KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY, KUMASI

COLLEGE OF HUMANITIES AND SOCIAL SCIENCES

DEPARTMENT OF ACCOUNTING AND FINANCE

THE EFFECT OF NON-PERFORMING LOAN ON THE FINANCIAL

PERFORMANCE OF COMMERCIAL BANKS IN GHANA.

ABDUL-RAHMAN SAAKA

A THESIS SUBMITTED TO THE INSTITUTE OF DISTANCE LEARNING (IDL),

KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY IN PARTIAL

FULFILLMENT FOR THE REQUIREMENT FOR THE AWARD OF DEGREE OF

MASTER OF SCIENCE IN ACCOUNTING AND FINANCE
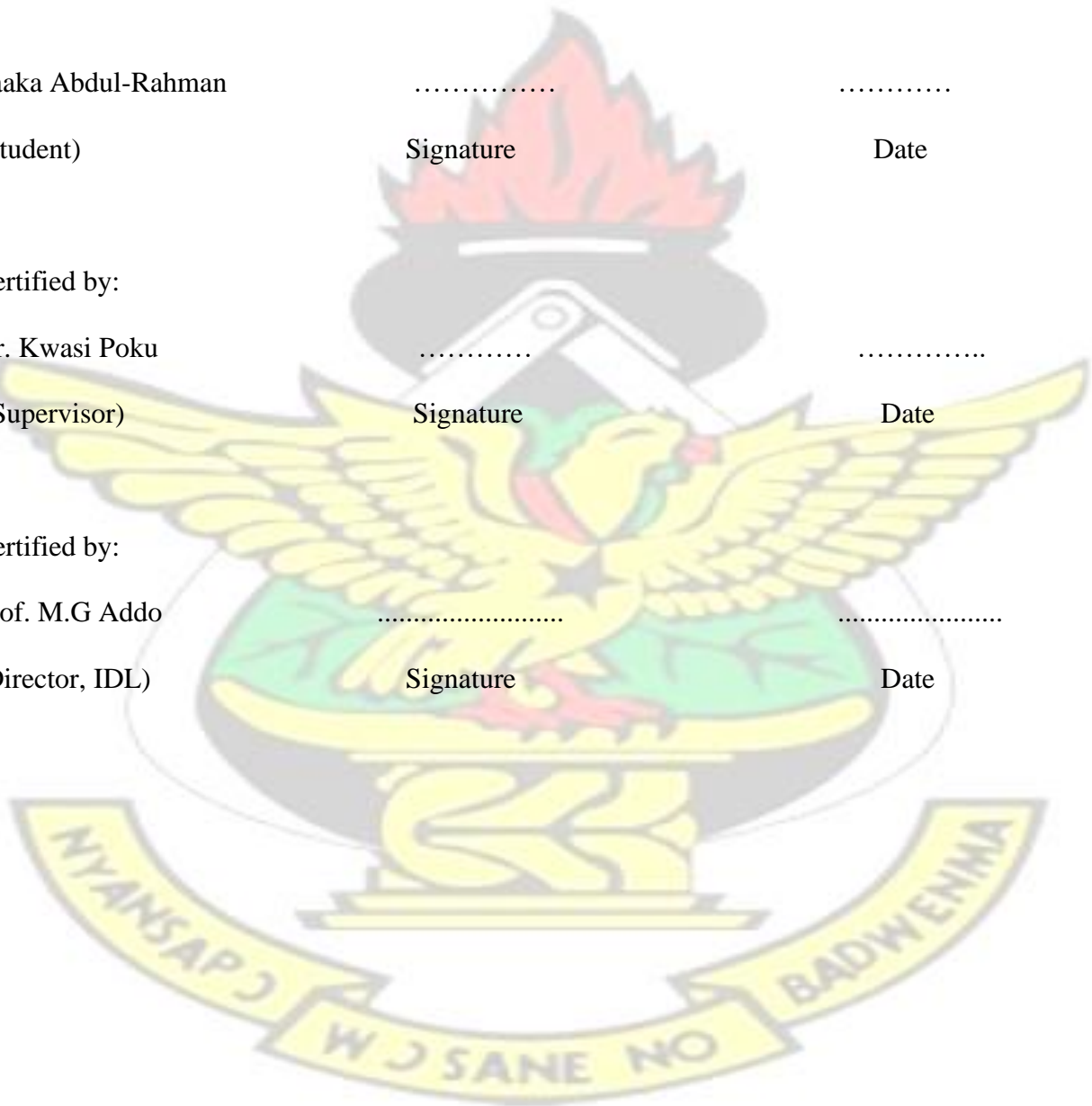
NOVEMBER, 2023.

DELACRATION

I hereby declare that this submission is my own work towards the award of a Master of Science in Industrial Finance and Investment Degree and that, to the best of my knowledge, it contains no material published previously by a different person or has been accepted for the award of any other degree of the University, except where due acknowledgement has been made in the text.

Saaka Abdul-Rahman   ……………   …………

(Student)   Signature   Date

Certified by:

Dr. Kwasi Poku   …………   …………..

 (Supervisor)   Signature   Date

Certified by:

Prof. M.G Addo   ....

