinearity between predictors. Collinearity statistics are associated with the extent of correlation between independent variables. If there is a high correlation between two independent variables, the regression model assumes redundancy of one of these variables that its significance becomes too low and its coefficient also be negatively affected. The problem is checked by the Tolerance and Variance Inflation Factor (VIF). A tolerance of >.10 and a VIF < 10 are considered good enough to minimize the effect of multicollinearity (Miller & Whicker, 1999). Since all predictors in the regression model have VIFs less than 10, the result implies that the regression model is not affected by the higher correlation between two independent variables.

4.3.2 Normality Test

One of the important diagnostic test conducted in this paper is the normality assumption. The normality assumption is about the mean of the residual is zero. Therefore, the result is presented as follows:

Table 4.5: *Shapiro-Wilk W test for Normal Data*

Variable	Obs	W	V	z	Prob>z
ur	140	0.98430	1.722	1.228	0.10981

In this study, the Shapiro-Wilk test was applied to test whether the disturbance terms are normally distributed or not. According to Gujarati (2004), if the residuals are normally distributed, the Shapiro-Wilk test statistic would not be significant, and the disturbances are said to be normally distributed. Since the p-value is greater than 0.05, the Shapiro Wilk test was insignificant. Therefore the data is approximately normally distributed.

4.3.3 Heteroskedasticity Test

Heteroskedasticity was tested to check whether the variances of the errors are constant or not. In order to test the heteroskedasticity assumptions, the researcher applied Koenker and Bassett (1982) and Waldman (1983) test statistics. The null hypothesis for both statistics claims that no heteroskedasticity in the residuals of the model, and the results are presented in Table 4.4 as follows:

Table 4.6: *Heteroskedasticity test*

Heteroskedasticity test	Statistic	p-value
Breusch-Pagan and Godfrey	0.19	0.6621

The results of Table 4.6 shows the significant value for both tests were greater than 0.05. According to Waldman (1983), at a given significant level the researcher accepts the null hypothesis (Ho) of no heteroskedasticity. Since the significant values for Breusch-Pagan and Godfrey were 0.6621 were greater than 0.05 significant levels. Therefore, the result indicated that there is no evidence for the existence of heteroskedasticity.

4.3.4 Autocorrelation Test

In this sub-section, autocorrelation was tested to check that the covariance between the error terms over time is zero. It is assumed that the errors are uncorrelated to one another. Thus, the null hypothesis is meant for checking whether the error terms are autocorrelated or not. To determine the autocorrelation between observations, the Durbin Watson test was used. Durbin-Watson coefficient tests for serial correlation between errors.

Table 4.7: *Autocorrelation test*

Test	N	Statistic
Durbin-Watson Statistic	140	1.91

The Durbin Watson statistic ranges in value from 0 to 4. A value near to 2 indicates non-autocorrelation (Field, 2005). According to Garson (2012), the Durbin-Watson statistics should be between 1.5 and 2.5 for independent observations. As indicated in Table 4.7, the value of Durbin Watson was found to be 1.91 which is between 1.5 and 2.5 as well as close to 2. Therefore, it can be confirmed that the assumption of independent error has almost certainly been met.

4.3.5 Choosing Random Effect Vs. Fixed Effect Models (ROA)

The diagnostic tests which were considered in this study did not violet the assumptions of regression analysis. Thus, it is safe to apply the regression analysis. Since this study uses a panel data, there are two types of panel estimator approaches that can be employed, namely: fixed effects models (FEM) and random effects models (REM). To examine whether individual effects are fixed or random, a Hausman specification test was conducted and presented as follows:

Table 4.8: *Hausman Specification Test*

Tests	**Coef.**
Chi-square test value	9.75
P-value	0.712

The null hypothesis for Hausman test states that random effect model is appropriate. That means unobservable heterogeneity term is not correlated. On the other hand, the alternative hypothesis for Hausman test states that the fixed effect model is appropriate. The results of Table 4.8 showed that the probability value (p = 0.712) is greater than 0.05, which indicates that the null hypothesis is accepted. Therefore, the random effect model is more appropriate than a fixed-effect model.

