N KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY,

KUMASI, GHANA

EFFECT OF CREDIT RISK MANAGEMENT ON THE PERFORMANCE OF

LISTED BANKS IN GHANA

A THESIS SUBMITTED TO THE KWAME NKRUMAH UNIVERSITY OF

SCIENCE AND TECHNOLOGY, COLLEGE OF HUMANITIES AND

SOCIAL SCIENCE, KNUST SCHOOL OF BUSINESS IN PARTIAL

FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF

MASTER OF BUSINESS ADMINISTRATION (ACCOUNTING)

BY:

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MBA ACCOUNTING

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DECLARATION

I hereby declare that this submission is my own work and that, to the best of my knowledge and belief, it contains no material previously published or written by another person nor material that to a substantial extent has been accepted for the award of any other degree or diploma at Kwame Nkrumah University of Science and Technology, Kumasi or any other educational institution, except where due acknowledgment is made in the thesis.

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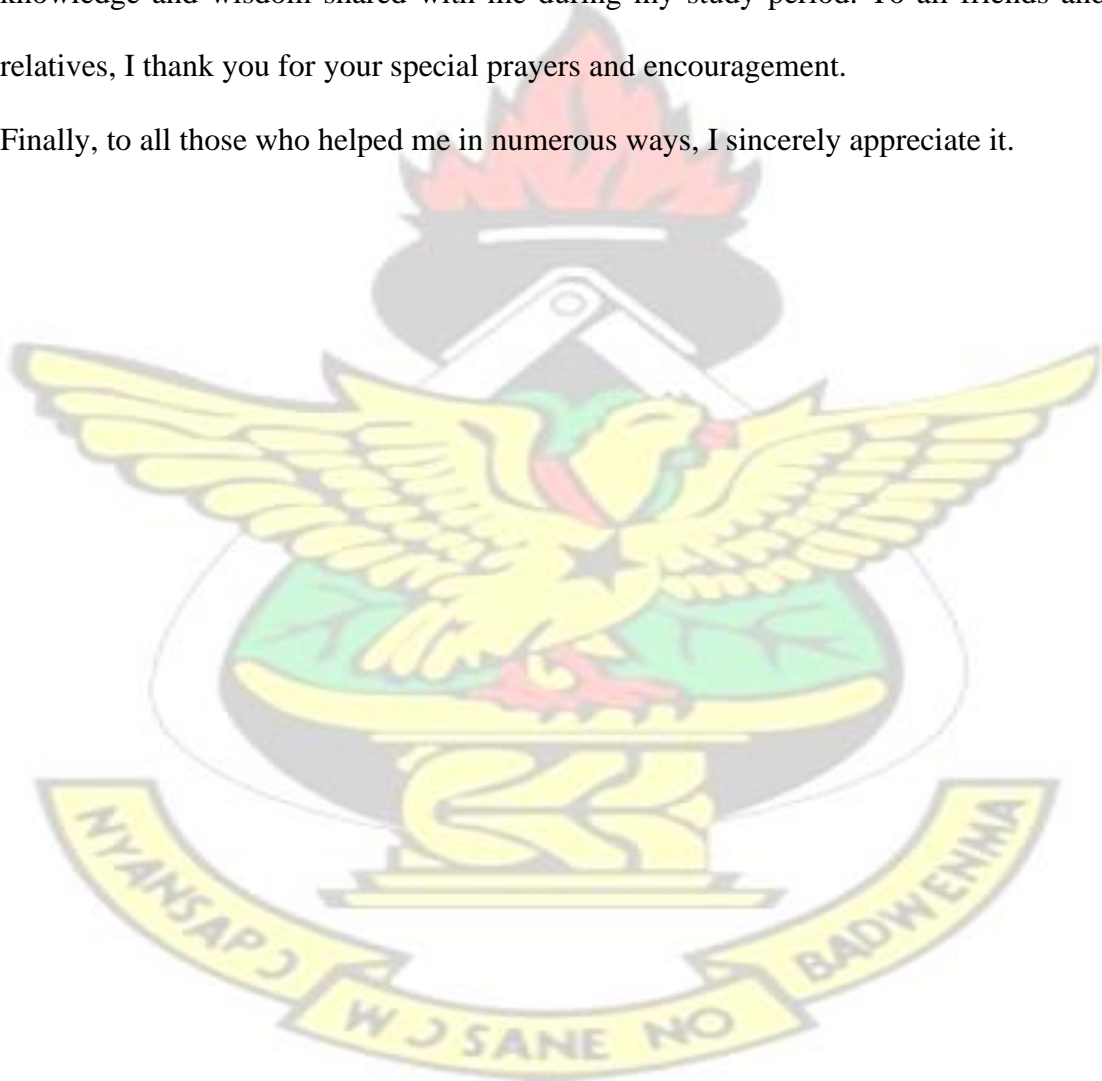
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DEDICATION

I dedicate this work to my husband, the sponsor of my MBA degree as well as my children, and relatives. I also dedicate this piece to the Department of Accounting / Banking and Finance, KNUST School of Business. My final dedication goes to my friends and course mates.

ACKNOWLEDGEMENTS

ABSTRACT

The objective of this research is to examine the effect of credit management and non-performing loans on the performance of listed banks in Ghana, in the presence of the financial sector clean-up leading to some capitalization constraints imposed on banks within a framework that is dynamic. The GMM estimation technique was used in this research. The researcher adopted the quantitative research method with explanatory research design approach for its suitability in cause and effect relationships. 7 listed banks in Ghana were sampled and secondary data obtained for the variables of interest – CRM (NPLs, LDR, and EAR) and financial performance variables (ROA and ROE). The results of the study show a significant negative relationship between NPLs and ROE. Also, LDR positively influences the profitability of listed banks in Ghana but positive insignificant relationship was found between EAR and both ROA and ROE. Besides, financial sector clean-up was found to be directly and significantly related to bank profitability. Finally, bank growth was found to be a significant predictor of bank profitability, proxied by ROA and ROE, however, bank age proved to be inversely related to the profitability of listed banks in Ghana. Leverage was found to have mixed relationships with bank profitability. The study concludes that uncontrolled levels of credit risk, particularly NPLs, would lead listed banks into financial difficulties which would further result in poor profitability or financial performance in the long term. A major recommendation was for levels of NPLs to be regularly monitored and kept under control so as for listed banks to manage risks efficiently.

Keywords: Credit Risk Management, Non-Performing Loans, Loan to Deposit, Equity to Assets, Return on Assets, Return on Equity, Leverage.

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CHAPTER ONE

1.0 Background of the Study

Documented guidelines that prescribe the terms and conditions under which goods are supplied to customers on credit can be termed credit management (CM). It also details the criteria for the qualification of customers, the collection procedures, and measures to be taken in situations of customer misbehaviour (Ayunku and Uzochukwu, 2020). Vong and Chan (2009) view credit as a marketing strategy for achieving expansion in turnover and view the short run and long run survival with an overall target of getting long run financial opportunities to be the foundation of every business (Enow and Kamala). Aminu (2012) posits that CM seeks to fast-track the inflow of cash, postpone the outflow of cash, facilitate returns or earnings through the investment of surplus cash, achieve an effective borrowing rate from borrowings, and keep an optimum level of cash over a period.

An important aim of CM is to make sure there is quick and efficient identification of organizations needs so as to ensure there is no crises in the amount of cash flowing into the business (Horner, 2020). Money could be locked up with borrowers and issues of bad debts could arise if there are no limits created by CM systems. Thus, efficient and effective CM reduces situations of non-payment of loans taken form lenders. Horner further advances that a positive co-movement exists between CM and profitability. As financial institutions are fundamentally responsible for the mobilisation of savings for lucrative investments by smoothing the flow of capital across different sectors of an economy. From this backdrop, in assessing the rise in economic indicators leading to development of economies are positively informed by the performance put up by financial institutions in the economy (Agyei *et al.*, 2020a; John, 2018a; Majeed and

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Zainab, 2021; Zerihun, 2021). Therefore, the essential role of commercial banks in any economy cannot be underestimated – they are regarded as the institutions which make available liquidity for lenders and borrowers (Ayunku and Uzochukwu, 2020).

Several scholars contend that the consequences of poor performance in the banking sector inhibit or retards the growth and development of an economy (Majeed and Zainab, 2021; Zerihun, 2021) and bring about poverty (John, 2018a). That notwithstanding, banks must conduct an assessment of probable risks they could face, before raising funds through customer deposits. Subsequently, risk management of the "loan giving process" becomes authoritative on the part of banks. An effective loan management process stands the chance to maximise the risk-adjusted rate of return through the maintenance of credit risk exposure to protect the bank from adversative consequences of credit risk (Dao *et al.*, 2020; Erdas and Ezanoglu, 2022; Solanki and Aggarwal, 2022).

Boateng (2019) confers that measuring bank performance in Ghana has gained the attention of late because the asset quality of banks is continuously worsening. This, thus, informs the several attempts by the countries central bank, the Bank of Ghana (BoG), to sanitise the financial sector through clean-ups and reforms (Oppong Fosu, 2015). Banks that take deposits could run out of operations if there are many incidences of loans not performing. Thus, non-performing loans (NPL) reduces the ability of these institutions from issuing more credit and could derive them from business. Alshebmi *et al.* (2020) and Erdas and Ezanoglu (2022) suggest, in line with this, that the amount of NPL in the deposit-taking institutions like banks corrodes the confidence of investors and distress stakeholders in the sector. Osuka and Amako (2015) and Boateng (2019) suggest that extremely high proportions of NPL in banks could be attributed to poor

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corporate governance structures, careless processes for administering credit, and lack of or non-commitment to policies for credit risk management. The purpose of this research is to analyse risk associated with issuing credit and issues of non-performing loans causing bad debts across Ghana's banking industry.