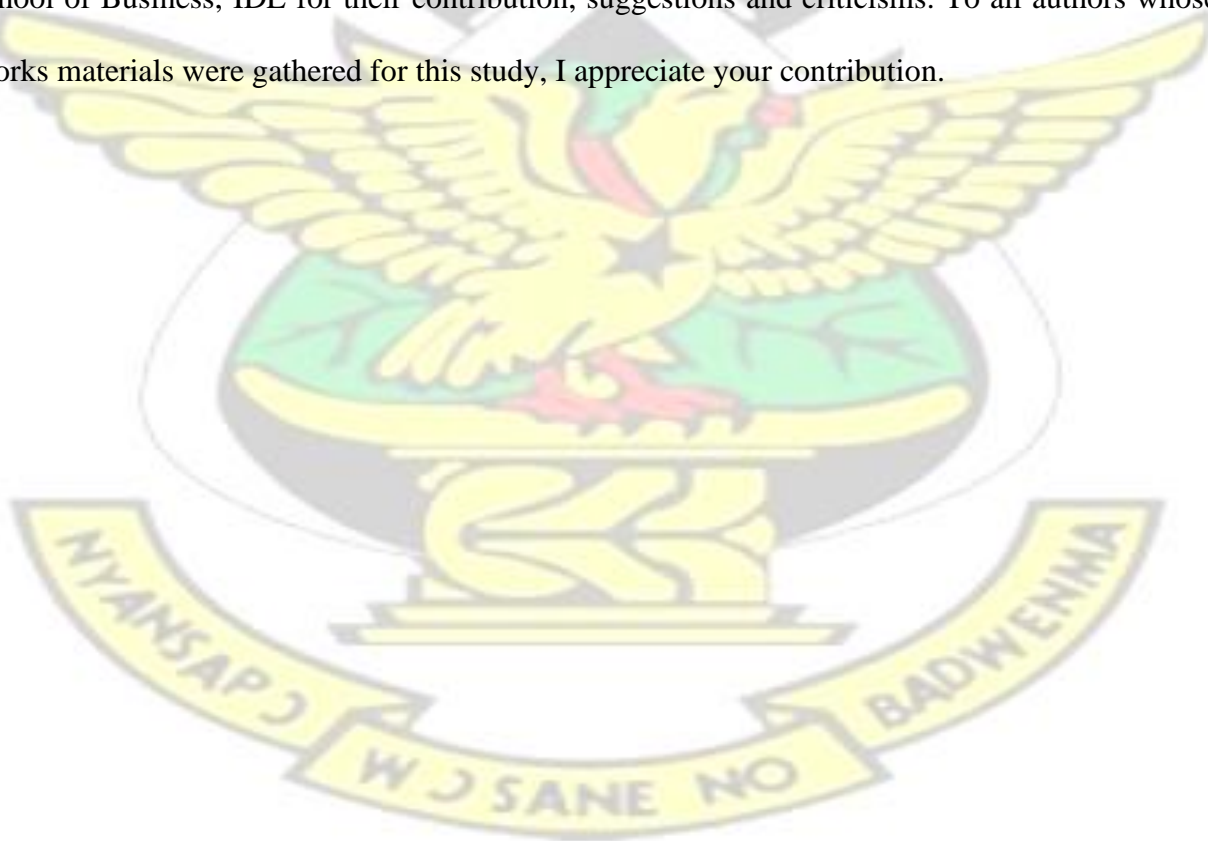(Director, IDL)   Signature   Date

DEDICATION

This work is dedicated to the Almighty God for His strength, guidance and protection. Also this work is dedicated to my parents for all the psychological support and prayers throughout my course.
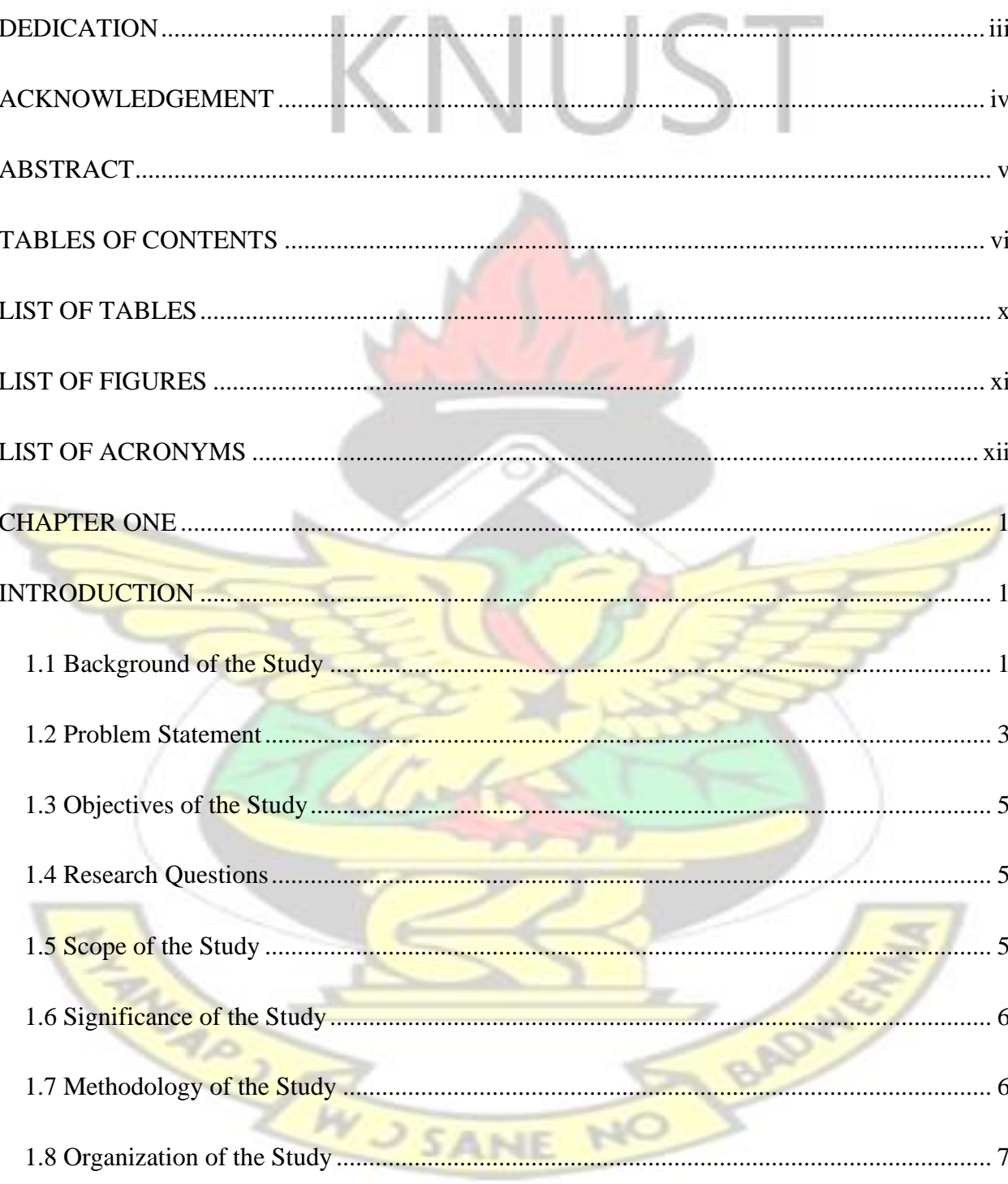
ACKNOWLEDGEMENT

ABSTRACT

Non-performing loans (NPLs) is considered as financial pollution as a result of its high risk and effect on profitability and liquidity of banks. The study examines the effect of non-performing loan on the financial performance of commercial banks in Ghana. The study is guided by the following research objectives: examining the level of NPLs of commercial banks in Ghana, examining the relationship between loan to deposit ratio and profitability and determining the relationship between NPLs and financial performance of selected commercial banks. The data for this study was obtained from financial institutions from 2010 to 2021. The NPL rate shows some volatility but generally decreases from 2010 to 2014. It reaches its lowest point in 2014 at 11.3%. However, from 2015 to 2017, there is a notable increase in the NPL rate, with a peak of 21.59% in 2017. The findings shows that non-performing loans has a positive and significant relationship with ROA. The finding indicates that there is a positive and significant relationship between loan to deposit ratio. The study recommends the need to implement strong risk management practices to proactively identify and mitigate potential credit risks. This includes monitoring and early detection of deteriorating loan accounts, regular portfolio reviews, and stress testing. By identifying high-risk loans early, banks can take timely actions to mitigate potential losses and prevent loans from becoming non-performing. Also, management have to invest in training and development programs for loan officers and credit staff. Ensure they have the necessary skills and knowledge to assess creditworthiness accurately, detect warning signs, and handle loan monitoring and collections effectively.

TABLES OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS

NPLs   Non-performing loans (NPLs)

BOG   Bank of Ghana

GPM   Gross Profit Margin

ROE   Return on Equity

ROA   Return on Asset

LTDR   Loan to Deposit Ratio

FS   Firm Size

BA   Bank Age

IN   Interest Rate

SD   Standard Deviation

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Non-performing loans (NPLs) is considered as financial pollution as a result of its high risk and effect on profitability and liquidity of banks (Taiwo & Mike, 2021). According to Fejos (2018), the effect of non-performing loans (NPLs) is realized through the provision of credit facilities whereby credit amount and its interest component is unpaid at the set time mostly beyond 90 days' period and also not accruing interest. Non-performing loans affects the operations of banks as it does not generate income for a relatively longer duration (Adusei, 2018). The principal amount and the interest component on NPLs are not paid within specified period and such loan does not generate income any longer to the lender (Adusei, 2018).

The level of NPLs has intensified in the wake of the global financial crisis and such has affected the operations of banks both in developed and developing nations (Amuakwa-Mensah et al., 2017). According to Bredl (2018), NPLs result from the failure to redeem funds from borrowers which has posed as a huge threat to the sustenance of cycle of management of banks and it serves as a determinant of bank's rate. The Banking Survey (2018) in Ghana reveals that the collapse of Capital Bank and UT Bank is mainly attributed to non-performing loans and liquidity challenges. NPLs have in many ways rendered asset quality of these banks in bad shape when it becomes overdue for several months or in default (Ahorko et al., 2018).

Non-performing loans is regarded as a threat to the survival of banks. Loan portfolio quality is deteriorating while defaults rate is increasing (Banking Survey, 2018). According to the survey, it

rose from 20.3% in 2015 to 21.6% in 2016. According to Szarowska (2018), most of the European countries have endorsed the rules that only recognise a loan as being non-performing if such loan has underlying weaknesses properly addressed by borrower and also if the principal or interest of that loan is overdue for more than 90 days. This is necessary as NPLs has the tendency to increase pressure on the balance sheets of banks and to prevent banks from undertaking their intermediation roles toward growth (Das, 2017). This has caught the attention of stakeholders and has necessitated an investigation into the effect of NPLs on bank's performance.

According to Forgha and Aquilas (2014), banks contribute immensely towards thereby facilitating the allocating resources and in mobilizing surplus funds from savers and reallocate funds for the use of rational investors as a means to solve asymmetric problem in the financial market. Banks undertake the activities of financial intermediation and grant loan access to deserving customers. Banks tailor liability products in a form of investments for surplus earners and risk assets products for those lacking funds but have profitable ventures; Asset-Liabilities (Bidabad & Allahyarifard, 2019). Theories such as financial accelerator theory consider the activities of banks as being relevant to loan to clients to boost their profitability (Nikolopoulos & Tsalas, 2017). The theory establishes that net worth changes may be brought about by changes in aggregate economic activity.

The risk asset products of banks are in a form of short-term loans like overdraft, personal loans whereas liabilities include savings account, current accounts, call accounts and fixed deposits (Gadzo et al., 2019). Banks develop saving products for surplus units to partake and earn reasonable interests whilst the deficit units are given the opportunity to access the funds in the form of lending by mobilizing funds (Gadzo et al., 2019). There is an interest rate component on loan access granted to customers of the commercial banks. The liability component of banks is a

2

list of the sources of funds of which such funds are put into use (Assets) and most often granted with interest to qualified customers to enhance their operations (Bidabad & Allahyarifard, 2019).

Banks play different roles to the development of the Ghanaian financial sector. Banks provide avenues for both corporate entities and individuals who have excess funds to save and for the citizenry to contract loans. The growing concern of the rise in NPLs has been met with increasing studies by researchers. This trend among researchers could be seen in the numerous studies that had gone forth. Previous studies have shown that there is macro (nation-specific), micro (individual level) and meso (bank-specific) variables that determines the credit facilities from going bad and being classified as NPLs (Amuakwa-Mensah et al, 2017). A few more of the studies have gone further in assessing respectively the variables within each level of analysis that determines the continual rise in NPLs. In event of NPLs, performance of the various banks within the banking sector of Ghana will be affected. The global outlook of has effect on the culture of saving amongst the surplus earners of the economy of Ghana, hence limiting the measure of loanable assets. This culture was as a result the impact that non-performing credits recorded in monetary establishments and banks (Bank of Ghana, banking sector report, 2017).

1.2 Problem Statement

Das (2017) conducts a study on the effect of non-performing loans (NPLs) on profitability and found a direct effect of the variables in the presence of operating efficiency. According to Adusei (2018), NPLs affects the performance of banks after considering both customer and bank specific factors that determine NPLs. Studies on NPLs have used data from developing and developed countries including Ghana and have found NPLs as effecting performance of banks as it shrinks the financial growth of banks (Adusei, 2018; Zhen et al., 2020; Nikolopoulos & Tsalas, 2017). Despite the various studies, non-performance loans (NPLs) remain a major issue that affects the

operations of banks thereby resulting in the collapse of some banks including the UT and Capital Bank in Ghana (Adusei, 2018).

According to Bredl (2018), the activities of commercial banks include granting of loans to corporate bodies and individuals for the acquisition of fixed assets including plants and machinery, vehicles to expand their operations and capital base. Banks and other lending institutions advance these loans hoping that they will be able to recover them in addition to the interest they charge on them (Bredl, 2018). However, it is usual to observe that with time lenders are unable to recover both the principal amount advanced as well as the interest changed on the loans resulting into higher value of non-performing loans (NPLs). Several researchers have investigated nationwide and banking sector levels influences on NPLs (Singh, Basuki & Setiawan, 2021; Mahyoub & Said, 2021; Amuakwa-Mensah et al., 2017; Benthem, 2017). However, the thematic areas covered in the studies reviewed have mostly identified variables that influence NPLs or credit position of banks (Ghosh, 2017), others also have investigated the impact of NPLs on bank performance (Singh et al., 2021). Additionally, other studies have examined other relevant themes on NPLs such as determinants of NPL (Akhter, N., 2023) and the link between NPLs and bank stability (Katuka et al., 2023). Again, Amoah et al. (2023) study how developments in the financial market influence NPLs.

What have not received some significant attention in the empirical literature are specific factors that affects and predict NPLs and the use of inference to clearly state the significant effects. This study responds to this gap by trying to find the relationship between specific factors on NPLs at the bank level and the effect of commercial banks on NPLs in Ghana. Given the effect of NPLs and financial performance, it is believed that the findings of this study have the potential to shape

policy as well as widen the frontiers of the empirical literature on NPLs and financial performance of banks in Ghana.

1.3 Objectives of the Study

The general objective of the study is to examine the effect of NPLs on the financial performance of selected commercial banks in Ghana.

i   To examine the level of NPLs of commercial banks in Ghana.

ii To examine the relationship between loan to deposit ratio and financial performance of selected commercial banks in Ghana.

iii To determine the relationship between NPLs and financial performance of selected commercial banks in Ghana.