Table 4.9: *Random Effect Model Regression Result (ROA)*

```
Random-effects GLS regression                   Number of obs     =       140
Group variable: ID                              Number of groups  =        14

R-sq:                                           Obs per group:
     within  = 0.6268                                         min =        10
     between = 0.8080                                         avg =      10.0
     overall = 0.6881                                         max =        10

                                                Wald chi2(9)      =    247.84
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =    0.0000
```

roa	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
lr	.056614	.0082353	6.87	0.000	.0404732	.0727548
ldr	.0002019	.0033311	0.06	0.952	-.0063269	.0067308
llpr	-.0755829	.0384746	-1.96	0.049	-.1509918	-.0001741
tanr	.1280001	.028858	4.44	0.000	.0714394	.1845608
lnbs	.1601877	.112653	1.42	0.155	-.060608	.3809835
gdp	.0461268	.0458703	1.01	0.315	-.0437774	.1360309
car	1.697731	5.675948	0.30	0.765	-9.426923	12.82238
inf	-.006716	.0100554	-0.67	0.504	-.0264241	.0129922
nplr	-.0727191	.0243525	-2.99	0.003	-.120449	-.0249892
_cons	-1.709947	1.550646	-1.10	0.270	-4.749157	1.329263
sigma_u	.18628683					
sigma_e	.45884255					
rho	.14150582	(fraction of variance due to u_i)				

As can be seen from the results of 4.9, the R^2 value of the regression model was found to be 0.6881. It is indicating that 68.81% of the variance in the profitability of private banks was accounted by independent variables that are included in the model. The results of Wald chi2 (9) = 247.84, p<0.01) indicated that the regression model itself is statistically significant or not

significant. The result indicated that the model is statistically significant when all independent variables listed were included. Therefore, the overall equation was found to be statistically significant.

Among nine variables included in the model, four variables such as non-performing loan, liquidity ratio, loan loss provision ratio, and tangibility ratio were significant. Regarding their relationship with the dependent variable, two of them have negative relationship and the other two of them have positive relationship with return on asset. The detailed interpretations and discussions of significant variables included in the model were explained as follows:

Non-performing loan: According to the findings of Table 4.9, non-performing loan has a negative and statistically significant effect on the profitability of private banks ($\beta = -0.0727191$, $p < 0.05$). According to the regression coefficient, a one-unit increase in legal reservation results in a 0727191 unit decrease in bank profitability. This result was in line with that of Singh et al. (2021), who reported negative and statistically significant effect non-performing loan (NPL) on the profitability of private banks. They argued that Non-performing loans represent a major challenge for the banking sector, as it reduces the profitability of banks, and is often presented as preventing banks from lending more to businesses and consumers, which in turn slows down economic growth. Moreover, Shibru (2020) reported that non-performing loans (NPL) have a negative and statistically significant impact on the profitability of commercial banks in Ethiopia. Specifically, the result showed that for a 1% increase or decrease in non-performing loans, the banks would experience a 0.7% decline or increase in their profits. This finding suggests that a higher level of non-performing loans can adversely affect the profitability of banks in Ethiopia.

Liquidity ratio: As presented in Table 4.9, the liquidity ratio has a positive and statistically significant effect on private banks' financial performance ($\beta = 0.056614$, $p < 0.01$). The result of the regression coefficient indicates that on average, a one-unit increase in the liquidity management brings 0.056614 units increase in the bank profitability. In connection to this finding, Ferrouhi (2014) delves into the relationship between liquidity ratios and financial performance indicators in the banking sector. The findings indicate a clear connection between liquidity ratios and bank performance, revealing that higher liquidity ratios are associated with

better overall financial performance. This suggests that banks with greater liquidity are more capable of meeting short-term obligations and are better positioned to withstand financial shocks or downturns. Additionally, higher liquidity ratios may indicate efficient management of assets and liabilities, ensuring that the bank has sufficient reserves to cover its obligations while still generating returns. These results underscore the importance of liquidity management in maintaining the stability and resilience of banks, as well as its positive impact on their overall financial health and performance.