1.1 Problem Statement

In recent times, a critical challenge for banks in Ghana is ineffective CRM, notably in the area of non-performing loans (Boateng, 2019). Failure of banks to manage debts that have gone bad results in liquidity crises and losses to financial institutions (Ayunku and Uzochukwu, 2020; Boateng, 2019). The alarming rise in NPL is turning into a subject that calls for extensive deliberation, which needs not be left with the industry/sector players in the banking industry/sector but should be a national concern. The financing capability of banking institutions is constrained by this problem and considering the vital role financial institutions play in an economy, it results in externalities to the larger economy retarding growth and development of countries.

The susceptibility of financial institutions to several annihilating risks such as credit risk that results in the "write-off" of bad loans presents an issue worthy of study. Novel studies are needed to cover the weaknesses in existing studies in line with their failure to control for other determinants of bank profitability and financial sector and banking sector clean-up. Asantey and Tengey (2014) studied the impact of bad debts on the ability of Ghanaian banks to lend and operate; Boateng (2019) studied CRM and performance of Ghanaian banks; Boahene *et al.* (2012) examined the correlation between profitability of banks and the credit risk they face daily on their to issue loans to its clients. Furthermore, recent discussions of the variables influencing bank profitability have either diverted attention from banks in favour of savings and loan

institutions (Nagaraju and Boateng, 2018) and the assessments of the effects of corruption (Yakubu, 2019), the significance of financial leverage (Bunyaminu *et al.*, 2021), liquidity (Charmler *et al.*, 2018), capital structure (Musah, 2018), tax avoidance (Agyei *et al.*, 2020a), and the relationship between commodity price shocks and bank performance (Ebenezer and Alice, 2021)., None of these studies considered CRM, the banking sector clean-up nor did they control for financial sector reforms.

Against this setting, this research is purposed at examining the relationship associated with CRM of Ghanaian banks and the issues of bad debt concerning the profitability of listed banks in Ghana. Thus, in basic terms, the study examined the effect of credit management and matters of non-performing loans on the performance of listed banks in Ghana, in light government's clean-up of the financial sector and the various reforms implemented in the industry.

1.2 Objectives of the Study

The present research examined the effect of credit management and matters of non-performing loans on the performance of banks listed on the Ghana Stock Exchange, in the presence of the clean-up of financial institutions leading to some capitalization constraints imposed on banks within a framework that is dynamic. The specific objectives to be carried by the study in achieving its purpose will include to:

1. Analyse the relationship between non-performing loans and the profitability of banks listed on the Ghana Stock Exchange.

2. Determine the relationship between loan-to-deposit ratio and profitability of listed banks in Ghana

3. Examine the relationship between asset-to-equity ratio and profitability of listed banks in Ghana

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1.3 Research Hypotheses

Considering the objectives of the study and the empirical literature, these hypotheses were to be held by the research:

1. H_{01}: no significant relationship exists between non-performing loans and the profitability of listed banks in Ghana.

    H_{A1}: non-performing loans significantly influence the profitability of listed banks in Ghana.

2. H_{02}: no significant relationship exists between the loan-to-deposit ratio and profitability of listed banks in Ghana.

    H_{A2}: loan-to-deposit ratio significantly affects the profitability of listed banks in Ghana.

3. H_{03}: there is no significant relationship between the equity-to-assets ratio and profitability of listed banks in Ghana.

    H_{A3}: equity-to-assets ratio significantly affects the profitability of listed banks in Ghana.

1.4 Significance of the Study

This research would be relevant to various decision-making units and stakeholders in the banking sector and the other financial sectors of the economy as a whole by ensuring that fiscal and monetary policies are efficiently and effectively devised by policymakers. The results of this study are expected to offer supplementary assistance as a result of the relentless search for efficient and equitable means of distributing the scarce resources of the economy. Moreover, critical areas for further studies are created by this study and this adds to the pool of knowledge from which policymakers could draw useful tips and pieces of evidence.

1.5 Scope and Limitations

This study is focused on evaluating the impact of CRM and bad debts on the performance of listed banks in Ghana. The proxies for credit risk management and bad debts include non-performing loans, loan-to-deposit ratio, and equity-to-asset ratio whereas the proxies for performance were ROA and ROE. Some relevant predictors (such as bank growth, bank age, leverage, and financial sector clean-ups) of bank profitability are control variables to the study. The scope of the study assesses the influence of credit risk management activities on bank profitability for a period of 5 years, covering 2015 to 2019. The researcher believes this 5-year period is large enough to show the trends in the performance of banks and its ability to influence the decisions of relevant stakeholders. Because the study was also to some extent interested in determining how the clean-ups in the financial sector affects bank's performance, the researcher chose the period the clean-up was more prevalent. The variables employed in the study were, thus, delimited by those indicated.

1.6 Organisation of the Study

This study is structured in 5 different chapters for the purposes of achieving the desired results and meeting standards. The first chapter constitutes the introduction to the study, which is delineated into the background to the study; statement of the problem; research objectives; research hypotheses; the significance of the study; the delimitation; limitations and organisation of the study. Chapter Two of the study reviews the literature on all relevant issues related to the study. The literature review covers the theoretical framework; empirical literature on the subject matter; the definition and concept of financial performance. It also includes a conceptual framework that shows

the impact of credit risk management on how commercial banks are performing financially.

Chapter three contains the research methods which gave the details of the research approach and design, and the issues relating to data estimation and analysis. Chapter Four looks at the results and discussed findings which are key to the study. It presents the key findings based on the research objectives. Chapter 5, which is the final chapter of this study covers summaries, conclusions and recommendations deduced from the study results. It also presents suggested areas for future studies.
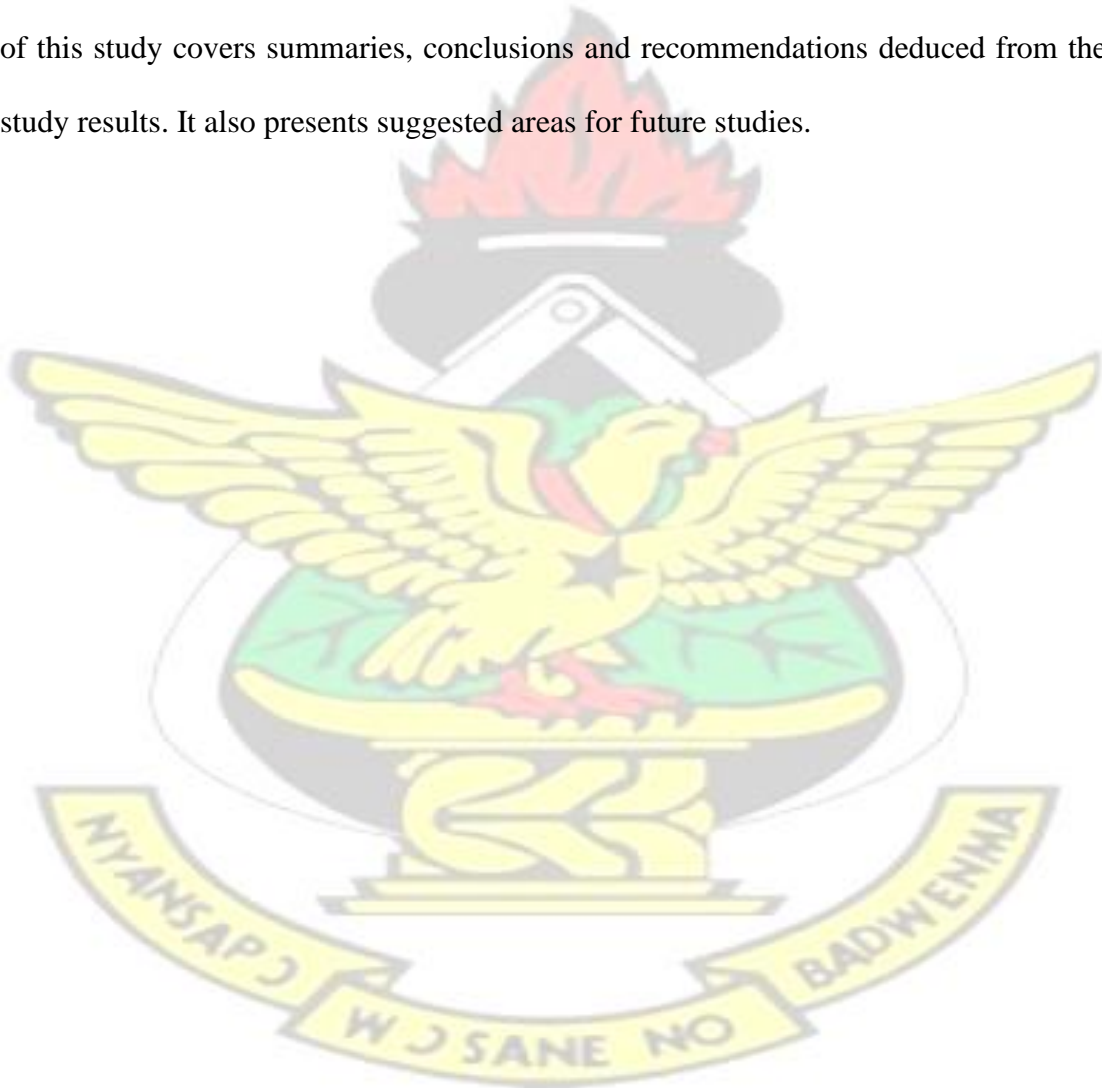
CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

This literature review section of the study covers a brief overview of theories and empirical studies conducted in the area of credit management and bank performance. Theories that underpin the study are reviewed. Empirical works and relevant concepts are also reviewed to enable the conceptualisation of the study using a simplified framework.