1.4 Research Questions

To achieve the aforementioned objectives, the study will be guided by the underlisted questions.

i   What is the level of NPLs of commercial banks over a ten years period in Ghana?

ii What is the relationship between loan to deposit ratio and financial performance of selected commercial banks in Ghana?

iii What is the relationship between NPLs and financial performance of selected commercial banks in Ghana?

1.5 Scope of the Study

The study is limited to some selected banks that are operating within Accra business center. The study makes use of research publications and student papers that relate to non-performing loan and

financial performance. These are necessary to meet the objectives of the study which generally is to examine the effect of non-performing loan on financial performance of selected banks within Accra business center.

1.6 Significance of the Study

In practice, the findings from the study would serve as a likely blueprint for the strategic policy makers of banks in strategizing towards mitigating against rise in NPLs. Because NPLs affects financial performance of banks and contribute to economic downturn and eventually leads to the collapse of a country's financial sector, the study will be of a tremendous importance to the government. The study will also equip the government and policy makers with the effects of non-performing and thereby edging them to make policies to curb non-performing loans. The research community would be served with a research agenda to delve extensively into the area of determining influencers of NPLs level rise bringing out all the probable variables at each level of analysis. The study will also add to knowledge relating to NPLs particular among banks in Ghana.

1.7 Methodology of the Study

The researcher used quantitative research as this form of research determines how certain aspects of a phenomenon are related of which the variations are quantified (Boateng, 2016). Secondary sources of data will be obtained from published financial statements containing classification of loans or loan portfolios of commercial banks from published data from the Bank of Ghana. Purposive sampling method is selected for the study to make deliberate choice of banks for the purpose to derive data for the study (Goertzen, 2017). The estimation techniques considered in the study include the Fixed and Random effect and Ordinary Least Square. Panel Data obtained will be analyzed using SPSS in determining the correlation among the key variables in the study.

1.8 Organization of the Study

This study covers five major chapters. The first chapter covers the study's introduction which is followed with problem statement before the research objectives, and research questions, as well as the thesis' scope, limitation, and arrangement. The literature review is covered in chapter two. It discusses the study's concepts, theories, empirical studies and the framework for the study. The research methodology chapter three has focused on research design throughout the population and sampling strategies, as well as how data was obtained and will be analyzed. The data analysis and findings discussion are included in chapter four. The fifth chapter contains a summary of the findings, as well as conclusions and recommendations. This chapter also included recommendations for future research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter contains a review of the theoretical, empirical, and conceptual framework of NPLs and performance. It contains the concept of non-performing loan (NPL), determinates of NPL and how this affect performance of Commercial Banks in Ghana. The related works on the variables in prior studies are considered under the empirical review. The chapter ends with the conceptual framework which outlines the variables.

2.2 Conceptual Review

Conceptual review gives a description of relevant concepts and key factors as well as variables that are necessary in the study. These concepts are presented in the study as follows:

2.2.1 Concept of Non-Performing Loan

Non-performing loan is a loan amount with interest that have not been paid for more than 90 days period and not accruing interest to the lender (Teresia, 2017). Non-performing loan (NPL) is a loan that is overdue or in default for several months and becomes a burden for both the lender and the borrower (Amuakwa-Mensah et al., 2017). According to Beck and Szarowska (2018), non-Performing loan is a credit facility whereby the loan amount and interest to be paid is unpaid at the set time it ought to be paid. The principal amount and the interest component of NPL is not paid within the specified period making it difficult for the lender to generate income on it (Bahruddin & Masih, 2018).

Non-Performing loan results from the failure to redeem funds from borrowers of which has posed as a huge threat to the sustenance of cycle of management of banks (Teresia, 2017). Non-performing loans is a loan whose payments have passed the 90 days' period or a loan that is not accruing interest anymore and does not generate income any longer to the lender which most often is the Commercial Banks (Bahruddin and Masih, 2018). According to Adusei (2018), non-performing loan is that loan with no income generated on them for a relatively longer duration. The principal amount and the interest charge on such loan may not be paid within the specified period which may be 90 days or more.

The concept of non-performing loan remains relevant for consideration by Commercial banks as it affects the profitability of banks. Loan facilities as may be provided by banks is to bridge financial distress of borrowers whilst enhancing the yield of financial institutions. However, NPL rather reduces profitability of financial institutions. Non-performing loan is therefore termed as bad loans or impaired loans, in simple terms, they are loans not recovered (Adusei, 2018). Non-Performing Loans (NPL) has in many ways rendered asset quality of many banks in bad shape. This happens as such loans are overdue for several months or in default. This kind of loan become a burden for both the lender and the borrower. The European Banking Authority (EBA, 2018) points out that there may be several aspects of non-performing exposures which include but not limited to external and internal views, accounting frameworks etc. There has been defining parameters given out by most of Western European nations which recognise NPLs as loan that borrower has well-defined underlying weaknesses to pay and those whose principal exceeds 90 days (Szarowska, 2018).

The issue of non-performing is an issue of great concern especially considering the extent at which it affects financial institutions. It has repercussions for both lending bank and borrower. Non-

performing loan has the tendency to increase the balance sheet balance of banks which prevents banks from attempts to pursue their roles and to enhance their services for growth (Das M., 2017). Deterioration in the quality of loans from Commercial banks reduce their profitability. The issue of NPLs result into bank's crises as such affects quality of asset of financial institutions. Most borrowers make deliberate attempt not to redeem their terms of loan aside natural occurrence including death which results into NPLs with its repercussion on the banks (Fejos, 2018). Financial institutions that may not be able to meet their operational cost due to huge lost through NPLs.

2.2.2 Determinants of Non-performing Loan

Non-Performing Loans (NPL) has in many ways rendered asset quality of many banks in bad shape thereby affecting financial performance of commercial banks (Ekanayake & Azeez, 2018). According to Ghosh (2015), non-performing loan has affected capital adequacy of commercial banks based upon the inability to withstand losses emanating from both operations and abnormal losses (Ikram et al., 2017). Non-performing loan (NPL) is determined by several banks and customers specific factors. These factors include the types of loans, interest component of loan, knowledge of borrowers, government policies, amount of loan and staff training.

2.2.2.1 Types of Loans

Commercial Banks grant loan facilities to cushion financial activities of deserving customers. These facilities have to be known and the terms agreed by parties in event of any financial service. There is the need for knowledge about the types of loan facility that are available to be granted to deserving customers in order to mitigate issues of non-performing loan. The different types of loan facilities and the returns that follow must be known and understood by borrowers. This is necessary as the rate may not be the same because of the high and low rate of returns. The rates charged by the financial institutions affect repayment of loan facilities. Customers are able to repay their loans

10

if the interest rate charged on the loans are low, meaning if the interest charged is high customers are unable to repay their loan (Chimkono et al., 2018).

2.2.2.2 Loan Amount and Interest

Loan amount and the interest component on loan is one of the major factors that have to be considered before proceeding on any loan term. This is a major determinant of non-performing loan as large loans have greater risk exposure. The higher the amount of loan advanced to customers the higher its associated non-performing loan and vice versa (Joel Ahorko, 2018). This implies a positive link with the loan amount and NPLs.

2.2.2.3 Knowledge of Borrowers

Having knowledge about your borrowers is very important when granting loan facilities to them. It enables an assessment on customers credit worthiness. This is a factor that has influenced non-performing loan. Financial institutions can avoid delinquent loan after having knowledge about their borrower (Bredl, 2018). Most established commercial banks have staff that have been trained to gather intelligent about customers. A financial institution which makes effort to gather knowledge about its borrowers will stand in the position to avoid delinquent loan. An effort to accurately record customers details will help to manage the flow of cash and thereby enabling them to contract loans from banks especially from borrowers who are restarting new businesses. Borrowers need to be trained to qualify for loans.

2.2.2.4 Government Policies

Government regulates the activities of Commercial Banks through the Bank of Ghana policies. Commercial Banks assist government to implement its policies especially when it comes to financial controls in an economy. The issue of inflation remains one major area of financial control of which the Bank of Ghana which serves as the Banker to all Banks could implement policies

through the Commercial banks. The policies generally have to do with leading and borrowing from Commercial Banks and control of interest rates. These policies also affect the issues of non-performing loan.

2.2.2.5 Staff Training

As indicated earlier, some commercial banks have some trained staff who are to assess customers credit worthiness and to also manage customers. The ability of this individuals to conduct credit worthiness of customers as well as background checking of customers will result into customer efforts to redeem loan facilities granted. Ability of staff to conduct a thorough background check on customers depends on the training given to staff. When the staff are well trained, non-performing loan is brought to the bearest minimum. On the other hand, when staffs of banks are not adequately trained it affects the performance of banks (Ahmed et al, 2017).

2.2.2.6 Flexibility for Borrowers to Use the Borrowed Money

Borrowers have the liberty to use the borrowed funds the way they want to use the money. This liberty enables banks to invest in a portfolio which gives higher returns. Sekhar and Prakash (2019) pointed out in view of the fact that successful financial institutions do not tie their loans to specific types of projects borrowers are able to invest in projects which are more profitable. However, in some cases certain regulatory framework compels banks to invest certain percentage of their assets in specific projects and industries.

2.3. Loan Loss Classification

Loan loss classification considers different rating grades which differentiate credit risk levels (Abdur-Rahim, 2018). Abdur-Rahim (2018) considers different classification categories of loans such as standard, loss loan, sub-standard loan and that of special mention account. In the year 2017, there has been several efforts put in place by the regulator (Bank of Ghana) to ensure proper

loan classification by banks. The commercial banks are to comply with the directive of BoG with regards to the monetary policies of the country. According to the report from the governor of the BoG Dr. Ernest Addison regarding the in the year 2017, banks in Ghana are not properly classifying their loans which is centrally to the monetary policy of the regulator.

According to Abdur-Rahim (2018), classification may vary as there are banks with different sizes in terms of assets and customer strength. The lending activities of the various banks may be influenced by the volume of activities undertaken by them as well as their customer base. Generally, banks that are large in size require better loan classification systems than their small size counterparts. These banks are guided by rating grades with some having customer history to conclude on credit worthiness of their customers before advancing loan to them.