Loan loss provision ratio: According to the findings of Table 4.9, loan loss provision ratio has a negative and statistically significant effect on the profitability of private banks ($\beta = -0.0755829$, $p < 0.05$). According to the regression coefficient, a one-unit increase in legal reservation results in a 0.0755829 unit decrease in bank profitability. In supporting the finding Kassem and Sakr (2018) asserted that the loan loss provision ratio has a negative and significant effect on banks' profitability. This indicates that higher levels of loan loss provisions lead to lower profitability levels for banks. Essentially, banks set aside funds as provisions to cover potential losses from non-performing loans, reducing their available capital for other purposes such as investment or distribution to shareholders. They further demonstrated that increased loan loss provisions are associated with decreased profitability levels. This relationship reflects the prudential approach taken by banks to ensure their financial stability and adherence to regulatory requirements by preemptively accounting for potential losses from defaulted loans. However, while higher loan loss provisions may improve the overall health of the bank's loan portfolio, they can also negatively impact profitability by reducing the net income available to shareholders. Therefore, banks must strike a balance between maintaining adequate provisions for loan losses and optimizing profitability to ensure sustainable financial performance.

Tangibility ratio: As depicted in Table 4.9, tangibility ratio has a positive and statistically significant effect on private banks profitability ($\beta = 0.1280001$, $p < 0.01$). The result of the regression coefficient indicates that, on average, a one-unit increase in tangibility ratio brings 0.128 units to increase the bank profitability. In supporting this finding, Iltas and Demirgunes (2020) indicated that tangibility ratio have significant and positive effects on financial performance. Further support is given by Irungu et al. (2018) that there is a positive and

significant relationship between tangibility ratio and financial performance of financial firms. In supporting this finding Iltas and Demirgunes (2020) highlighted the importance of tangible assets in driving financial success. Their research demonstrated that a higher tangibility ratio, indicating a greater proportion of tangible assets relative to total assets, is associated with improved financial performance. Similarly, Irungu et al. (2018) provided further support for this relationship by finding a positive and significant correlation between the tangibility ratio and the financial performance of financial firms. This suggests that companies with a higher proportion of tangible assets, such as quality loan, real estate investment, and other profitable investments, tend to perform better financially. According to the pecking order theory, internal funds are the least information-intensive source of funding; hence, a more prosperous corporation may maintain earnings to finance known investment prospects, resulting in better capital ratios.

4.3.6 Choosing Random Effect Vs. Fixed Effect Models (ROE)

The diagnostic tests which were considered in this study did not violet the assumptions of regression analysis. Thus, it is safe to apply the regression analysis. Since this study uses a panel data, there are two types of panel estimator approaches that can be employed, namely: fixed effects models (FEM) and random effects models (REM). To examine whether individual effects are fixed or random, a Hausman specification test was conducted and presented as follows:

Table 4.10: *Hausman Specification test (ROE)*

Tests	**Coef.**
Chi-square test value	11.22
P-value	0.2610

The null hypothesis for Hausman test states that random effect model is appropriate. That means unobservable heterogeneity term is not correlated. On the other hand, the alternative hypothesis for Hausman test states that the fixed effect model is appropriate. The results of Table 4.10 showed that the probability value ($p = 0.2610$) is greater than 0.05, which indicates that the null hypothesis is accepted. Therefore, the fixed effect model is more appropriate than a random-effect model.