2.1 Conceptual Review

2.1.1 Credit Risk Management and Performance of Banks

Fundamentally, bank management aims to optimise the wealth of shareholders (Koch and MacDonald, 2014). This aim could be construed as enhancing the market value of firms' stocks. Koch and MacDonald note that the maximisation of owners' wealth requires managers to estimate and assess, in present terms, the uncertain cash flows with less uncertain and nearer cash flows, offered in the course of making appraisals based on risk-adjusted criteria. According to Scannella and Polizzi (2021) and Al Zaidanin and Al Zaidanin (2021), banks must either suffer high risks or operate at lower costs to achieve higher returns.

Following this, managers are required to assess and opt for balanced trade-offs between the prospects of greater returns, chance that these returns may not be realised, and the likelihood of failure on the part of the bank (Zaidanin and Zaidanin, 2021). It is clear from bank financial statements that loan creation has been the principal source of profits for these institutions. However, this enormous effort entails a huge danger. The

possibility of trade partners failing to meet their obligations might jeopardize these institutions' ability to operate smoothly. It is apparent that high-risk endeavours generate large profits, thus banks, to retain profit, participate in excessively dangerous operations while ignoring the hazards that lie ahead.

Even though it is common knowledge that poor credit risk management can lead to more non-performing loans and, as a result, a negative impact on bank performance, several studies have been conducted on the subject. However, there are still significant gaps that need to be filled or addressed, necessitating the commissioning of even additional studies on the subject. Cross-examination of the influence of developing new ICT-supported technologies in enhancing credit risk management is critical. Improved credit evaluation models, as well as revised credit information systems such as Credit Reference Bureaus, (CRBs), will need to be tested.

2.1.2 Non-Performing Loans and Bank Profitability

NPL is critical to measuring the performance of industry players in the banking industry (Das and Dutta, 2014). NPL relates to the chance of default on the part of a borrower for an unsettled loan either in full or part (Ruman and Bajaj, 2019). NPL could be a measure of financial institutions profitability – when the NPL ratio falls it represents an enhancement in banks' (be it the public or private sector) asset quality (Ayunku and Uzochukwu, 2020) and an increase in the ratio means deterioration in asset quality of banks, representing low profitability. Batra (2003) and Boateng (2019) note that the fundamental cause of the failure and collapse of most banking institutions springs from their credit principles and style of management.

Ayunku and Uzochukwu (2020) contend that as NPLs represent a measure of profitability, they deeply contribute to likely financial distress among financial

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institutions. NPLs directly influence banks' profitability by causing a dilution to the returns on assets. Pracoyo and Ladjadjawa (2022) submit that provisions for losses as a result of non-performing loan assets that banks are required to make and this, in turn, constraints profitability is the cause of this dilution to returns on assets.

2.1.3 Loan-to-Deposit and Bank Profitability

Loan-Deposit Ratio (LDR) is one of the effective ways of measuring the liquidity of banks which to a large extent, influences their profitability (Ayunku and Uzochukwu, 2020). Towpek and Borhan (2006) present that since the profits of banks are dependent on interest charged on deposits, then profits could be computed as interest on loans less (–) interest on deposits.

Various factors impact the profitability of banks, these have been given satisfactory attention – Banna *et al.* (2021) considered the LDR and profitability; Naceur (2003) highlighted loans and deposits against banks profitability; Athanasoglou *et al.* (2006) examined the equity-to-assets ratio and profitability; Vong and Chan (2009) considered the deposit-to-asset ratio and banks' profitability. A general conclusion arrived indicates that a low LDR signals that the bank is not realising optimal returns whereas a high LDR is an indication of somewhat optimal returns (Ayunku and Uzochukwu, 2020).

2.1.4 Bad Debt (Loan Write-Off) and Bank Profitability

It is essential to note that loan write-offs and provisions on loan loss are separate concepts. Recent principles of accounting prescribe that banks should make provisions for possible loan losses when they find out the probability of such losses occurring and is integral to the loan portfolio. These provisions are expenditures and expenditure has a negative impact on the general profit that banks generate for their shareholders.

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(Ayunku and Uzochukwu, 2020). Scannella and Polizzi (2021) suggest that for supervisory reasons, it is advisable to write off loans as soon as the bank discovers reasonable evidence that recoveries or collections of such loans are unrealistic.

Bad loans fundamentally hinder bank growth in financial terms (Saif *et al.*, 2021; Zamore *et al.*, 2021). The reason is that banks are driven into liquidity challenges by bad loans which render them incapable to spread capital across other possibly worthwhile opportunities (Ayunku and Uzochukwu, 2020).

2.1.5 Equity-to-Asset and Bank Profitability

The Equity-to-Asset ratio is comparing the entity's worth in terms of equity as a fraction of the worth of its assets. Better still, it measures the proportion of an entity's assets contributed by equity participants. A high ratio suggests that a greater proportion of the entity is owned by shareholders, and a low ratio implies that the entity is highly indebted. If the ratio measures up to 70% for a given bank, such a bank would be faced with difficulties in taking on extra loans because of solvency concerns (Zamore *et al.*, 2021). The literature, theoretical and empirical literature shows that the equity-to-assets ratio has a positive correlation with bank profitability. Abundant capital implies that there is less or no need for sourcing external funds, even though when sourced, it would be available at a lower required rate of return (Saif *et al.*, 2021).

2.1.6 Loan Loss Provision and Bank Profitability

Loan loss provision measures the stability of the financial system since it offers a core contribution to variations in the capital and profitability conditions of banks, which also influence the amount of credit supplied by banks to the economy (Beatty & Liao, 2011; Tran and Houston, 2021). Fundamentally, a precise and accurate recognition of an estimated loss(es) from a specific loan portfolio or specific portfolios could be made by

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banks before the occurrence of actual loss(es) (Ayunku and Uzochukwu, 2020). The quality of loan portfolios managed by banks is reflected by the level of provisions made on loan losses, implying that any provision made in respect of loan losses could cover the range of projected credit losses if bank management is to regard provisions as a measuring rode of exact credit risk (Danisman *et al.*, 2021). From this premise, the loan loss provision and bank profitability co-movement could be reasoned as negative.

2.2 Theories of the Study

The relevant theories that underpin the study include the commercial loan and credit risk, theories as well as the liquidity theory of credit.

2.2.1 Commercial Loan Theory

The Commercial Loan Theory is also known as the read bills doctrine, it proposes that self-liquidating commercial paper should be the only assets banks should lend in the short term. Hosna *et al.* (2009) suggest that the theory is pitched towards influencing through persuasion, bank lending as well as overall economic events. This principle is evident in Ghana since generally, customers who deposit their funds with banks expect to have access to those resources anytime needed, they expect banks to utilise the funds in only short-term ventures.

The adoption of the commercial loan theory brings about supplying money to fund variations in collective commercial (economic) activity. A limitation of the theory is seen in its failure to consider developing economies, for which Ghana is inclusive. Its adoption has failed to encourage banks in terms of funding the acquisition of plants and equipment, land, and home ownership (Ayunku and Uzochukwu, 2020). Furthermore,

it maintains that loans need to be liquidated in a normal business schedule, failing to take recognition of the comparative steadiness of deposits of banks.

2.2.2 Credit Risk Theory

Salas and Saurina (2002) define credit risk as the risk of default on the part of a borrower of a debt of any kind, by not meeting the terms required to settle the debt. The lender bears the risk, which includes lost interest and principal (Cincinelli and Piatti, 2021). The loss could be a part of the entire sum and may present itself in many forms including a bank that has gone insolvent and has failed to return monies to a depositor (Danisman *et al.*, 2021). Lenders may mitigate the risks they face by undertaking credit checks on the borrower (in this case, the bank) or requesting the borrower to be signed onto a befitting insurance scheme, or seeking the assurances of a third party. Generally, debtors request high returns if the risks associated with the transaction (between lenders and borrowers) are high (Otero-González *et al.*, 2022; Oyewo, 2021).

2.2.3 Liquidity Theory of Credit

This theory was propounded by Emery (1984) and holds that more trade credit is employed by credit-rationed companies relative to companies with financial institutions readily available. The fundamental argument is that the amount of credit offered by banks to financially constrained firms is reduced when trade credit is utilised (Wang *et al.*, 2021). When small firms were proxied for credit-constrained businesses, Ayunku and Uzochukwu (2020) discovered that in situations of money narrowing, small firms respond by resorting to the use of more trade credit. Unconstrained businesses demand less trade credit but are more likely to offer it, implying a negative connection between a borrower's access to alternative channels of finance and trade credit. Rajan and Zingales (1995) provide evidence in support of this negative co-movement. When

compared to other normal-performing financial institutions, enterprises that are experiencing liquidity constraints are more prone to employ trade credit, according to the hypothesis. It indicates that businesses with excess liquidity are more inclined to bail out those who are experiencing liquidity problems.