There is the need for both large and small size banks to comply with the requirements of the regulator in adopting required system of classification as a basis of their risk rating system to mitigate the issue of NPL (Abdur-Rahim, 2018). According to report on Global leadership and financial supervision (2015), classifying loans is to the advantage of banks as such systems mitigate the issues of NPLs and places commercial banks in the advantage of building a long-term business relationship with their customers. According to Teresia (2017), there are also impaired loans which are loans that require specific provisions of which other types of remedial actions should be appropriately segregated. loans that have credit risks characteristics that are similar should be carried out at renewal time and also periodically or annually and even at time of available information that is significant to the operations of banks (Teresia, 2017).

2.4 Financial Performance

Banks are established to provide services but with profit motives. The ultimate objective of corporations is to maximize the share value of their owners, and that will show in their performance (Michael & Goo, 2015). Performance of banks is necessary towards their continuous operations. Generally, performance is measured based on different indicators. There is financial performance indicators and market performance indicators. Companies that are operating in these competitive global businesses must make efforts to assess their performance.

The performance measurement is done using GPM, ROA among others as the financial performance measures. The marketing performance is examined through the use of the Tobins Q and other variables that will help to draw conclusions on the performance of companies. Performance of banks is a guarantee that management of banks are putting the resources available to them into efficient usage. The performance of banks benefits stakeholders but this depends upon the ability of banks to advance their services to target customers. Banks performance can be considered from marketing perspective and financial perspective. Banks as in other firms are required to formulate policies that will enhance their performances.

Studies conducted on profitability of commercial banks in Ghana have concluded that, effective performance of commercial banks is depended upon the ability of Bank of Ghana to undertake rigorous measures in reducing the monetary policy rate significantly (Soylemez & Ahmed, 2018). Liquidity and profitability of commercial banks tend to jump significantly whenever there is a fall in the monetary policy rate. According to Ndoum (2017), performance of commercial banks is determined largely by high cost of funds, high NPLs, high risk of default and high operating cost.

The Return on Equity (ROE) is used in measuring net revenue or net income of commercial banks to average equity in a particular year whereas the Return on Asset (ROA) is used in measuring net

14

income of commercial banks or revenue to average total assets in a particular year. Borio and Gambacorta (2017) concludes that, when there is a reduction in short-term interest rate, it leads to a less profitability in bank lending and when rates get to its lower level just as it is found by Bredl (2018) who further reveals a higher NPLs level leading to higher lending rate.

2.4 Theoretical review

2.4.1 Information Asymmetry Theory

This theory relies upon information. The theory postulates that in terms of the riskiness of a project, the borrower may be preview to all the information pertaining to the project as compared to the lender. Moral hazard and adverse selection become the order of the day. Funds are transferred from surplus accounts to deficit. Long-term relationships with customers and information sharing enable banks to overcome the challenge.

Information asymmetry seeks to explain the situation whereby not all parties involved in a deal have relevant information. The theory considers the need for optimal deal among parties of which the party with relevant information may be in the position of negotiating an optimal deal as compared with the party without enough information who may only assess information to determine whether it is wrong or right (Teresia, 2017). During the upturn of business cycle, lenders increase the lending as compared with the downturn of business cycle. Risky loans to aggregate asset also reduces whenever macroeconomic risks increases generally because whenever microeconomic risk increases, it leads to reduction in the share of risky loans to aggregate assets especially as risk impedes bank's ability in forecasting investment opportunities (Teresia, (2017). In linking the theory to the study, it could be observed that due to lack of information asymmetry, non-performing loans is on the ascendency.

15

2.4.2 Financial Accelerator Theory

Financial accelerator theory considers the mechanisms of economic shocks propagation and amplication (Szarowska, 2018). The theory considers the external finance premium which comes because of asymmetric information and net worth. External financing makes it easier to borrow during economic expansion phase as compared with economic recession phase. During period of economic downturn, financial situation deteriorates causing asset prices fall of which eventually results into reduction in the profitability of banks as a result of increase in loan loss due to decrease in the value of collaterals that qualifies for loans (Szarowska, 2018). Financial accelerator theory suggests that loan portfolio of banks stands to grow substantially which results into an improved financially performance especially during expansion in economy. From financial accelerator theory, it could be deduced that, non-performing loans increases during economic downturn since entrepreneurs may not make the needed profit to pay back the loans they contract. However, during economic boom, non-performing loans reduces.

2.5 Empirical Review

2.5.1 Non-performing Loans and Fnancial Performance

Parvin et al. (2023) study the impact of nonperforming loans on the growth of the banking system in Bangladesh. The paper is uses secondary data that are sourced from published reports. The paper incorporates multiple regression analysis to assess the impact of non-performing loans on banking sector growth from 2012 to 2021. The findings reveal a highly significant inverse relationship between NPL and ROA.

Syafrizal et al. (2023) study the effect of Non-Performing Financing (NPF), Finance To Deposit Ratio (FDR), And Operating Costs And Operating Income (BOPO) On The Return On Assets (ROA) Of PT BPRS In West Java Province During The Covid 19 Pandemic. The research method

used is Quantitative and focuses on only fifteen (15) largest Sharia People's Financing Banks in West Java Province with ownership of financial statements recorded at the Financial Services Authority. The study employs the regression analysis to estimate the relationships. It emerges that NPLs has a significant effect on ROA.

Awaluddin et al. (2023) examine the effect of Non Performing Loan and Loan to Deposit Ratio on Return on Assets. This research is conducted on banking companies listed on the Indonesia Stock Exchange (IDX) using the financial statements of banking companies for 2017-2022. The population in this study is all banking companies listed on the Indonesia Stock Exchange as many as 44 companies. Sampling using the purposive sampling method so that companies that meet the criteria are 5 companies. This study uses multiple linear analysis and F test to find out how the influence between variables. The results of this study show that Non Performing Loans have a significant effect on return on assets.

Gabriel et al. (2019) conducts an investigation of the impact of non-performing loans (NPL) on the operational efficiency and financial performance of banks in Nigeria. The authors employ the technique of multiple regression analysis to examine and interpret the data spanning the years 1985 to 2016. The findings of the research indicate a significant inverse correlation between non-performing loans (NPL) and return on assets (ROA).

In a study by Lawrence et al. (2020), the researchers assess the comparative influence of credit risk on the operational outcomes of large and small banks within the South African context. The present study utilizes secondary panel data from a sample of 14 banks and conducted an analysis utilising panel regression methodology. The findings of the study indicate that non-performing loans (NPLs) have a more pronounced effect on the return on assets (ROA) of small banks in South Africa, in contrast to their influence on larger banks. However, it has been found that non-

17

performing loans (NPLs) have a somewhat smaller impact on the return on equity (ROE) of small banks as compared to large banks.

Kingu et al. (2018) investigate the potential association between NPLs and corporate performance. The present study employed a sample of 24 banks and conducted data analysis through the utilisation of panel regression analysis. According to the findings of the study, there is a significant relationship between non-performing loans (NPL) and financial performance indicator of return on assets (ROA).

Das (2017) conducts a study on Non-performing Loans (NPL) with the aim of investigating how NPLs affect profitability. The intervening variable used in the study is operating efficiency. The study derived data from commercial banks owned by the state. The banks were sampled using the purposive sampling technique of which secondary data was derived from their annual reports. The path analysis, multiple regression and descriptive analysis were used. The mediation effect is examined using the process macro mediation 4. The result shows that NPLs and operating efficiency are positive but insignificantly correlated. NPL and profitability according to the result are negative but significant in the presence of operating efficiency. The process macro mediation shows that have no significant effect on NPLs and profitability on the selected banks.

Borio and Gambacorta (2017) conducts a study on monetary policy and bank lending in a low interest rate environment. The study makes analysis on monetary policies to determine its effectiveness on lending of banks. Data is derived from 108 large international banks covering the period 2010 to 2014. The descriptive statistics and regression analysis was used and the findings show that, interest rate reduction in short-term are less effective in an attempt to stimulate lending growth of banks especially when rate reaches a lower level after using level uses Macro and Meso levels of analysis.

Bredl (2018) conducts a study on the role of NPL on lending rates of banks with focus on newly granted loans. The study uses descriptive statistics in the benchmark regression. The result shows a higher stock of net NPLs as being connected with that of higher rate of lending of which tends to be offset by loan loss reserves. The result shows that NPLs and interest rate of banks are not strongly related.

Bahruddin1 and Masih (2018) seeks to know the effect of NPLs and interest rate by using industry-specific (meso). The study looks into the two-way relationship between NPLs and lending interest rates. Secondary data was used and the descriptive design and quantitative method was used in the study and the findings showed that in the short-run, rate of lending and NPLs have asymmetric relationship. In the industry level focused articles, there have been extensive work in the area of lending rates and NPLs.

Sekhar and Prakash (2019) also concluded on research relating to managing risk of credit and the growth of Country banks in Europe. The study collected quantitative data and panel regression. The Results proved existence of a negative link after using variables such as ROA, CAR for the measurement.

Chaudron (2018) also examined six rural banks covering a 5-year period. The study considered risks, interest rate of banks and profitability in an environment with low interest. Descriptive statistics was used and the results finds interest rate and on-balance sheet leverage to be negatively related which enables banks to significantly lower their interest rates. It reveals from the study that as banks receive assistance financially during financial crises, they tend to have higher interest rate risk as compared with those who do not receive such assistance.

Adusei (2018) conducts a study on the determinants of Non-performing Loans in the Banking Sector of Ghana between 1998 and 2013. The study used quantitative data and applied panel regression for its data analysis. The study finds non-performing loan as being determined by both customer and bank specific factors.

Amuakwa-Mensah et al. (2017) conducts a study on re-examining the determinants of NPLS in the banking industry of Ghana. Robust econometric method is estimating the determinants of NPLs covering the period 2007-2009 to explain NPLs in the Ghanaian banking sector during the financial crisis. Descriptive statistics was used for analyzing data and the quantitative method applied. Findings from the study suggests that, NPLs are affected significantly by macroeconomic variables and by industry and bank specific factors.

2.5.2 Loans to Deposit Ratio and Financial Performance

Awaluddin et al. (2023) examine the effect of Non-Performing Loan and Loan to Deposit Ratio on Return on Assets. This research is conducted on banking companies listed on the Indonesia Stock Exchange (IDX) using the financial statements of banking companies for 2017-2022. The population in this study is all banking companies listed on the Indonesia Stock Exchange as many as 44 companies. Sampling using the purposive sampling method so that companies that meet the criteria are 5 companies. This study uses multiple linear analysis and F test to find out how the influence between variables. The results of this study show that Loan to Deposit Ratio have a significant effect on return on assets.