Table 4.11: *Fixed Effect Model Regression Result (ROE)*

```
Random-effects GLS regression                   Number of obs     =         140
Group variable: ID                              Number of groups  =          14

R-sq:                                           Obs per group:
     within  = 0.7976                                         min =          10
     between = 0.8438                                         avg =        10.0
     overall = 0.8085                                         max =          10

                                                Wald chi2(9)      =      530.01
corr(u_i, X)   = 0 (assumed)                    Prob > chi2       =      0.0000
```

roe	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
lr	.6468272	.0399048	16.21	0.000	.5686152	.7250393
ldr	-.0052601	.0155607	-0.34	0.735	-.0357586	.0252384
llpr	-.6956892	.1829112	-3.80	0.000	-1.054189	-.3371898
tanr	-.1238193	.1386161	-0.89	0.372	-.395502	.1478633
lnbs	1.596043	.5401332	2.95	0.003	.5374019	2.654685
gdp	.3114939	.2230304	1.40	0.163	-.1256377	.7486255
car	14.04485	27.42611	0.51	0.609	-39.70934	67.79904
inf	-.0236995	.0489161	-0.48	0.628	-.1195732	.0721742
nplr	-.6854085	.1148156	-5.97	0.000	-.910443	-.460374
_cons	-5.875528	7.454005	-0.79	0.431	-20.48511	8.734054
sigma_u	.8092889					
sigma_e	2.2331145					
rho	.11608963	(fraction of variance due to u_i)				

As can be seen from the results of 4.11, the R^2 value of the regression model was found to be 0.8085. It is indicating that 80.85% of the variance in the profitability of private banks was accounted by independent variables that are included in the model. The results of *Wald chi2* (F = 530, $p<0.01$) indicated that the regression model itself is statistically significant or not significant. The result indicated that the model is statistically significant when all independent variables listed were included. Therefore, the overall equation was found to be statistically significant.

Among seven variables included in the model, four variables such as non-performing loan, liquidity ratio, loan loss provision ratio, and Log of Number of Branches were significant. Regarding their relationship with the dependent variable, all variables have negative relationship with return on equity. The detailed interpretations and discussions of significant variables included in the model were explained as follows:

Non-performing loan: According to the findings of Table 4.11, non-performing loan has a negative and statistically significant effect on the profitability of private banks ($\beta = -0.6854085$, $p < 0.01$). According to the regression coefficient, a one-unit increase in legal reservation results in a 0.6854085 unit decrease in bank profitability. This finding aligns with the research conducted by Uddin (2022) demonstrated a negative and statistically significant impact of non-performing loans (NPL) on the profitability of private banks. They argued that non-performing loans pose a significant challenge to the banking sector, leading to reduced profitability and hindering banks' ability to lend to businesses and consumers, thereby impeding economic growth. He further argued that found that non-performing loans have a negative and statistically significant effect on the profitability of commercial banks.

Liquidity ratio: As presented in Table 4.11, the liquidity ratio has a positive and statistically significant effect on private banks' financial performance ($\beta = 0.6468272$, $p < 0.01$). The result of the regression coefficient indicates that on average, a one-unit increase in the liquidity management brings 0.6468272 units increase in the bank profitability. In relation to this finding, Nataraja et al.(2018), explores the relationship between liquidity ratios and financial performance indicators in the banking sector. The study reveals a clear link between liquidity ratios and bank performance, suggesting that higher liquidity ratios correlate with better overall financial performance. This indicates that banks with greater liquidity are more adept at meeting short-term obligations and are better equipped to withstand financial shocks or downturns. Moreover, higher liquidity ratios may signal efficient management of assets and liabilities, ensuring that the bank maintains sufficient reserves to cover its obligations while still generating returns. These findings highlight the crucial role of liquidity management in upholding the stability and resilience of banks, as well as its positive influence on their overall financial health and performance.