2.3 Empirical Review

Several scholars have contributed to the credit risk management and the performance and profitability of banks nexus. The common conclusion is that CRM strongly influences bank performance (Ma *et al.*, 2020). Relevant works have been reviewed in bringing together this empirical literature as a way of aligning with the research objectives stated under chapter one of this study.

2.3.1 Non-Performing Loans and Bank Profitability

Etale *et al.* (2016) examined the connection between NPLs and the performance of banks in Nigerian from the period of 1994 to 2014. They found that in the long term, greater proportions of NPLs diminish the performance of banks. A similar observation was disclosed by Ugoani (2016). Osuka and Amako (2015) used a time-series dataset of Nepalese banks from 2001 to 2011 to measure the impact of credit risk management (CRM) on their financial performance. They revealed that CRM serves as a crucial determinant of banks profitability and financial performance.

Taiwo *et al.* (2017) studied the impact CRM has on deposit money banks' performance in Nigeria. They found that organised credit management techniques could trigger investor decisions and confidence in financial institutions, leading to increased loanable funds and also enhancing performance. Gabriel *et al.* (2019) investigated the impact of NPLs on the financial performance of commercial banks in Nigeria over the period

1985-2016. The authors used multiple regression approaches to examine the gathered secondary data. Their findings demonstrated that the cash reserve ratio of NPLs to total loans had a significant negative influence on ROA.

John (2018) investigated the effect of macroeconomic (GDP, exchange, and unemployment rates) and bank-specific (ROA) factors on the NPLs of commercial banks in Nigeria. The author used an explanatory research approach to pinpoint the causes and effects of NPLs and their determinants. Panel data – with data from 2010 through 2015 – was utilised in the analysis. Unlike the exchange rate and unemployment rate, which showed an inverse relationship with ROA, the study indicated that the GDP ratio had a positive relationship with the ROA of Nigerian commercial banks.

Chege and Bichanga (2017) analysed the impact NPLs had on the financial performance of commercial banks in Kenyan. They employed a descriptive survey design and collected secondary data from supervisory reports of the central bank of Kenya and audited annual reports from 2011 to 2015. Their results indicated that NPLs significantly influence ROA. Among the GCC economies, Mot *et al.* (2012) studied the influence that are features specific to a particular bank and the entire banking industry on the performance of commercial banks. The banks used in the study numbered 43 and yielded data from 1998 to 2008. The authors found that capital risk, bad debts (credit risk), and liquidity influence bank performance, proxied by ROA. In the same study, only liquidity risk was revealed to influence performance, when proxied by ROE.

Asantey and Tengey (2014) assessed the influence bad debts had on the ability of Ghanaian banks to lend more money and their financial performance. The study covered datasets for the period 2008 and 2013. They revealed a greater inverse

connection between bad debts and the lending potential of banks. A similar relationship was found between bad loans and both net profit and return on investment. Kingu *et al.* (2018) used the information asymmetry theory and the poor management hypothesis to analyse the effect of NPLs on bank profitability. Utilising panel data from 16 Tanzanian commercial banks covering the period 2007-2015, the authors conducted estimations using multiple regression and OLS techniques after meeting assumptions of fixed and random effects (FE and RE) estimators. According to the study, NPLs are inversely related to Tanzanian commercial banks' levels of profitability.

Wood and Skinner (2018) studied how macroeconomic and factors specific to banks affect non-performing loans of banks which are commercial in nature in Barbados between 1991 and 2015. According to the empirical findings, bank-specific factors such as return on equity, return on assets, capital adequacy ratio, and loan to deposit ratio are significant determinants of non-performing loans, while macroeconomic factors such as GDP growth, unemployment, and interest rate also have a significant impact. Alshebmi *et al.* (2020) investigated how certain individual bank determinants (intrinsic variables) and macroeconomic determinants (extrinsic factors) affect NPLs in the banking industry of Saudi Arabia. The authors sampled 12 commercial banks of the Kingdom of Saudi Arabia which were active as at then for a period of 2009 – 2018 used panel data for analysis. A range of statistical techniques were used including regression analysis, correlation, and descriptive statistics. The correlation analysis of the authors reveals a modest negative relationship between the percentage of NPLs and the ROA, GDP growth, and liquidity and credit risks. Additionally, they reported a weakly significant positive correlation between NPL rate and banks' capital adequacy ratio.

Singh *et al.* (2021) determined the influence of NPLs on conventional banks in Nepal with data for period 2015-2019. The study used multiple regression analysis approach in analysing the data. The dependent variable in the research was NPL, while the independent/explanatory variables were capital adequacy ratio, ROA, bank size, inflation, and growth in GDP. According to their findings, bank size, growth in GDP, inflation, and ROA all significantly affect NPL, while the capital adequacy ratio has no discernible impact on banks' NPL. In other words, whereas most research demonstrates a negative effect, the GDP influence on NPL in their analysis showed a significant positive effect. There was steady growth in Nepalese banks as a result of a growth in the GDP of the country even though income did not see any major growth in that particular period. The study concluded that GDP growth significantly impacted NPL of commercial banks in a positive way.

Ahmed *et al.* (2021) undertook a study in Pakistan covering the period 2008 – 2018 by considering factors specific to banks and macroeconomic indicators that affect NPLs of commercial banks. The authors employed the system GMM estimator in their investigation. The validity of the instruments affects their dependability. As a result, the authors used the Hansen J-statistics to evaluate the reliability of the instruments in the specified models and the Arellano-Bond AR(2) test to examine the second-order serial correlation. They found that bank size, bank diversification, ROA, and operating effectiveness, all considerably reduce NPLs whereas net interest margin, credit growth, bank size, and loan loss provision all significantly raise NPLs. Additionally, the authors reported that NPLs are greatly increased by higher political risk and currency and interest rates, while decreased by growth in GDP.

Fakhrunnas *et al.* (2022) modelled the asymmetric link between macroeconomic factors and NPLs of the Indonesian banking sector before and after the COVID-19 health crisis to identify the relevant implications of the pandemic. The study offers proof of an unbalanced link between macroeconomic factors and banks' NPLs both before and post-COVID-19 pandemic. Aliu and Çollaku (2021) assessed the influence of NPLs on the financial performance of Kosovo banks over the period 2010-2019. Profit, calculated by ROA as a function of the ratio of NPLs, bank size, and liquidity risk were employed as control factors. The authors used multivariate linear regression to predict how the profit function is determined. Their findings indicated that the impact of NPLs on profitability is statistically significant and that, when other factors are held constant, the ROA reduces in response to every increase in NPL.

Nugraha *et al.* (2021) ascertained how NPLs, loan to deposit ratio (LDR), and educational diversity affect the ROA of listed banks in Indonesia. The authors employed panel data – over the period 2015-2019 for 33 listed banks – in a quantitative research design. The authors employed the F-test, T-test, coefficient of determination test and descriptive statistical analysis for the study. Version 20 of SPSS software was used for data processing. The findings demonstrated that LDR, NPLs, and education diversity all had a substantial impact on banks' ROA. Partially, LDR strongly and positively impacts ROA, while NPLs have a big negative impact. The authors discovered that the ROA and the impact of NPLs varied according to regional differences.

Ninson *et al.* (2021) researched into the relationship between NPLs, lending rates of commercial banks and the financial performance of companies listed on the Ghana Stock Exchange. This was the major goal of the study. The quantitative research

methodology was used with the time series design. The Central Bank of Ghana's economic and monetary database from 2006 to 2019 was accessed to provide secondary data on the chosen variable and a few control variables for the research. The stability of the time series variables was evaluated using time series properties of the variables such as stationarity and descriptive summary. In their main analysis, the authors discovered that ROA (ROE) before (after) tax and commercial banks' lending rates, interbank lending rates, and inflation were key drivers of NPLs.

Dao *et al.* (2020) examined the situations that influence NPLs in Vietnam by employing 200 banks from the stock markets of Hanoi and Ho Chi Minh City covering the time 2008 to 2017. Regression techniques based on pooled OLS, RE and FE models, were employed. Their findings indicate that previous years' NPLs affect the next year's. thus, they confirm the dynamic character of NPLs among Vietnam banks. The authors report additionally that improved bank performance and credit expansion also result in a decline in NPLs. Their findings further indicate that higher interest rates would significantly positively impact NPLs.

Lafuente *et al.* (2019) assessed the effects of NPLs and board turnover, which they relate to performing directorship (i.e., natural turnover) and non-performing directorship (i.e., forced turnover), on the ROA of banks. The writers used a large sample of all banking companies operates in Costa Rica during the period covering 2000 to 2012 to evaluate the suggested model and assumptions, which were based on the compliance and performance functions of boards. Their findings showed that banks with non-performing directorship coupled with high frequencies of unexpected board changes had a much larger negative impact of NPLs on ROA.

2.3.2 Loan-to-Deposit Ratio (LDR) and Bank Profitability

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Nugraha *et al.* (2021) ascertained how NPLs, loan to deposit ratio (LDR), and educational diversity affect the ROA of listed banks in Indonesia. The authors employed panel data – over the period 2015-2019 for 33 listed banks – in a quantitative research design. The author employed the F-test, T-test, coefficient of determination test and descriptive statistical analysis for the study. Version 20 of SPSS software was used for data processing. The findings demonstrated that LDR, NPLs, and education diversity all had a substantial impact on banks' ROA. Partially, LDR strongly and positively impacts ROA, while NPLs have a big negative impact. The authors discovered that the ROA and the impact of NPLs varied according to regional differences.