Syafrizal et al. (2023) study the effect of Non-Performing Financing (NPF), Finance To Deposit Ratio (FDR), And Operating Costs And Operating Income (BOPO) On The Return On Assets (ROA) Of PT BPRS In West Java Province During The Covid 19 Pandemic. The research method used is Quantitative and focuses on only fifteen (15) largest Sharia People's Financing Banks in

20

West Java Province with ownership of financial statements recorded at the Financial Services Authority. The study employs the regression analysis to estimate the relationships. It emerges that loans to deposit ratio has a significant and negative effect on ROA.

Anggari and Dana's (2020) study uses yearly financial reports from 2016 to 2018 to investigate the relationship between credit risk variables and performance. This study is carried out in the context of listed Indonesian banks. The findings of this study suggest that Loan-to-Deposit Ratio has a direct impact on performance.

Ichsan et al. (2021) pursue a study that look into the link between and credit risk of Islamic banks. Secondary data from annual reports from 2011-2020 were used, which were analyzed by means of multiple linear regression. It is revealed that loan-to-deposit ratio has a positive and stronger effect on performance.

Al Zaidanin and Al Zaidanin (2021) pursue a study to evaluate the degree to which the credit risk affect performance. This study is done in the context of UAE banks using the panel technique. Loan-to-deposit ratio is found to have a positive link with performance but the impact is weak.

Lawrence et al. (2020) performed a study that compared the impact of credit risk on the performance of big and small banks in South Africa. This study employed secondary panel data on 14 banks and analyzed them using the panel regression analysis. The study found that loans-to-deposit ratio has a significant and greater impact on performance (measured with ROA) of small banks compared with big banks. However, it emerged that loans-to-deposit ratio has lesser effect on the ROE of small banks compared to big banks.

Saleh and Winarso (2021) study the link between credit risk and performance using Loan to Deposit Ratio (LDR) and non-performing loans (NPL) as proxies for the credit risk. The study

uses descriptive and verification process. The study's population consist of 29 people from Rural Banks in Bandung Period 2014–2019. Purposive sampling is the approach utilized in this study, and non-probability sampling is the sampling strategy. Based on the sample criteria, Rural Banks Bandung from 2014 to 2019 comprised the sample for this study, which included 24 firms. SPSS 20 is the analytical tool utilised in this study, which uses multiple linear regression analysis. The outcome indicated that NPL and LDR had an impact on profitability (ROA). According to the results of the hypothesis test, NPL and LDR have an 11% impact on profitability. The study is only concerned with the impact of non-performing loans and loans to deposits on profitability, and it is only applicable to the Rural Bank of Bandung City.

2.6 Conceptual Framework

The conceptual framework provides a pictorial view of how the variables are interlinked. The research is guided by non-performing loans and loans to deposit ratio as the independent variables. The dependent variable is financial performance which proxy with return on asset. The conceptual framework in figure 2.1 shows how the predictor or independent variables influence the return on assets. Additionally, the control variables are included since they are expected to have confounding effect on the link between the independent and dependent variables.

Independent variables
• Loan to deposit Ratio

Dependent variable
Financial performance
(Return on assets)

Control variables
• Firm size
• Firm age
• Interest rate

Figure 2.1: Conceptual framework

Source: Author (2023)

CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter contains the research design, target population of the study, sample and sampling procedure used, data collection instrument and procedure and data analysis plan.

3.1 Research Design

Descriptive design was adopted for the study and the quantitative research method was used to examine the effect of NPLs on financial performance of commercial banks in Ghana. The study aims to use purposive sampling to gather data and ascertain secondary data from the published data from the Bank of Ghana and analyse using quantitative data analysis techniques to meet the objectives of the study.

3.2 Population of the study

The population of the study focuses on commercial banks in Ghana. According to Bank of Ghana report (2021), there are twenty-three (23) commercial banks operating in Ghana. This study shall employ data from eight (8) selected commercial banks spanning from 2010 to 2021. The choice of these banks is based upon the availability of data to be used to meet the objectives.

3.3 Sampling and sampling procedure

The study derived data from commercial banks covering ten (10) years data (i.e., from 2010-2021). The study used purposive sampling in selecting the various commercial banks for the study. This is based upon reality and accessibility of information about the banks falling within the area of the study.

In this study, secondary data will be sourced from annual reports of eight (8) banks listed on the Ghana Stock Exchange would be involved in the data collection. The banks are Ecobank (Ghana) Limited, CalBank Limited, GCB Bank Limited, Access Bank Ghana Plc, Republic Bank Ghana Limited, Société Générale Ghana Limited, A.D.B of Ghana, and Standard Chartered Ghana Limited.

3.4 Data and Data Collection

The type of data comprises mainly of secondary data. Source of data is mainly the annual reports of commercial banks published by Bank of Ghana and to be collected to meet the objectives.

3.5 Model Specification

The specification model is adapted from extant prior studies, namely, Kargi (2011) and Lawrence et al. (2020). Hence, the model is specified as follows.

$$ROA_{it} = \beta_0 + \beta_1 NPL_{it} + \beta_2 LTDR_{it} + \beta_3 FS_{it} + \beta_4 BA_{it} + \beta_5 IN_{it} + e_{it} \quad ...1$$

Where:

ROA = Return on Asset

NPL = Non-Performing Loan

LTDR = Loan to deposit Ratio

FS = Firm Size

BA = Bank Age

IN = Interest Rate

25

e   =   error term

β1 to β5 are the partial slope coefficients of the independent variables, NPL, LTDR, FS, BA, IN respectively, β0 is the intercept term or also considered as a constant variable that exists in the model used, whereas the e is the error term. Subscripts i and t are the individual firms and years respectively.

3.6 Method of Data Analysis

Quantitative data analysis enables verifiable and measurable data to be collected, verified and quantitatively analysed (Creswell, 2007). Saunders et al. (2007) asserts that the quality and interpretation that one derives from data has more to do with data compilation and examination than with one's survey scale. Panel data is used in which cross section and times periods were considered (Miah & Uddin, 2017). Data is generated using the STATA software. This is done by first computing the secondary data which is derived from the annual reports of selected commercial banks in an excel form after which it is exported into the STATA software. The descriptive analysis is then followed where there is a display of results in tables to show among other things, the Mean and Standard deviation.

3.7 Diagnostic Checks

This study conducts some diagnostic tests to test for reliability. Diagnostic Check is the most popular measure of true reliability of a multivariate econometric model. The check makes use of various tests like multicollinearity using the correlation matrix and Variance Inflating Factor (VIF) test; the Sargan/Hansen tests to check for correct specification of moment conditions, as well as the Arellano-Bond tests to check for autocorrelations in the model.

3.8 Measurement of Variables

The variables for the study are measured and described as indicated in Table 3.1.

Table 3.1: Measurement of Variables

Variable	Symbols	Description and Measurement of variables.	Empirical Paper	A-Priori Exp.
Return on Asset	ROA	Return on Asset measured as the ratio of profit after taxes to total assets of individual banks	Sekhar and Prakash (2019)	N/A
Non-Performing loan	NPL	Measurement of the ability of counterparty to redeem loan terms. It is calculated as NPL/Total loans	Szarowska (2018)	N/A
Loan to deposit Ratio	LTDR	Measured as Total Loans to Deposit.	Balgova et al. (2016)	+/-
Firm Size	FS	Size of banks measured as the natural log of total assets of each bank	Yu and Lee (2017)	+/-
Bank Age	BA	Natural logarithm of the number of the years of existence of the firms	Isik et al (202)	+/-
Interest rate	IN	It represents the percentage of the principal amount that must be paid as interest over a specific period.	Belongia et al (2015)	+/-
	E	Measures the Stochastic error term		

CHAPTER FOUR

DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

4.1 Introduction

This section of the study presents the data presentation, analysis as well as the discussion of findings. The study examines the effect of non-performing loans on the financial performance of commercial banks in Ghana. The data presentation is based on the following research objectives: examining the level of non-performance loans of commercial banks, examining the relationship between loan to deposit ratio and profitability of commercial banks in Ghana, determining the relationship between non-performing loans and financial performance of selected commercial banks in Ghana. The data for this study was obtained from financial institutions from 2010 to 2021.

4.2 Tread of Non-performing loans rate in Ghana from 2010 to 2021

Figure 2.1 Tread of NPL between (2010-2021)

The NPL rate showed a decreasing trend from 2010 to 2014, with a decline from 18.1% to 11.3%. This indicates an improvement in loan repayment and asset quality during this period. From 2015 to 2017, there were fluctuations in the NPL rate. The rate increased to 14.67% in 2015, then further increased to 17.29% in 2016, and reached the highest point of 21.59% in 2017. These fluctuations suggest potential challenges in loan repayment and a deterioration in asset quality during this period.

Following the peak in 2017, the NPL rate started to decrease again. It declined to 18.19% in 2018 and further dropped to 13.94% in 2019. Thus, a recovery or improvement in loan repayment and asset quality during these years. Overall, the NPL rate experienced fluctuations during the period from 2010 to 2021. While there was an initial decreasing trend, there were subsequent increases and decreases in the rate, suggesting changes in loan repayment performance and asset quality. It's important to note that without further context or industry-specific information, it is challenging to assess the underlying factors driving these changes in NPL rates.

4.2 Descriptive Statistics

The study's descriptive statistics provide the maximum and minimum values, mean and standard deviation (SD) for each observation. Table 4.1 below presents the descriptive statistic.

Table 4.1 Descriptive statistics

Variables	Observation	Mean	Standard deviation	Min	Max
ROA	80	4.141	1.384	2	13.7
NPL	80	14.58	12.788	2.51	67.32
LTDR	80	9.41	1.470	4.65	8.15

FS	80	1.35	0.011	1.87	4.25
BA	80	1.75	0.193	9.08	.3472
IN	80	17.691	4.170	12.5	26

ROA: Return on Asset, NPL: Non-performing loan (NPL), LTDR: Loan to deposit ratio and FS: firm size, BA: Bank Age and Interest Rate

Source: Author's computation (2023)

The mean ROA is 4.141, which indicates that, averagely, the banks in the dataset have a return on assets 4.141% approximately. The standard deviation (SD) of 1.384 reflects the variability in ROA across the banks, with scores ranging from 2 to 13.7. The mean NPL is 14.58, suggesting that, on average, the banks have a non-performing loan ratio of 14.58%. The SD of 12.788 indicates a relatively high level of variability in NPL across the banks, with scores ranging from 2.51 to 67.32. This indicates a significant disparity in the extent of NPLs among the banks in the dataset. The mean LTDR is 9.41, indicating that, on average, the banks have a loan to deposit ratio of 9.41. The standard deviation of 1.470 reflects the variability in LTDR across the banks, with scores ranging from 4.65 to 8.15. This suggests that there are differences in the level of leverage or reliance on loans among the banks. The mean firm size is 1.35, which may not have a direct interpretation without additional context or explanation about the measurement scale. The SD of 0.011 which is indicating a relatively low level of variability in firm size across the banks. The minimum and maximum values of 1.87 and 4.25 suggesting some differences in the size of the banks, but further information is needed to fully understand the scale and context of the firm size variable.