Loan loss provision ratio: According to the findings of Table 4.11, loan loss provision ratio has a negative and statistically significant effect on the profitability of private banks ($\beta = -0.6956892$, $p < 0.01$). According to the regression coefficient, a one-unit increase in legal reservation results in a 0.6956892 unit decrease in bank profitability. Supporting this finding, Menicucci and Paolucci (2016) argued that the loan loss provision ratio has a negative and significant impact on banks' profitability. This suggests that higher levels of loan loss provisions

result in lower profitability for banks. Essentially, banks allocate funds as provisions to cover potential losses from non-performing loans, thereby reducing their available capital for other purposes such as investment or distribution to shareholders. Their argument indicated that increased loan loss provisions are associated with decreased profitability levels. This relationship reflects banks' prudential approach to ensuring financial stability and compliance with regulatory requirements by accounting for potential losses from defaulted loans in advance. However, while higher loan loss provisions may enhance the overall health of the bank's loan portfolio, they can also negatively impact profitability by reducing net income available to shareholders. Therefore, banks must strike a balance between maintaining sufficient provisions for loan losses and optimizing profitability to ensure sustainable financial performance.

Bank size: As depicted in Table 4.11, bank size has a positive and statistically significant effect on private banks profitability ($\beta = 1.596043$, $p < 0.01$). The result of the regression coefficient indicates that, on average, a one-unit increase in bank size brings 1.596043 units to increase the bank profitability. In supporting this finding, Almaqtari et al. (2019) indicated that the positive and statistically significant effect of the bank size on private banks' profitability underscores the importance of branch network expansion in driving financial performance. An increase in the number of branches allows banks to reach a wider customer base, potentially attracting more deposits and increasing lending opportunities. As more branches are established, accessibility to banking services improves, leading to enhanced customer satisfaction and loyalty. Moreover, a larger branch network enables banks to diversify their revenue streams by offering a wider range of products and services. This diversification can mitigate risks associated with economic fluctuations or changes in market conditions, contributing to more stable and sustainable profitability. Additionally, expanding the branch network may generate economies of scale, reducing per-unit operating costs and improving overall efficiency. Furthermore, the presence of physical branches can enhance the bank's brand visibility and reputation within local communities, fostering trust and credibility among customers. Therefore, the positive relationship between the number of branches and profitability highlights the strategic importance of branch network expansion for private banks in maximizing their financial performance and competitive position in the market.

CHAPTER FIVE

5 CONCLUSION AND RECOMMENDATIONS

The main objective of this study was to examine the effect of credit risk management on profitability of selected private banks in Ethiopia. To comply with the objectives of the study, fourteen banks and nine variables were used. The study was used panel data for the sample of 14 private banks in Ethiopia during 2013 to 2022. Data was presented and analyzed by using descriptive statistics, correlation analysis and random effect regression analysis.

5.1 Conclusion

As a measure of credit risk management, non-performing loans, loan loss provision, Capital adequacy ratio, Capital ratio, and loan to deposit ratio are considered as independent variables. The findings from the tables reveal that NPL and LLP have a negative and statistically significant impact on the profitability of private Banks, while TANR shows a mixed and statistically significant effect. It is evident that credit risk plays a significant role in influencing the profitability of private banks in both ROA and ROE models. This aligns with the research conducted by Kassem and Sakr (2018), Shibru (2020), and Singh et al. (2021). The mixed outcome of the Capital ratio can be attributed to the treatment of a company's debt and the interest expenses related to debt financing.

The negative and significant effect of non-performing loans (NPL) on the profitability of private commercial banks underscores a critical challenge within the banking sector. When loans become non-performing, it indicates that borrowers are failing to meet their repayment obligations, leading to diminished interest income and potential losses for banks. The presence of NPLs not only erodes current profitability but also poses long-term risks to the financial health and stability of banks by tying up capital and increasing provisioning requirements. Moreover, NPLs may signal weaknesses in credit risk assessment and management practices, potentially leading to further loan defaults and systemic risks within the banking system.