Rajindra *et al.* (2021) determined how LDR, operating expenses, and operating income affect the ROA of listed public-private foreign exchange banks in Indonesia over the period 2015-2018. The authors employed multiple linear regression techniques and descriptive statistics to examine the data. They reported that ROA is affected concurrently and strongly by LDR, operating income, and free operating expenses. The authors stressed that ROA is simultaneously influenced by NPL, operating income, and operating costs. The authors report further that ROA is significantly impacted negatively by operating income and expenses. The authors agreed that LDR has an insignificant influence on ROA but the influence is beneficial.

Setiawan *et al.* (2021) examined the effect of variables like the ratio of distribution and administration expenses to income, capital adequacy ratio (CAR), and bank size on the profitability of banks using data from 2003-2007. The researcher collected and analysed data from both local and foreign banks. The authors also used the Chow test to analyse the impact of the variables on the profitability of foreign and state-owned banks in

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Indonesia. According to empirical results, the relationship between LDR and CAR and profitability of state-owned banks is significantly positive. Among foreign banks, only bank size and profitability of foreign banks is significantly positive. Saleh and Winarso (2021) examined the LDR and NPL nexus among the Bandung City Rural Banks. The approach used by the authors is verification and descriptive. 29 Rural Banks of Bandung for the period 2014–2019 is the population of the study. Based on the purposive sampling criteria, Rural Banks of Bandung comprised the sample for this study, which included 24 firms. Multiple linear regression analysis was used to assess the model under Version 20 of SPSS software. The authors reported that NPL and LDR significantly impact profitability particularly, ROA.

Rajindra *et al.* (2021) analysed how operating income, expenses, and LDR affect the ROA of listed foreign exchange banks which are public-private in Indonesia over the period 2015-2018. Data from the financial statements of 21 listed public-private foreign exchange banks served as the data source for the authors' quantitative analysis. Descriptive statistics and multiple linear regression techniques were used to examine the data. The authors indicated that from their F-Test statistics, LDR and operating income and expenses concurrently and significantly impact the ROA of listed public-private foreign exchange banks. Sampurnaningsih *et al.* (2021) ascertained the relationship between net profit margin (NPM), CAR, and LDR over the period from 2010 to 2019 and financial performance at PT Bank DKI. The authors adopted the descriptive quantitative approach and made use of the F-test, T-test, coefficient of determination, multiple linear regression, and the customary assumption tests. Findings from the t-test indicated that LDR and CAR's effects on ROA are insignificant. However, ROA was found to be significantly affected by NPM.

Prabowo *et al.* (2021) investigated how macroeconomic indicators affect the relationship between the businesses in banking sector stock prices and their loan-to-deposits and capital adequacy ratios. To establish the hypothesis, the authors took a quantitative method, using the knowledge process discovery and numerical data as a tool. On the websites of Indonesia's stock exchanges, financial statements of banking businesses were used to gather data. Findings from their estimations indicate that although high capital adequacy and loan-to-deposit ratios tend not to have a valuable connection with banks' stock prices.

Hasibuan *et al.* (2021) determined how ROA is impacted by the following factors: operational efficiency ratio (BOPO), net interest margin (NIM), loan-to-deposit ratio (LDR), capital adequacy ratio (CAR), and non-performing loans (NPLs). Listed banks numbering 44 with data between 2014 and 2018 were the subject of this study. Using purposive sampling, 25 banking businesses were captured by the authors in their study sample. Multiple linear regression analysis and path analysis were the main analysis techniques employed by the authors. According to their findings, the ROA is directly impacted by the variables NIM, NPL, and BOPO. Nevertheless, the authors indicated that ROA is not directly impacted by the variable CAR and LDR. The stock price was found to be directly impacted by NIM, NPL, BOPO, and ROA whiles no direct impact of LDR or the CAR was found.

Hasibuan and Meutia (2021) assessed the relationship between the stock price and CAR and LDR. From a total of 44 listed Indonesian market banks, 25 were sampled between 2014 and 2018 using purposive sampling. From their linear regression analysis, no significant effect of LDR and CAR was found on the stock price. Hadian and Phety (2021) examined the relationship between NPL, LDR and ROA among listed banks in

Indonesia covering the years 2017 up to 2019. With a purposively selected sample of 27 banks, thanks to the non-probability sampling approach and purposive sampling techniques, analysis was facilitated by the multiple linear regression under a 5% significance level. The results indicated that both NPL and LDR had influence on ROA, although only in part and simultaneously. LDR and NPLs were noted to have had the largest combined impact on ROA, explaining 64.19% of the total variations in banks' ROA.

Hutasoit *et al.* (2022) analysed the moderating impact of the interest rates of the Bank of Indonesia on the effects of LDR, CAR, ROE, and dividend pay-out ratio on stock prices. Using secondary data over the period 2017-2020, partial least squares estimation was undertaken using SmartPLS software. The findings indicated that LDR, CAR, and dividend pay-out ratio have no significant effects on stock prices but ROE significantly impacts stock prices. Suroso (2022) during the period 2016 to 2021 determined how the LDR and CAR affect the profitability of banks that are listed on the Indonesia Stock Exchange (IDX). The main metrics employed by the author included ROA, LDR, and CAR. With sufficient data on 28 listed banks, the author employed the coefficient of determination, correlation matrix, multiple linear regression, F-test and T-tests techniques for analysis. The results of the study suggest that LDR and CAR have a combined effect on ROA, however, T-test reveals that LDR and CAR have no impact on ROA.

Herizal *et al.* (2022) investigated the impact of LDR, operating income and costs, and capital adequacy ratio (CAR) on the ROA of Indonesian conventional banks. With datasets from the financial statements over the period 2013-2017, the authors utilized quantitative descriptive statistical techniques to process data for analysis. According to

their findings, CAR and operating income and costs significantly and partially influence on the ROA of banks using the traditional technique in Indonesia whereas LDR and operating income and costs have a considerable simultaneous effect on ROA at conventional banks in Indonesia. The authors stressed that ROA is unaffected by LDR.

2.3.3 Equity-to-Asset Ratio (EAR) and Bank Performance

According to Kristiawan and Prasetiono (2020), the fact that each Indonesian bank performs at a different level and that there are banks with subpar performance makes it more crucial than ever to look into the variables that affect bank performance as a result, they examined the impact of market concentration (as indicated by each bank's market capitalisation), bank size, labour productivity, EAR, NPLs, LDR, and reserve requirements on the return on assets of listed banks in Indonesia which are conventional. With data on 25 of these banks in Indonesia during 2014-2018, the authors used version 26 of the SPSS software to estimate the multiple linear regression between the study variables. From their findings, the authors revealed that EAR, market share, bank size, and labour productivity all significantly improve a bank's performance. They stressed, the relationship between the performance of banks and non-performing loans is significantly negatively but has a positive relationship between LDR and the reserve requirement.

Pham *et al.* (2021) examined the factors that affect banks' stability in a developing nation, Vietnam. From 2010 to 2018, the authors gathered data on listed commercial banks in Vietnam and employed the GMM estimator. Their results show that factors in the banking industry, such as bank size, equity-to-asset ratio (EAR), income diversification, and loans-to-assets ratio have a positive influence on a bank's stability. Thus, future growth and stability of commercial banks in Vietnam were found to be

predicated upon EAR, the level of a bank's income diversification, and the ratio of loans to total assets.

Gazi *et al.* (2021) examined how Bangladesh's banking sector's growth, profitability and development over the previous 50 years has changed. The major object of the authors was to identify the variables influencing profitability in Bangladesh's banking industry. The authors made an effort to look at how macroeconomic variables and firm-specific factors affect the profitability of the Bangladeshi banking industry. A total of 32 banks were sampled in this regard, and the situation of these institutions during the previous 10 years was monitored by gathering data over the period (2011-2020). The authors conducted estimations under the panel data research paradigm. The authors reported that the macroeconomic variable (growth in GDP) and the firm-specific variables (equity-to-asset ratio (EAR), loan-to-deposit ratio, debt-to-equity ratio, and deposit-to-asset ratio) all have statistically significant effects on the profitability (ROA and ROE) of Bangladeshi banks.

Majeed and Zainab (2021) noted that the rapid expansion of Islamic banks (IBs) in recent years has sparked discussions regarding the viability and effectiveness of these institutions among policymakers and economists. In Pakistan, data that covers 2008 to 2019 was used to assess the financial performance of Islamic Banks and Conventional Banks. Financial ratios were used in this assessment covering exclusively the top-ten Islamic Banks and Conventional Banks in Pakistan. Their findings indicated that IBs are more liquid than CBs and have stronger capitalization and risk management. IB earnings, on the other hand, are discovered to be smaller than CB profits. Only Pakistan's financial performance has been examined in the report. The authors

discovered that unlike earlier years, the EAR of Conventional Banks was lower than the EAR of Islamic Banks.

Lestari *et al.* (2021) investigated how bank size, leverage, and liquidity, affect the conventional banking sector's profitability and ability to influence economic trends in this Indonesia. A total of 29 listed conventional banks with data from 2010 to 2019 made up the study sample, which resulted in 290 data points. The profitability of banks, as determined by net interest margin (NIM), ROA, and ROE, served as the study's dependent variable. the authors measured bank size as the natural logarithm of a bank's total assets; leverage as the equity to asset ratio (EAR); liquidity as the loan-to-deposit ratio (LDR). From their findings, liquidity was found to have a negligible positive influence on banks' ROA and ROE and a statistically insignificant positive impact on NIM. The authors report that leverage (i.e., EAR) has a slightly negative influence on ROA and NIM, but a considerable negative impact on ROE. Bank size had a significant positive influence on ROA, a negligible impact on ROE, and a significant negative impact on NIM.