The mean bank age is 1.75, which again may require additional context or explanation about the measurement scale. The standard deviation of 0.193 indicates a relatively low level of variability in bank age across the dataset. The minimum value of 9.08 and the maximum value of 0.3472 suggest some differences in the ages of the banks, but further information is required to interpret the scale and context of the bank age variable. The mean interest rate is 17.691, indicating an average interest rate of 17.691%. The standard deviation of 4.170 reflects the variability in interest rates across the banks, with scores ranging from 12.5 to 26. This suggests that there are differences in the interest rates as offered by the banks in the dataset.

4.3 Normality Test

Normality test of data is a prerequisite of statistical test. Normality test is conducted purposely to apply the model that can best test the significance of slopes and in helping to make analysis on the regression result. The normality test for this study will be done using Kolmogorov-Smirnov (K-S) and Shapiro-Wilk. The Kolmogorov–Smirnov test can be adapted to function as a goodness of fit test. In the instance of testing for distribution normality, samples are normalized and compared to a conventional normal distribution. The Shapiro-Wilk test is a specialized test for normality, whereas the Kolmogorov-Smirnov test technique is broader but less strong. Table 4.2 below presents the normality test.

Table 4.2 Normality Test

Variables	Kolmogorov-Smirnov[a]			Shapiro-Wilk		
	Statistic	Df	Sig.	Statistic	Df	Sig.
ROA	0.599	80	0.000	0.969	80	0.414
NPL	0.341	80	131*	0.926	80	0.197
LTDR	0.811	80	342*	0.895	80	0.036
FS	0.971	80	0.001	0.832	80	0.413
BA	0.193	80	0.001	0.432	80	0.602
IN	0.300	80	0.004	0.653	80	0.365

ROA: Return on Asset, NPL: Non-performing loan, LTDR: Loan to deposit ratio, FS: firm size,

BA: Bank Age and Interest Rate

Source: Author's computation (2023)

Return on Asset (ROA): the test statistic is 0.599 with 80 degrees of freedom. The significance

level is 0.000, which indicates that the distribution of ROA significantly deviates from a normal

distribution according to this test. On the other hand, the Shapiro-Wilk (SW) test statistic is 0.969

with 80 degrees of freedom, and the significance level is 0.414. Non-performing loan (NPL): For

the Kolmogorov-Smirnov test, the test statistic is 0.341 with 80 degrees of freedom. The

significance level is 0.131, indicated by an asterisk (*). This suggests that the distribution of NPL

does not significantly deviate from a normal distribution according to the Kolmogorov-Smirnov

test. In contrast, the SW test statistic is 0.926 with 80 degrees of freedom, and the significance

level is 0.197.

Loan to deposit ratio (LTDR): the test statistic is 0.811 with 80 degrees of freedom. The significance level is 0.342, indicated by an asterisk (*). This suggests that the distribution of LTDR does not significantly deviate from a normal distribution according to the Kolmogorov-Smirnov test. However, the SW test statistic is 0.895 with 80 degrees of freedom, and the significance level is 0.036. Firm Size (FS): the test statistic is 0.971 with 80 degrees of freedom. The significance level is 0.001, indicating that the distribution of FS significantly deviates from a normal distribution according to this test. Conversely, the Shapiro-Wilk test statistic is 0.832 with 80 degrees of freedom, and the significance level is 0.413.

Bank Age (BA), the test statistic is 0.193 with 80 degrees of freedom. The significance level is 0.001, which further indicates that the distribution of BA significantly deviates from a normal distribution according to this test. Similarly, the SW test statistic is 0.432 with 80 degrees of freedom, and the significance level is 0.602. Interest Rate (IN): the test statistic is 0.300 with 80 degrees of freedom. The significance level is 0.004, indicates that the distribution of IN significantly deviates from a normal distribution according to this test. Likewise, the SW test statistic is 0.653 with 80 degrees of freedom, and the significance level is 0.365.

4.4 Multicollinearity Analysis

Multicolinearity Test shows how the explanatory variables are (Gujarati, 2004). A check for multicollinearity amongst the variables was conducted in this section. This is necessary as the connection among the variables may affect the effectiveness of the estimated coefficients. In testing for multicollinearity, the correlation analysis and the variance inflation factor (VIF) were used.

Table 4.3 Multicollinearity Analysis Test

Variables	VIF	1/VIF
ROA	2.628	0.391
NPL	1.306	0.767
LTDR	2.103	0.475
FS	1.304	0.767
BA	1.721	0.518
IN	1.328	0.283
Mean VIF	2.468	

ROA: Return on Asset, NPL: Non-performing loan, LTDR: Loan to deposit ratio, FS: firm size,

BA: Bank Age and Interest Rate

Source: Author's computation (2023)

The VIF for ROA is 2.628, indicating a moderate level of multicollinearity. The reciprocal of the VIF is 0.391, suggesting that approximately 39.1% of the variance in ROA is not explained by the other variables in the dataset. The VIF for NPL is 1.306, indicating a relatively low level of multicollinearity. The reciprocal of the VIF is 0.767, suggesting that approximately 76.7% of the variance in NPL is not explained by the other variables in the dataset. The VIF for LTDR is 2.103, indicating a moderate level of multicollinearity. The reciprocal of the VIF is 0.475, suggesting that approximately 47.5% of the variance in LTDR is not explained by the other variables in the dataset.

The VIF for FS is 1.304, indicating a relatively low level of multicollinearity. The reciprocal of the VIF is 0.767, suggesting that approximately 76.7% of the variance in FS is not explained by the other variables in the dataset. The VIF for BA is 1.721, indicating a relatively low level of

multicollinearity. The reciprocal of the VIF is 0.518, suggesting that approximately 51.8% of the variance in BA is not explained by the other variables in the dataset. The VIF for IN is 1.328, indicating a relatively low level of multicollinearity. The reciprocal of the VIF is 0.283, suggesting that approximately 28.3% of the variance in IN is not explained by the other variables in the dataset.

4.5 Correlation Analysis

This analysis is done to evaluate the direction and strength of the linear relationship between variables used in a study. It is commonly used in research and data analysis in understanding how a change in a variable is associated with changes in another.

Correlation Coefficients: The Pearson correlation coefficient (r) is used in the study. It ranges from -1 to 1: r = 1: Perfect positive correlation: r = -1: Perfect negative correlation: r = 0: No correlation. When reporting correlation results in research or analysis, it's essential to include the correlation coefficient (r), the significance level (if applicable), and a clear interpretation of the findings.

The correlation between ROA and itself (ROA vs. ROA) is 1, which is expected since a variable has a perfect correlation with itself. The correlation between ROA and NPL is 0.113, which is a positive correlation. It suggests a weak positive relationship between ROA and NPL. In other words, as ROA increases, there tends to be a slight increase in NPL. The correlation between ROA and LTDR is 0.120, also indicating a weak positive correlation. This suggests that there is a slight positive relationship between ROA and Loan to Deposit Ratio (LTDR). The correlation between ROA and FS is -0.057, which is a weak negative correlation. This implies a slight negative relationship between ROA and Firm Size (FS). As ROA increases, Firm Size tends to decrease slightly. The correlation between NPL and LTDR is 0.117, indicating a weak positive correlation between Non-Performing Loans (NPL) and Loan to Deposit Ratio (LTDR).

35

Table 4.4 Correlation Analysis

No	Variables	1	2	3	4	5	6
1	ROA	1					
2	NPL	0.113	1				
3	LTDR	0.120	0.117	1			
4	FS	-0.057	-0.325	-0.074	1		
5	BA	0.147	0.170	0.174	0.82	1	
6	IN	0.182	0.184	0.192	0.191	0.196	1

ROA: Return on Asset, NPL: Non-performing loan, LTDR: Loan to deposit ratio, FS: firm size,

BA: Bank Age and Interest Rate

Source: Author's computation (2023)

The correlation between NPL and FS is -0.325, which is a moderate negative correlation. This suggests a moderate negative relationship between NPL and Firm Size (FS). As NPL increases, Firm Size tends to decrease moderately. The correlation between LTDR and FS is -0.074, indicating a weak negative correlation between Loan to Deposit Ratio (LTDR) and Firm Size (FS).

BA (bank age) has a positive correlation with all other variables: ROA (0.147), NPL (0.170), LTDR (0.174), and FS (0.82). These positive correlations suggest that as the bank age increases, there is a tendency for these variables to increase as well. IN (interest rate) has a positive correlation with all other variables: ROA (0.182), NPL (0.184), LTDR (0.192), FS (0.191), and BA (0.196). Similar to bank age, an increase in interest rate is associated with an increase in these variables.

4.6 Regression Analysis (OLS)

Regression analysis, specifically Ordinary Least Squares (OLS) regression, is a statistical method that is used in modeling the relationship between variables used in a study both dependent and independents. It is commonly employed in research and data analysis to better understand how a change in an independent variable impact that of a dependent variable. The regression analysis examines the relationship between loan to deposit ratio and profitability of commercial banks in Ghana and the relationship between NPLs and financial performance of selected commercial banks in Ghana.

4.6.1 Relationship between loan to deposit ratio and profitability

Constant Term:

The constant term coefficient is 63.602, with a standard error of 7.557. The t-statistic is 8.42, indicating that the constant term is statistically significant. The p-value of 0.000 suggests that the constant term significantly contributes to the model. The coefficient for LTDR is -2.257, with a standard error of 0.325. The t-statistic is -6.95, indicating that the coefficient for LTDR is statistically significant. The p-value of 0.005*** suggests that there is a significant negative relationship between the loan to deposit ratio and the ROA. The coefficient for FS is -0.350, with a standard error of 0.119. The t-statistic is 1.58, indicating that the coefficient for FS is significant. The p-value of 0.004 suggests that there is a significant negative relationship between firm size and ROA.