A healthy liquidity position enables banks to meet their short-term obligations promptly, seize profitable lending opportunities, and withstand unforeseen liquidity shocks without resorting to costly measures such as borrowing at unfavorable terms. Banks with higher liquidity ratios tend to have lower liquidity risk and may experience reduced funding costs, allowing them to allocate resources more efficiently and generate higher returns. A strong liquidity position enhances investor confidence and may attract more deposits, further bolstering profitability. Maintaining adequate liquidity is crucial for profitability, but excessively high liquidity ratios may also indicate underutilized assets and missed revenue-generating opportunities.

The finding indicates that the loan loss provision ratio has a negative and statistically significant impact on the profitability of private banks. This suggests that as the ratio of provisions for potential loan losses increases, the profitability of private banks tends to decrease. Such a relationship underscores the importance of managing credit risk effectively to maintain profitability. Banks may need to reassess their lending practices, improve credit risk assessment mechanisms, or strengthen their loan recovery processes to mitigate the adverse effects on profitability associated with higher loan loss provisions. Additionally, this finding highlights the crucial role of prudential regulation and risk management practices in ensuring the financial stability and performance of private banks.

The positive and significant effect of the tangibility ratio on the profitability of private commercial banks underscores the importance of operational efficiency and asset utilization in driving financial performance in terms of ROA. This ratio measures the efficiency with which banks generate revenue from their total capital, reflecting their ability to maximize returns while minimizing costs. A higher ratio indicates that banks are effectively leveraging their capital to generate revenue, which can lead to improved profitability. Banks with a strong Tangibility ratio can optimize their resource allocation, streamline operations, and capitalize on economies of scale, ultimately enhancing their bottom line. Moreover, a robust ratio signals sound management practices and operational effectiveness, which can instill investor confidence and support sustainable growth.

The positive and statistically significant effect of the number of branches on private banks' profitability in terms of ROE underscores the strategic importance of branch network expansion in driving financial performance. A larger network of branches allows banks to increase their market presence, attract more customers, and capture additional revenue streams. With more branches, banks can broaden their customer base, attracting both individual and business clients who seek convenient access to banking services. This increased accessibility can lead to higher deposit inflows and greater loan demand, contributing to revenue growth. Moreover, a well-distributed branch network enables banks to better serve diverse customer needs, offering tailored products and services that cater to specific market segments. Additionally, expanding the branch network can enhance the bank's brand visibility and reputation, fostering trust and loyalty among customers.

5.2 Recommendations

Based on the findings of the study, the researcher is going to recommend the following to the commercial banks:

- For the finding that non-performing loans (NPL) had a negative and significant effect on the profitability of private commercial banks, it is imperative for banks to prioritize effective credit risk management practices. This includes implementing rigorous loan approval processes, conducting comprehensive credit assessments, and monitoring borrower creditworthiness throughout the loan lifecycle. Additionally, proactive measures such as early identification and resolution of non-performing loans through timely loan restructuring or recovery efforts are crucial for minimizing losses and preserving profitability. Strengthening risk management frameworks, enhancing collection strategies, and diversifying loan portfolios to mitigate concentration risks can also help mitigate the impact of NPLs on profitability.
- Regarding the positive and significant effect of liquidity ratio on the profitability of private commercial banks, it is recommended that banks maintain a prudent liquidity management strategy to sustain profitability while ensuring financial stability. This involves maintaining adequate levels of liquid assets to meet short-term obligations and unforeseen funding needs, while also optimizing asset allocation to maximize returns. Banks should regularly assess their liquidity position, stress-test liquidity scenarios, and

establish contingency plans to address potential liquidity gaps. Moreover, fostering strong relationships with funding sources, diversifying funding channels, and maintaining a balanced funding structure can enhance liquidity resilience and support sustainable profitability over the long term.