Harimurti *et al.* (2022) examined the effects of inflation-projected macroeconomic variables and bank-specific factors, such as bank size, ROA, and EAR, on NPLs in state-owned banking for the years 2017 through 2021. To ascertain the impact of bank size, ROA, and ROE on NPLs of public banks over the period 2017-2021, the authors conducted a panel-based analysis using version 10 of EViews software. The authors report that NPLs are significantly impacted negatively (positively) by ROA (bank size and EAR). Inflation was found to be directly related to NPLs.

Hafidh (2022) evaluated Tanzanian commercial banks' capital structure and operating efficiency using secondary data over the period 2015-2020. Analysis was conducted

under the linear equation econometric model using the random effects panel regression model. The author's findings indicated that only long-term debt which is an independent indicator was revealed as having a negative relationship of ROA that is significant. However, two others, short-term debt to equity DE ratio and equity-to-total assets ratio (EAR), both had positive and significant relationships with ROA. Overall, based on the results, the author concluded a positive connection between capital structure (EAR and short-term debt-to-equity ratio) and the financial performance (ROA) of commercial banks operating in Zanzibar. However, the author indicated further that when EAR was measured using ROA, the resulting positive relationship shows a short-run impact, indicating that there is a less significant relationship due to their coefficient value as compared to the short-term debt to equity, which has a coefficient of high value and an increasing effect on ROA.

2.4 Conceptual Framework

Following the theories and concepts reviewed, as seen in Figure 1 conceptualised, the connection among the variables of the study.