The coefficient for BA is -1.037, with a standard error of 0.208. The t-statistic is -5.00, indicating that the coefficient for BA is significant. The p-value of 0.00 suggests that there is a significant negative relationship between bank age and ROA. The coefficient for IN is 0.489, with a standard error of 0.278. The t-statistic is 1.76, indicating that the coefficient for IN is not statistically

significant. The p-value of 0.083 suggests that there may not be a significant relationship between interest rate and ROA, although further investigation may be warranted.

The loan-to-deposit ratio (LDR) measures the proportion of total loans of a bank to its total deposits. It helps in assessing liquidity of a bank and lending capacity. The relationship between the LDR and profitability is influenced by several factors and can vary depending on the specific circumstances of the bank and the overall economic conditions (Yahya et al, 2021)

Banks earn interest income from the loans they provide. A higher LDR indicates that a larger portion of assets of a bank is tied up in loans, which can lead to higher interest income if the loans are profitable. Thus, increasing the LDR may contribute positively to profitability if the interest income as may be generated from loans exceeds the cost of funds (interest paid on deposits). Banks fund their loans using deposits and other sources of funds (Raga et al 2019). Higher LDRs indicate a greater reliance on deposits for funding loans. If a bank's interest expense (the cost of funds) is lower than the interest income generated from loans, a higher LDR can be beneficial to profitability. However, if a bank has to rely on more expensive funding sources (such as wholesale funding or capital markets) when deposits are insufficient, it can reduce profitability. A higher LDR implies a larger exposure to loans, which also means increased credit risk. If the loans in a bank's portfolio turn sour and result in higher loan defaults, the bank's profitability can be negatively affected (Sari et al 2020). Therefore, maintaining a balanced loan portfolio and managing credit risk is crucial to profitability, regardless of the LDR.

Banks with higher LDRs may need to allocate more resources to manage their loan portfolio, including credit assessment, monitoring, and collections. Effective risk management practices and operational efficiency are essential to mitigate potential losses and maintain profitability. Regulatory authorities often impose limits on LDR to ensure banks maintain sufficient liquidity

38

and manage risk prudently (Sari et al 2020). Breaching these limits may result in penalties or other regulatory actions. Therefore, banks need to consider regulatory constraints when evaluating the relationship between LDR and profitability.

Table 4.4 Relationship between loan to deposit ratio and (ROA)

Variable	Coff	Stand. Error	T-statistic	P-value
Constant Term	63.602	7.557	8.42	0.000
LTDR	-.2.257	0.325	-6.95	0.005
FS	-0.350	0.119	1.58	0.004
BA	-1.037	0.208	-5.00	0.000
IN	0.489	0.278	1.76	0.083

*****indicates 10% and 1% significant levels.* $F_{(4.54)} = 58.49$ Prob $> F = 0.000$ $R^2 = 0.8135$, Adjusted r-squared $= 0.7145$

ROA: Return on Asset, NPL: LTDR: Loan to deposit ratio, BA: Bank Size, IN: Interest rate and FS firm size.

Source: Author's computation (2023)

4.6.2 Relationship between non-performing loans and financial performance

The second regression analysis examines the relationship between NPLSs and financial performance. The constant term coefficient is 6.700, with a standard error of 4.619. The t-statistic is 1.45, and the p-value is 0.147. While the coefficient is positive, the p-value suggests that the constant term is not significant at conventional levels ($\alpha = 0.05$). This means that the constant term does not have a significant relationship with ROA in this model. The coefficient for NPL is 0.687, with a standard error of 0.299. The t-statistic is 2.30, and the p-value is 0.022. The coefficient is

39

positive, and the p-value indicates that there is a significant positive relationship between the non-performing loan and ROA. This suggests that as non-performing loans increase, the return on assets tends to increase as well.

The coefficient for FS is 0.131, with a standard error of 0.113. The t-statistic is 1.16, and the p-value is 0.246. The coefficient is positive, but the p-value suggests that the relationship between firm size and ROA is not statistically significant at conventional levels. This means that firm size may not have a significant impact on the return on assets in this model. The coefficient for BA is 0.274, with a standard error of 0.187. The t-statistic is 1.46, and the p-value is 0.00. The coefficient is positive, and the p-value indicates that there is a significant positive relationship between bank age and ROA. This suggests that as the age of the bank increases, the return on assets tends to increase as well.

The coefficient for IN is 0.138, with a standard error of 0.118. The t-statistic is -117, and the p-value is 0.246. The coefficient is positive, but the t-statistic and p-value are unusual (-117 and 0.246, respectively). It's possible that there may be an error in the reported t-statistic value. Further investigation is needed to properly interpret the relationship between interest rate and ROA in this model.

Several studies have found that banking concentration can have an impact on banking system stability, and there are two opposing viewpoints on the stability-concentration debate. The first argument is that banks in a more concentrated market will minimize riskier lending because there is less competition in the market (Pinho et al, 2018) NPLs have a negative impact on economic growth; accumulating NPLs make it harder for banks to finance new and profitable enterprises; and commercial banks are obligated to set aside capital to cover potential losses from bad loans (Batu et al 2019).

Another effect of the growth in non-performing loans is that the expense of the outsourcing unit assigned to track non-performing loans would raise bank operational costs (Citta et al, 2018). According to Zheng et al. (2018), in order to reduce NPLs and improve the performance of Uganda's commercial banking sector, a number of reforms have been implemented which includes restructuring. Credit reference bureaus (CRBs) help lenders and borrowers bridge information gaps by providing fast and reliable information on a borrower's debt profile and payment history.

This study differs from the results of the study by (Lata et al 2019), which state NPLs have an insignificant negative relationship with financial performance. According to Pfeffer et al. (2019), NPLs have a negative and statistically significant influence on bank performance.

Bahruddin1 and Masih (2018) seeks to know the effect of NPLs and interest rate by using industry-specific (meso). The study looks into the two-way relationship between NPLs and lending interest rates. Secondary was used and the descriptive design and quantitative method was used in the study and the findings showed that, the variables have symmetric relationship. In the industry level focused articles, there have been extensive work in the area of lending rates and NPLs.

Sekhar and Prakash (2019) also concluded on research relating to managing risk of credit and the growth of Country banks in Europe. The study collected quantitative data and panel regression. The Results proved existence of a negative link after using variables such as ROA, CAR for the measurement.

Chimkono et al. (2016) investigated the relationship that exists between several characteristics, such as bank profitability level and NPLs ratio, in Malawian banks. Their research covers the years 2008 to 2014, a span of seven years. The ROA was employed as a measure of financial performance in their study, whereas the NPLs ratio was used to reflect non-performing loans. It

was revealed that the efficiency ratio in terms of cast, NPL ratio, and loan rate had a substantial impact on the banks' profitability. Bentum (2019) conducted empirical research on the profitability factors of Ghanaian banks in the context of Ghana. The profitability of the selected banks was represented by ROE. According to the study's findings, elements related to the bank that affected the banks' profitability were reserves on total assets and capital. At the time of the study, the macroeconomic variables that influenced bank profit levels were inflation, GDP growth rate, and money supply.

Table 4.5 Relationship between non-performing loans and financial performance

Variable	Coff	Stand. Error	T-statistic	P-value
Constant Term	6.700	4.619	1.45	0.147
NPL	0.687	0.299	2.30	0.022
FS	0.131	0.113	1.16	0.246
BA	0.274	0.187	1.46	0.00
IN	0.138	0.118	-117	0.246

*****indicates 10% and 1% significant levels.* F (4.54) = 58.49 Prob > F=0.000 R^2 = 0.8135, Adjusted r-squared = 0.7145

ROA: Return on Asset, NPL: LTDR: Loan to deposit ratio, BA: Bank Size, IN: Interest rate and FS firm size. **Source: Author's computation (2023).**

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATION

5.1 Introduction

This final chapter draws the conclusion of the findings and also presents recommendations to the study. The chapter also presents recommendations for future studies. The objectives of the study is to examine the level of non-performance loan of commercial banks, examining the relationship between loan to deposit ratio and profitability of commercial banks in Ghana, determining the relationship between NPLs and financial performance of selected commercial banks in Ghana.

5.2 Summary of findings

The summary of finding is based on the research objectives: examining the level of non-performance loan of commercial banks, examining the relationship between loan to deposit ratio and profitability of commercial banks in Ghana, determining the relationship between non-performing loans and financial performance of selected commercial banks in Ghana.

5.2.1 Trend of non-performance loan of commercial banks

The NPL rate shows some volatility but generally decreases from 2010 to 2014. It reaches its lowest point in 2014 at 11.3%. However, from 2015 to 2017, there is a notable increase in the NPL rate, with a peak of 21.59% in 2017. After 2017, there is a decline in the NPL rate again, with some fluctuations. The NPL rate tends to be higher during periods of economic downturn or instability. The increase in the NPL rate from 2015 to 2017 coincides with a challenging period for many economies, including the global financial crisis and its aftermath. Economic factors, such as unemployment, declining asset values, and reduced borrower capacity to repay loans, can

43

contribute to higher NPL rates. The NPL rate is an indicator of credit quality and the ability of borrowers to repay their loans. Higher NPL rates suggest a higher proportion of loans in default or at risk of default. The increase in the NPL rate from 2015 to 2017 could indicate a deterioration in credit quality during that period.

Banks and financial institutions need to have appropriate risk management practices in place to monitor and manage NPLs. The increase in the NPL rate from 2015 to 2017 may indicate challenges in risk assessment and mitigation during that period. Conversely, the subsequent decline in the NPL rate suggests that measures were taken to address the issue. The regulatory framework and policies governing lending and loan classification can also impact the NPL rate. Changes in regulations or enforcement practices may influence the reported NPL rate for banks.

5.2.2 Relationship between NPLs and financial performance (ROA)

The findings shows that NPLs has a positive and significant relationship with ROA. The NPL rate is an indicator of the credit quality of a loan portfolio of banks. A higher NPL rate indicates a greater proportion of loans that are in default. This finding suggests that as the NPL rate increases, there is a negative impact on the bank's profitability, as measured by ROA.

The positive relationship between NPL rate and ROA implies that banks with higher NPL rates tend to have lower profitability. Non-performing loans can result in increased provisioning for potential losses, which reduces the profitability of the bank. It also suggests that banks with better asset quality and lower NPL rates generally exhibit higher profitability.