- Based on the finding that the loan loss provision ratio negatively affects the profitability of private banks, it is recommended that banks focus on enhancing their credit risk management strategies. This can involve implementing more rigorous lending criteria, conducting thorough credit assessments, and monitoring loan portfolios more closely to identify potential risks early on. Additionally, banks should prioritize effective loan recovery measures to minimize the need for high provisions. Furthermore, investing in technology and data analytics for better risk assessment and monitoring can help banks identify and mitigate potential losses more efficiently. Lastly, ongoing training and development programs for bank staff on credit risk management practices are essential to ensure that the bank's lending activities are aligned with its profitability goals while maintaining prudent risk levels.
- Regarding the positive and significant effect of the Tangibility ratio on the profitability of private commercial banks, banks should focus on optimizing operational efficiency and asset utilization to further enhance profitability. This can be achieved through streamlining processes, leveraging technology for automation and cost savings, and implementing performance metrics to monitor and improve operational effectiveness. Additionally, banks should continuously evaluate their asset mix, identify opportunities to enhance revenue streams, and align business strategies with market dynamics to capitalize on growth prospects. Investing in innovation, talent development, and customer-centric initiatives can also drive value creation and strengthen competitive positioning in the marketplace, ultimately contributing to sustained profitability and shareholder value.

- To improve the effect of branch expansion on private banks' profitability, it is recommended that banks strategically expand their branch network. Conduct thorough market analysis to identify areas with high growth potential and unmet banking needs, focusing on these areas to capture new customers and increase market share. Prioritize customer convenience and satisfaction by strategically locating branches in areas with

high foot traffic and demand for banking services, offering extended hours, digital banking facilities, and personalized services. Utilize the expanded branch network for brand building and marketing initiatives, promoting the bank's presence in local communities through targeted campaigns and community events to increase brand visibility and customer engagement. Regularly monitor the performance of new branches, evaluating factors such as customer acquisition, revenue generation, and cost-effectiveness to ensure alignment with financial goals.

5.3 Suggestion for Further Study

Further studies in this domain could delve into several avenues to deepen comprehension of the interplay between financial indicators and the profitability of private commercial banks. Firstly, researchers could explore the moderating impacts of external factors like macroeconomic conditions, regulatory environments, and market dynamics on the identified relationships. Longitudinal studies tracking bank performance over extended periods would offer insights into the enduring effects of these financial indicators on profitability, identifying trends and shifts over time. Additionally, comparative analyses across different geographic regions or banking systems could provide cross-country insights into the effectiveness of financial management strategies. Lastly, qualitative research methods such as interviews or case studies could offer deeper insights into the underlying mechanisms driving these relationships, enhancing our understanding of the challenges and opportunities for banks in optimizing profitability amidst diverse environments. These avenues of research hold promise for informing best practices and policy recommendations to enhance the profitability and resilience of private commercial banks in an evolving financial landscape.

References

AhmetKarakuza (2017). Bank Specific Determinants of Profitability in Turkish banks. Master's thesis, Fort Hays State University.

Annual Report - National Bank (nbe.gov.et)

Al Zaidanin, J. S., & Al Zaidanin, O. J. (2021). The impact of credit risk management on the financial performance of the United Arab Emirates commercial banks. International Journal of Research in Business and Social Science

Al-Eitan, G. N., & Bani-Khalid, T. O. (2019). Credit risk and financial performance of the Jordanian commercial banks: A panel data analysis. Academy of Accounting and Financial Studies Journal.

Ali, L., & Dhiman, S. (2019). The impact of credit risk management on profitability of public sector commercial banks in India. Journal of Commerce & Accounting Research,

Almaqtari, F. A., Al-Homaidi, E. A., Tabash, M. I., & Farhan, N. H. (2019). The determinants of profitability of Indian commercial banks: A panel data approach. International Journal of Finance & Economics.

Annor, E., & Obeng, F. (2018). Impact of credit risk management on the profitability of selected commercial banks listed on the Ghana stock exchange. Journal of Economics, Management and Trade.

Chowdhury, M. A. F., & Rasid, M. E. S. M. (2017). Determinants of performance of Islamic banks in GCC countries: Dynamic GMM approach. Advances in Islamic Finance, Marketing, and Management,

Edward. B (2013).Credit Management (6th ed.) http://www.goresearcherrpublishing.com.