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┌─────────────────────────┐              ┌─────────────────────────┐
│  Credit Risk Management  │─────────────▶│    Bank Profitability    │
├─────────────────────────┤              ├─────────────────────────┤
│ 1. Non-Performing Loans  │              │ 1. Return on Assets (ROA)│
│ 2. Loan-to-Deposit ratio │              │ 2. Return on Equity (ROE)│
│ 3. Equity-to-Asset ratio │              │                          │
└─────────────────────────┘              └─────────────────────────┘
                      ┌─────────────────────────┐
                      │    Control Variables     │
                      ├─────────────────────────┤
                      │ 4. Bank Growth           │
                      │ 5. Leverage              │
                      │ 6. Firm Age              │
                      │ 7. Financial Sector Clean-up │
                      └─────────────────────────┘
```
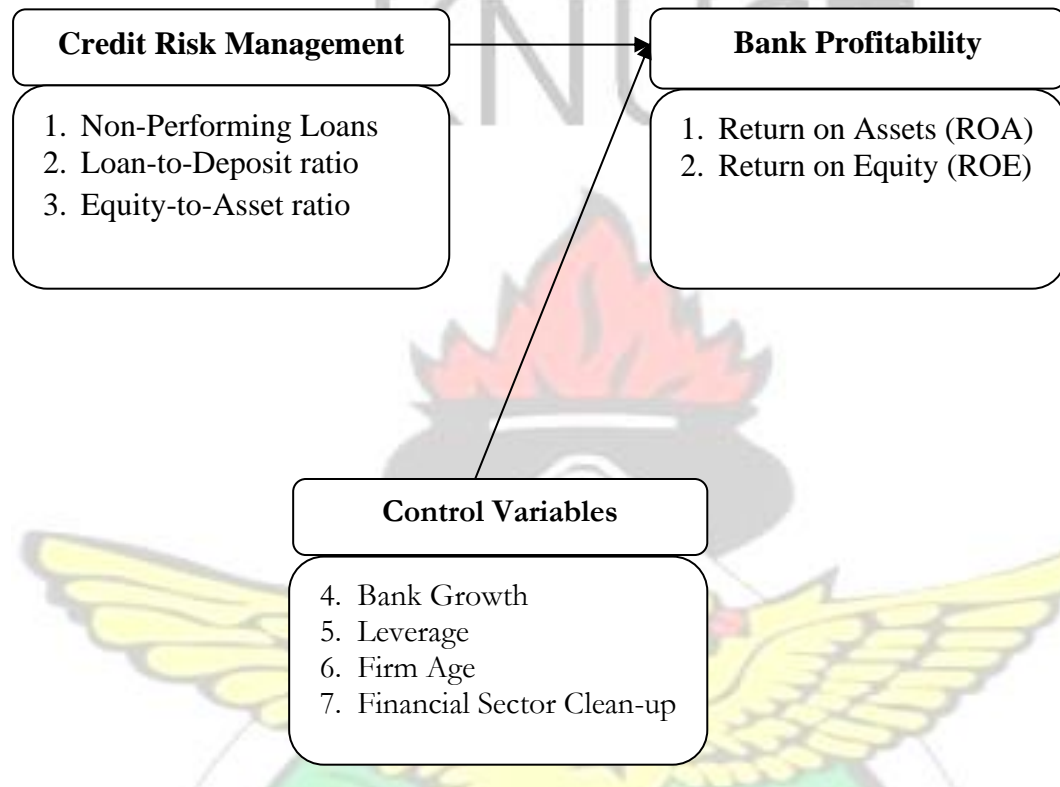
Figure 1: Conceptual Framework of the Study

Source: Author's Construct (2021)

The conceptual framework signifies that bank profitability is influenced by activities of credit risk management (CRM) – non-performing loans, loan-to-deposit, bad debt, equity-to-assets, and loan loss provision. The framework also depicts the fact that other factors outside CRM could influence bank profitability and the relevant variables are identified to include bank growth, leverage, bank age, and financial sector clean-up. The study would control for these variables to determine their effect on ROA and ROE as measures of bank profitability.

2.5 Summary

From the theoretical and empirical literature reviewed, it is learned that the empirical literature lacks a good argument for Ghana despite the vast empirical studies on banks due to various forms of reforms. In addition, as noted earlier, while many economies are undergoing banking sector reforms as a result of globalisation, Ghana's recent reforms, particularly between 2015 and 2019, hardly follow any planned schemes of execution and have been influenced by the continuously declining asset quality of banks, setting the country's situation apart from most others (Boateng, 2019). However, recent discussions of the variables influencing bank profitability have either diverted attention from banks in favour of savings and loan institutions (Nagaraju and Boateng, 2018) and the assessments of the effects of corruption (Yakubu, 2019), the significance of financial leverage (Bunyaminu *et al.*, 2021), liquidity (Charmler *et al.*, 2018), capital structure (Musah, 2018), tax avoidance (Agyei *et al.*, 2020a), and the relationship between commodity price shocks and bank performance (Ebenezer and Alice, 2021).

It is important to research the topic of banks' vulnerability to various catastrophic risks, such as credit risk, which causes them to "write off" poor loans. Novel studies are required to address the flaws in previous research, including their failure to account for other factors affecting bank profitability, the financial sector, and banking sector clean-up. In light of this context, the main reason for this research is to determine the connection between CRM processes and issues related to bad debt that affect the profitability of listed banks in Ghana most especially in the wake of the financial sector clean-up undertaken by government to strengthen the sector to deliver value to shareholders and customers of the various companies.

CHAPTER THREE

RESEARCH METHODS

3.0 Introduction

Chapter 3, research methodology section covers the methods used in the study, the approach and design of the study, the unit of analysis, data sources and collection procedures, and the model or estimation technique that was applied.

3.1 Research Design

A quantitative research approach is adopted by the study because it involves arithmetic and statistical procedures to test hypotheses (Creswell, 2014). The quantitative approach is appropriate because the study investigates the factors that influence an outcome or best predict an outcome. This study examines credit management and issues of bad debts among banks on the stock exchange of Ghana and, therefore, the influence of one variable on the other is being assessed. Thus, it was appropriate to adopt a quantitative research approach.

The current study employs the explanatory design in analysing the credit management and issues of bad debts among listed banks in Ghana. The explanatory research relates to the extent to which one variable is influenced by one or more other variables (Zikmund *et al.*, 2013) and was relevant to this study because it explains the various patterns of relationships among variables by analysing the situation or problem. An explanatory research design was used to propose a better way of answering the research objectives by providing a suitable research model. Explanatory research is a kind of research that is carried out to investigate a phenomenon promptly. It intends to provide details on existing literature information.

The significance of explanatory research increases the research person's perspective on a subject matter. Thus, it's not conclusive on results but give reasons to the research officer the how and the why issues occur. It uses the secondary source of data such as published literature or article which provides a broad and balanced understanding of the study. Finally, it helps to arrive at a better conclusion since it advantageously directs subsequent research approaches. The format of explanatory research is the 'why' and 'how' questioning and that of descriptive research is the 'what' question style. This strategy was designed to help you understand, analyse, describe and anticipate the future. It is also the usual way of attempting to create a causal relationship and evaluating strengths and weaknesses (Saunders *et al.*, 2009).

3.2 Unit of Analysis and Mode of Data Collection

Listed banks in Ghana served as the main unit of analysis. The data used in the study was taken from the annual financial reports of listed banks in Ghana over the period 2015 to 2019. This covered all listed banks (7 – see Appendix) with available data from the stipulated period.

3.3 Data Collection

The variables used in the study were operationalised as summarised in Table 1.

Table 1: Operational Definition of Variables

Variable	Definition/measurement	Source(s)
Return on Assets	$\dfrac{Profit\ after\ tax}{Total\ Assets}$	(Asantey and Tengey, 2014)
Return on Equity	$\dfrac{Profit\ after\ tax}{Shareholders'\ Equity}$	(Asantey and Tengey, 2014)

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Variable	Definition/measurement	Source(s)
$Non-Performing\ Loan$	$\dfrac{Non-Performing\ Loans}{Total\ loans\ and\ advances}$	(Taiwo *et al.*, 2017)
$Loan-to-Deposit\ ratio$	$\dfrac{Total\ loan}{Total\ Deposit}$	(Godlewski, 2005)
$Equity-to-Asset\ ratio$	$\dfrac{Shareholders'Equity}{Total\ Assets}$	(Godlewski, 2005)
$Bank\ Growth\ (BankGrth)$	Year-on-year growth in bank's net interest income.	(Boahene *et al.*, 2012)
$Bank\ Age\ (BankAge)$	The number of years the bank has been in existence/ operation	(Marfo-Yiadom and Agyei, 2011)
$Leverage$	The ratio of long-term debt to total equity	(Godlewski, 2005)
$Financial\ Sector\ Clean-up\ dummy(FSCD)$	1 in the years in which the financial sector was cleaned up, otherwise 0.	(Oxford Business Group, 2019)

Source: Field Survey (2022)

3.4 Model Specification

The estimated profitability models were specified for ROA and ROE as:

$$ROA_{it} = \alpha + \beta_1 l.ROA_{it} + \beta_2 NPL_{it} + \beta_3 Lev_{it} + \beta_4 BankGrth_{it} + \beta_5 BankAge_{it} + \beta_6 lnFSCD_{it} + \varepsilon_{it} \tag{1}$$

$$ROE_{it} = \alpha + \beta_1 l.ROE_{it} + \beta_2 NPL_{it} + \beta_3 Lev_{it} + \beta_4 BankGrth_{it} + \beta_5 BankAge_{it} + \beta_6 lnFSCD_{it} + \varepsilon_{it} \tag{2}$$

$$ROA_{it} = \alpha + \beta_1 l.ROA_{it} + \beta_2 LDR_{it} + \beta_3 Lev_{it} + \beta_4 BankGrth_{it} + \beta_5 BankAge_{it} + \beta_6 lnFSCD_{it} + \varepsilon_{it} \tag{3}$$

$$ROE_{it} = \alpha + \beta_1 l.ROE_{it} + \beta_2 LDR_{it} + \beta_3 Lev_{it} + \beta_4 BankGrth_{it} + \beta_5 BankAge_{it} + \beta_6 lnFSCD_{it} + \varepsilon_{it} \tag{4}$$

$$ROA_{it} = \alpha + \beta_1 l.ROA_{it} + \beta_2 EAR_{it} + \beta_3 Lev_{it} + \beta_4 BankGrth_{it} + \beta_5 BankAge_{it} + \beta_6 lnFSCD_{it} + \varepsilon_{it} \tag{5}$$

$$ROE_{it} = \alpha + \beta_1 l.ROE_{it} + \beta_2 EAR_{it} + \beta_3 Lev_{it} + \beta_4 BankGrth_{it} + \beta_5 BankAge_{it} + \beta_6 lnFSCD_{it} + \varepsilon_{it} \tag{6}$$

Where the cross-section and time dimensions are denoted by *i* and *t* respectively. The

other variables from Equations (1) and (2) are defined as:

ROA represents returns on assets;

ROE is returns on equity;

TobsQ is Tobin's Q;

α is the regression intercept

NPL is Non-Performing Loans;

LDR is Loan-to-Deposit Ratio;

EDR represents Equity-to-Deposit Ratio;

Lev is leverage

BankGrth is bank growth;

BankAge represents bank age;

FSD is a financial sector clean-up dummy; and

ε is the noise or disturbance term.

3.5 Estimation Technique

Systems dynamic panel estimation technique by Roodman (2009a, 2009b) was used to estimate Equations (1) – (6). Roodman's technique follows the systems GMM introduced by Arellano and Bond (1991). The autoregressive nature of financial performance measured by the ROA and ROE to help access the presence of the lag-dependent variable was allowed by this technique. By way of differencing, Roodman's systems dynamic panel estimation technique also corrected for the endogeneity resulting from the inclusion of the lag-dependent variable. Also, the application of the instrumental variable approach helped to resolve the endogeneity problem and lessened overidentification in the course of accounting for cross-sectional dependence.

Thus, the systems GMM approach by Roodman (2009a, 2009b), popularised by Agyei *et al.*, (2020, 2021), Agyei and Idan (2022), Boateng *et al.* (2018), and Love and Zicchino (2006) was deemed appropriate for the study. As a condition for the use of the systems GMM, the number of cross-sectional elements should exceed the time-series elements. The sample of listed banks (18) used for estimating each of the models was

more than the number of years (5) and hence, satisfied the condition of use of the estimation technique.

3.6 Chapter Summary