5.2.3 Relationship between loan to deposit ratio and profitability (ROA)

The finding indicates that there is a positive and significant relationship between loan to deposit ratio. A higher LDR is an indication that a larger portion of assets of banks is allocated to loans

relative to its deposits. If the bank can generate higher returns from its loan portfolio compared to the cost of funds (interest paid on deposits), a higher LDR can contribute positively to profitability, as measured by ROA. This suggests that the bank's lending activities are generating sufficient income to cover its costs and generate a return. Banks earn interest income from loans and incur interest expenses on deposits used to fund those loans. If the interest income generated from loans exceeds the interest expense paid on deposits, a higher LDR can enhance profitability. However, the relationship between LDR and profitability may depend on the interest rate environment, as changes in interest rates can impact the spread between interest income and expense. Maintaining an optimal LDR requires effective risk management and operational efficiency. Banks need to ensure they have appropriate credit assessment processes, risk controls, and liquidity management practices to mitigate potential credit risks associated with a higher LDR. Effective risk management contributes to maintaining profitability, even with a higher LDR.

5.3 Conclusion

The ability of a bank to properly manage its loan processes and credit management practices is crucial. This involves evaluating loan applications, setting credit limits, and monitoring borrower repayment behavior. It suggests that banks should not only focus on the financial aspects but also consider the individual circumstances and needs of borrowers. Effective credit management and risk assessment can lead to a reduction in NPLs. NPLs are loans that are not being repaid as per the agreed terms, and they can be a significant issue for banks. Effective credit management and the reduction of NPLs have a positive impact on a bank's financial performance. When banks can minimize bad debts and improve the quality of their loan portfolio, it can lead to increased profitability and efficiency. Reducing NPLs can lead to greater efficiency within the bank. When
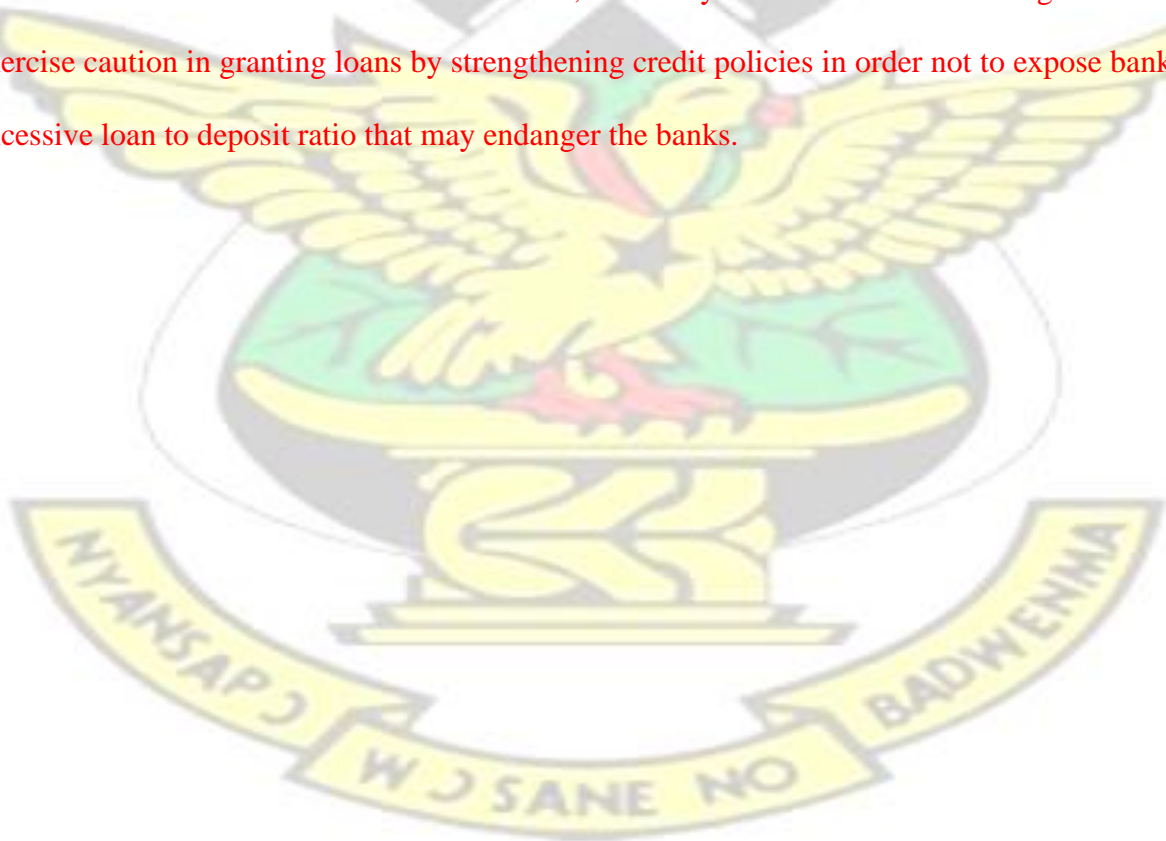
resources are not tied up in non-performing loans, the bank can allocate them more effectively, potentially leading to cost savings and better financial results.

5.4 Recommendations

The following recommendations are based on the findings of the study:

The findings shows that NPLs has a positive and significant relationship with ROA. Regardless of the outcome that NPL has a positive link ROA, it is suggested that managers of banks continue to strengthen credit management policies so they do not fall prey to high levels of NPL that can have negative consequences on their operations and sustainability.

The findings indicate that there is a positive and significant relationship between loan to deposit ratio and return on asset. From this outcome, the study recommends that managers of banks exercise caution in granting loans by strengthening credit policies in order not to expose banks to excessive loan to deposit ratio that may endanger the banks.

REFERENCES

Adusei, C. 2018. Determinants of Non-performing Loans in the Banking Sector of Ghana between 1998 and 2013. *Asian Development Policy Review, Asian Economic and Social Society, 6(3)*, 142-154.

Akhter, N., 2023. Determinants of commercial bank's non-performing loans in Bangladesh: An empirical evidence. *Cogent Economics & Finance*, 11(1), p.2194128.

Amoah, A., Asiama, R.K. and Korle, K., 2023. Applying the breaks to non-performing loans in Ghana. *International Journal of Emerging Markets*, 18(8), pp.1978-1993.

Amuakwa-Mensah, F., Marbuah, G., & Ani-Asamoah Marbuah, D. 2017. Re-examining the determinants of non-performing loans in Ghana's banking industry: Role of the 2007–2009 financial crisis. *Journal of African Business*, *18*(3), 357-379.

Awaluddin, M.R., Haliah, H. and Kusumawati, A., 2023. The Effects of Non Performing Loan and Loan to Deposit Ratio toward Return on Asset. *International Journal Of Humanities Education and Social Sciences (IJHESS)*, *2*(6).

Bahruddin, W. A., & Masih, M. 2018. Is the relation between lending interest rate and non-performing loans symmetric or asymmetric? evidence from ARDL and NARDL.

Bank of Ghana. 2018. *Restoring Confidence and Building a Resilient Banking System for Ghana*, Retrieved from: Bank of Ghana Website, Date of Access: 20th May, 2023.

Bidabad, B. and Allahyarifard, M., 2019. Assets and liabilities management in Islamic banking. *International Journal of Islamic Banking and Finance Research*, *3*(2), pp.32-43.

Bredl, S., 2022. The role of non-performing loans for bank lending rates. *Jahrbücher für Nationalökonomie und Statistik*, *242*(2), pp.223-276.

Das, S., Mishra, A.K. and Paul, S., 2023. Non-performing assets-an important parameter of measuring the financial soundness of banks. *International Journal of Services and Operations Management*, *45*(4), pp.514-529.

Duong, K.D., Tran, P.M.D., Nguyen, P.Y.N. and Pham, H., 2023. How do funding diversity and non-performing loans affect bank performance in different economic cycles?. *Cogent Business & Management*, *10*(2), p.2215076.

Fejos, A. 2018. *Non-performing Loans: the impact of the proposed rules on consumers.* Retrieved February 12, 2019, from Recent Development in European Consumer Law:

Forgha N.G and Aquilas N.A (2014) "The Impact of Timber Exports on Economic Growth in Cameroon: An Econometric Investigation", *Asian Journal of Economic Modelling*, 3(3), pp. 46-60.

Iqbal, J. and Saeed, A., 2023. Managerial sentiments, non-performing loans, and banks financial performance: A causal mediation approach. *Chaos, Solitons & Fractals*, *171*, p.113425.

Joel Ezekiel Ahorko Johnson 2018. Examining the Impact of Non-Performing Loans on Bank Performance in Ghana: A Case of Local and Foreign Banks.

Katuka, B., Mudzingiri, C. and Vengesai, E., 2023. The effects of non-performing loans on bank stability and economic performance in Zimbabwe. *Asian Economic and Financial Review*, 13(6), pp.393-405.

Parvin, M., Islam, M.M. and Vdovenko, L., 2023. Impact of Non-Performing Loans on the Growth of the Banking Sector in Bangladesh. *Oblik i finansi*, *99*, pp.79-90.

Soekapdjo, S., Nugroho, L., Badawi, A., & Utami, W. 2018. Bad debt issues in Islamic bank: macro and micro influencing (Indonesia cases). *International Journal of Commerce and Finance*, *4*(1), 10-26.

Syafrizal, A., Ilham, R.N. and Muchtar, D., 2023. Effect Of Capital Adequacy Ratio, Non Performing Financing, Financing To Deposit Ratio, Operating Expenses And Operational Income On Profitability At PT. Bank Aceh Syariah. *Journal of Accounting Research, Utility Finance and Digital Assets*, *1*(4), pp.312-322.

Szarowska, I. 2018. Effect of macroeconomic determinants on non-performing loans in Central and Eastern European countries. *International Journal of Monetary Economics and Finance*, *11*(1), 20-35.

Taiwo, I. and Mike, M.E.E., 2021. Empirical Analysis of Non-Performing Loans and Liquidity of Deposit Money Banks: Nigeria Experience. *Journal of International Business and Management*, *4*(9), pp.01-14.

Teresia, K. (2017). The Effects of Bank Specific and Macroeconomic Factors on Nonperforming Loans in Commercial Banks in Kenya: A Comparative Panel Data Analysis. *Advances in Management and Applied Economics,* 3(2), pp. 135-164.