Flamini, V., Schumacher, L., & McDonald, C. A. (2019).The determinants of commercial bank profitability in Sub-Saharan Africa. International Monetary Fund.

Francis, M. E. (2013). Determinants of commercial bank profitability in sub-Saharan Africa. International Journal of Economics and Finance.

Giovanni Ferri, Gloria Bartoli and Alejandro Arregui, Risk Management in Bank Sector, liberal university an international study socially, 2012.

Gizaw, M., Kebede, M., & Selvaraj, S. (2015). The impact of credit risk on profitability performance of commercial banks in Ethiopia. African journal of business management, 9(2), 59.

John Bosco, R. et al., (2016). Credit risk and Commercial bank profitability in Rwanda.International Journal of Advanced research.Vol.4, Issue 9.

Kargi, H. S. (2011). Credit Risk and the Performance of Nigerian Banks.Ahmadu Bello University, Zaria.

Khrawish, H. A. (2011). Determinants of commercial banks performance: evidence from Jordan. International Research Journal of Finance and Economics,

Kithinji, A. M. (2010). Credit risk management and profitability of Commercial banks in Kenya.School of Business, University of Nairobi, Nairobi.

Kolapo, T. F., Ayeni, R. K., &Oke, M. O. (2012). Credit risk and commercial banks' performance in Nigeria: A panel model approach. Australian Journal of Business and Management Research,

Maiti, Adwaita& Jana, Sebak.(2017). Determinants of Profitability of Indian Banks - A Panel Data Analysis. Scholar's Journal of Economics, Business and Management,

Michael, B.W. (2017) Credit Management Policy and Profitability of Commercial Bank, a Case Study of Housing Finance Bank (HFB). Makerere University, Kampala.

Muturi, E (2016) Effect of Credit Management Practices on Loan Performance in Deposit Taking Bank Banks in Kenya. International Journal of Innovations, Business and Management (IJIBM).10, (1).

Mohamed Dore (2014). An Empirical Analysis of Bank Profitability in financial institution: Evidence from Bank-specific and Macroeconomic factors. Mater Thesis, Eastern Mediterranean University, Gazimagusa North Cyprus.

Shaik Abdul Majeeb PASHA and Tolosa NEGESE, Performance of Loan Repayment Determinants in Ethiopian Bank – An Analysis, Eurasian Journal of Business and Economics.

SubhamDastidar and Subhas Chandra Sarkar (2017). An Empirical Analysis of the Determinants of Profitability of Private Sector Banks. International Journal of Advanced Research, Vol.

Padmalatha Suresh and Justin Paul (2018).Management of Banking and Financial Services.4th Edition, Pearson India Education Services Pvt. Ltd., Noida, India.

Ebisa, A. (2012). Determinants of Financial Performance of Private Commercial Banks in Ethiopia. Rastogi, Shailesh, et al. "A literature review of risk, regulation, and profitability of banks using a scientometric study." Future Business Journal 8.1 (2022).

Appendix

List of Sample Private Banks in Ethiopia

N_0	Bank Name	Date of Establishment	Reporting year +ve value
1	Abay Bank S.C.	1/7/2010	2011
2	Addis Int. Bank S.C	2/5/2011	2012
3	Awash Bank S.C.	1/11/1994	1996
4	Bank of Abyssinia	1/2/1996	1999
5	Berhan Bank S.C.	2/6/2009	2011
6	Bunna Bank S.C	1/6/2009	2010
7	Cooperative Bank of Oromia	1/10/2004	2007
8	Dashen Bank S.C.	1/9/1995	1999
9	Hibret Bank S.C	1/1/1998	1999
10	Lion Int. Bank S.C.	2/10/2006	2009
11	Nib Int. Bank S.C.	3/5/1999	2000
12	Oromia Bank S.C.	1/9/2008	2010
13	Wegagen Bank S.C	2/6/1997	1999
14	Zemen Bank S.C.	1/10/2008	2010

Source NBE 2024