Chapter 3, research methodology section covers the methods used in the study, the approach and design of the study, the unit of analysis, data sources and collection procedures, and the model or estimation technique that was applied. 7 listed banks in Ghana were sampled and secondary data obtained for the variables of interest – CRM (NPLs, LDR, and EAR) and financial performance variables (ROA and ROE). This was due to the easiness in data availability. Explanatory research design was used in this particular study. The chapter proved why quantitative method was appropriate. GMM estimation technique was used and the author stated reasons for its appropriateness.

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CHAPTER FOUR

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DATA PRESENTATION AND DISCUSSIONS

4.0 Introduction

After the GMM estimations are done, chapter 4 discusses the results from the data so analysed. The discussion is in twofold. The first discusses issues relating to the descriptive profile of listed banks, while the second part relates to the results from inferential statistics.

4.1 Descriptive Statistics

The study examined the effect of credit risk management on the profitability of listed banks in Ghana. To make meaningful inferences, a descriptive overview of the listed banks involved in the study was presented in Table 2. Data on the study variables namely ROA, ROE, Tobin's Q, the board size, non-executive directors, female representation on the board, capital structure, firm size, firm age, and growth prospect, were gathered over the period 2015 to 2019.

Table 2: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	35	.0336364	.0320942	-.0469494	.0883985
ROE	35	.1496175	.1645417	-.2735124	.371751
Impairment	33	107089.5	92585.78	9611	406904
LDR	33	.6017004	.1899692	.3341312	1.125193
EAR	35	.1483492	.0277497	.0760431	.2045211
leverage	35	.8468233	.0363894	.7144544	.9239569
BankGrth	35	.15571	.1513379	-.1429536	.593354
BankAge	35	51	32.74231	16	123

Source: Field Data (2022)

Notes: ROA is the return on assets, ROE is the return on equity, LDR is the loan-to-deposit ratio, EAR is the equity-to-assets ratio, BankGrth is Bank Growth, and BankAge represents the age of banks. Impairment values are in GHS'000. Obs

represent the number of observations, Min and Max indicate the minimum and maximum values, *M* represents the mean of the distribution, and *SD* is the standard deviation.

A total of 9 listed banks namely Ghana Commercial Bank, Cal Bank, Agricultural Development Bank, Republic Bank, Ecobank, Standard Chartered Bank, Access Bank, Trust Bank, and Société General Bank had available data on the study variables and hence, constituted the unit of analysis for the study. The number of observations recorded indicates that the dataset was an unbalanced one. As presented in Table 2, the descriptive statistics suggest that a positive mean (.0336364 and .1496175 respectively) for ROA and ROE was recorded over the study period, with high deviations of 3.21% and 16.45%, respectively. The lowest and highest ROA and ROE were reported as -.0469494 and .0883985 for ROA, and -.2735124 and .371751 for ROE. This is an indication that whereas some listed banks could achieve excess returns on both assets and equity, other listed banks end up using existing surpluses and contributions from equity holders.

Of the 9 listed banks surveyed, the average loan impairment recorded over the period was reported as GHS107,089,500 with a huge deviation (*SD*) of GHS92,585,780. The huge deviation could be attributed to the highest loan impairment (GHS406,904,000) recorded. This could explain why several banks collapsed during the 2017 banking sector clean-up. The minimum loan impairment recorded over the period was GHS9,611,000. Concerning LDR, the mean ratio was recorded as 0.6017004 (*SD* = 0.1899692), with 0.3341312 and 1.125193 as the lowest and highest loan-deposit ratios respectively. The average ratio of equity to assets for the period was 0.1483492 (*SD* = 0.0277497), with the minimum and maximum ratios being 0.0760431 and 0.2045211,

respectively. The descriptive statistics suggest that listed banks in Ghana may have somewhat low LDR and EAR.

In respect of leverage, the mean ratio of 0.8468233 ($SD = 0.0363894$) suggests that on average, the financing of listed banks is largely made up of long-term debt. The lowest and highest leverage ratios were 0.7144544:1 and 0.9239569:1 respectively. The average growth prospect of the listed banks over the period studied was 0.15571 with a high deviation of 0.1513379. The summary suggested that some listed banks could realise a deterioration in net interest income rather than positive growth. Of the 9 listed banks studied over the period, the mean age was approximately 35 years ($SD = 32$ years) with the youngest and oldest banks ageing 16 years and 123 years respectively.

4.2 Correlation Matrix

The study conducted an assessment of the relationship between the study variables as a way of ensuring that there existed no collinearity issue among the explanatory variables used. Ideally, explanatory variables need not highly correlate with each other. A threshold of 0.7 was employed in examining the collinearity of variables. Table 3 contains the correlation matrix. In addition to the correlation coefficients, the probability values of the correlation estimates (in parentheses) are also contained in Table 3 to reveal the statistical relevance of the estimates.

Both positive and negative relationships were spotted among the study variables. The significant relationships, however, included ROA and loan-to-deposit ratio ($\rho = -0.223$, $p < 0.05$), ROA and equity-to-assets ratio ($\rho = 0.251$, $p < 0.05$), equity-to-assets ratio and leverage ($\rho = -0.498$, $p < 0.001$), and leverage and bank growth ($\rho = -0.379$, $p < 0.001$). The high correlation ($\rho = 0.899$, $p < 0.001$) spotted between ROA and ROE was

not a problem because ROA and ROE were all dependent variables and as such, they were not contained in a single model. All other remaining relationships were statistically non-significant under the specified confidence level (5% significance level) of 95%. Overall, the results suggested that the explanatory variables were not highly correlated. None of the correlation coefficients exceeded the threshold of 0.7.

Table 3: Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) ROA	1.000							
(2) ROE	0.899*	1.000						
	(0.000)							
(3) Impairment	-0.194	-0.130	1.000					
	(0.086)	(0.254)						
(4) LDR	-0.223*	-0.194	0.019	1.000				
	(0.041)	(0.076)	(0.870)					
(5) EAR	0.251*	-0.015	-0.208	-0.212	1.000			
	(0.019)	(0.893)	(0.066)	(0.051)				
(6) leverage	-0.149	-0.035	0.142	0.066	-0.498*	1.000		
	(0.167)	(0.744)	(0.211)	(0.547)	(0.000)			
(7) BankGrth	0.000	0.036	-0.082	0.091	-0.017	-0.379*	1.000	
	(1.000)	(0.748)	(0.483)	(0.418)	(0.880)	(0.000)		

(8) BankAge	0.158	0.146	0.157	0.016	0.000	0.047	-0.124	1.000
	(0.145)	(0.178)	(0.166)	(0.888)	(0.997)	(0.667)	(0.260)	

Source: Field Data (2022)

Notes: ROA is the return on assets, ROE is the return on equity, LDR is the loan-to-deposit ratio, EAR is the equity-to-assets ratio, BankGrth is Bank Growth, and BankAge represents the age of banks.
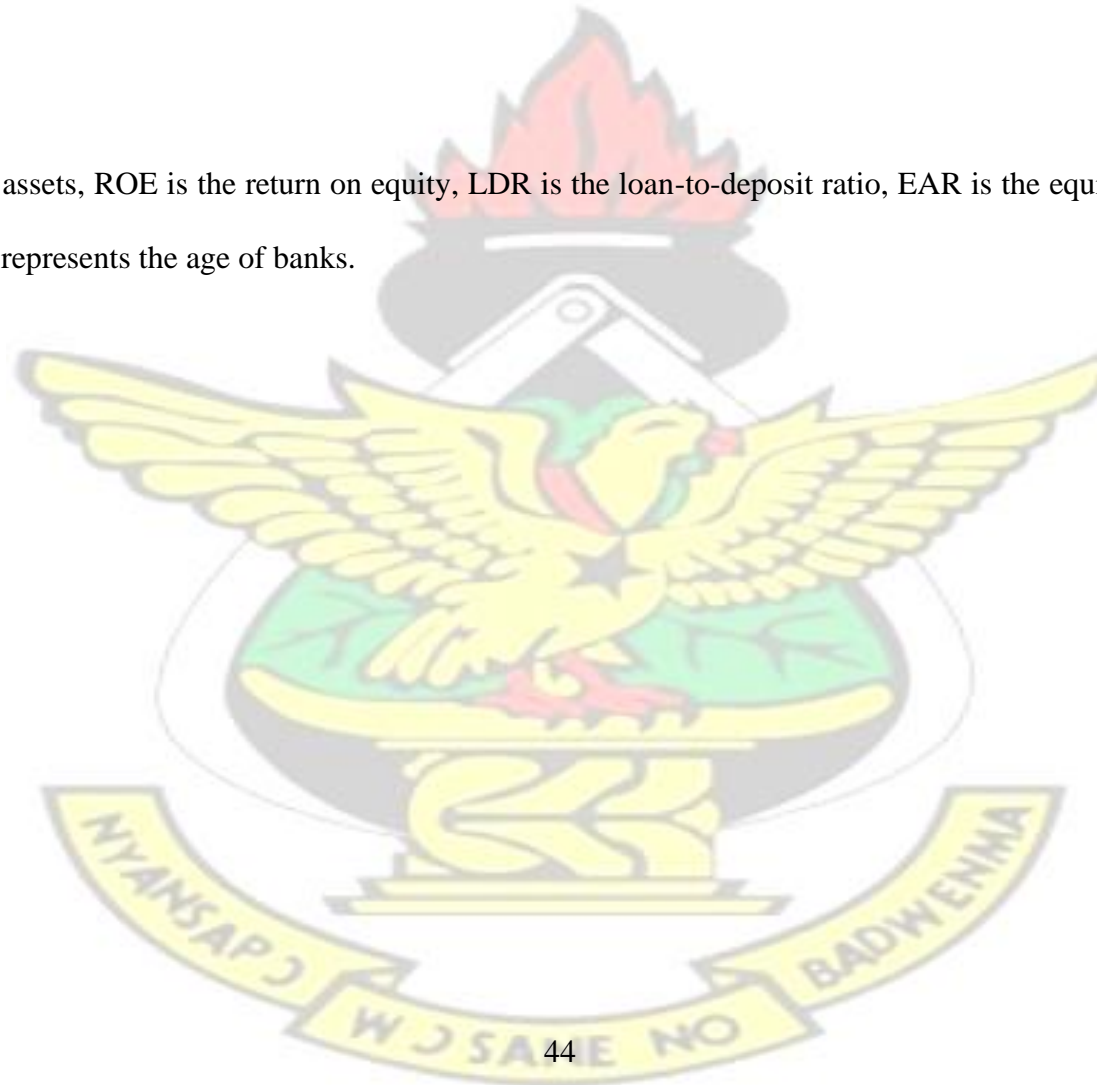
4.3 Variance Inflation Factor

In addition to the correlation matrix, the collinearity assessment of the study variables was confirmed with the test of the variance inflation factor (VIF). The results of the VIF test of multicollinearity are shown in Table 4.

Table 4: Variance Inflation Factor

Variable	VIF	1/VIF
leverage	1.60	0.624116
EAR	1.45	0.691555
BankGrth	1.27	0.785370
Impairment	1.07	0.935161
LDR	1.04	0.957106
BankAge	1.04	0.959792
Mean VIF	1.25	

Source: Field Data (2022)

Notes: ROA is the return on assets, ROE is the return on equity, LDR is the loan-to-deposit ratio, EAR is the equity-to-assets ratio, BankGrth is Bank Growth, and BankAge represents the age of banks.

The findings showed that multicollinearity does not exist because the VIF of each of the variables used ranged between 1.04 and 1.60. Furthermore, the mean of the VIF is below the 10 Tolerance value recommended by Kalnins (2018). This suggested that further estimations could contain all the explanatory variables in a single model.

4.4 Main Results

The regression outputs of the system GMM estimations were summarised in Tables 5, 6, and 7 in respect of the three proxies of CRM – loan-to-deposit, equity-to-assets, and non-performing loans, for all the performance measures – ROA and ROE. The diagnostics in terms of autocorrelation, Sargan, and Hansen J-tests, and the number of

instruments relative to the number of observations and cross-sections indicate that exogenous instruments were used in the study. Practically, the diagnostics indicate that the models for the study were well specified. Instrument proliferation was not a problem for all the models. The F-statistics that test the overall goodness-of-fit of models were all significant at 1% (***).

From Tables 5, 6, and 7, the lag-dependent variables for all the performance models were found to be positive and statistically significant at 1%. First, from Table 5, the lagged values of ROA and ROE could stimulate significant changes in their current values by 0.489 and 0.571 units respectively for ROA and ROE. Second, the results in Table 6 suggests that the lagged values of ROA and ROE could stimulate significant changes in their current values by 0.444 and 0.488 unit respectively for ROA and ROE. Finally, the results in Table 7 suggest that the lagged values of ROA and ROE could stimulate significant changes in their current values by 0.569 and 0.585 units respectively for ROA and ROE.

From these findings, therefore, the lagged (previous year's) values (performance levels) of the performance measures – ROA and ROE – could significantly influence the current performance of listed banks in Ghana. The findings emphasise the need for management and Board members of listed banks to efficiently manage current levels of performance to better influence subsequent performance. Proper management of current performance levels would facilitate the maximisation of shareholder wealth in the long term. Activities directed towards effective performance in present times are expected to reduce agency costs and also curtail information asymmetry.

Table 5: Regression Results for Non-Performing Loans

	(1)	(2)

Variables	ROA	ROE
L.ROA	0.569***	
	(0.127)	
L.ROE		0.585***
		(0.0949)
lnimpairment	-0.00120	-0.0215**
	(0.00262)	(0.00828)
leverage	-0.0798**	0.721***
	(0.0300)	(0.140)
BankGrth	0.000261	0.0521***
	(0.00450)	(0.0146)
lnbankage	-0.0169***	0.0517
	(0.00366)	(0.0356)
FSCleanupdummy	0.0111***	0.0381***
	(0.00345)	(0.0123)
Constant	0.145***	-0.523***
	(0.0242)	(0.122)
AR(1) [p-value]	0.027	0.243
AR(2) [p-value]	0.875	0.404
Sargan OIR	0.434	0.930
Hansen OIR	0.410	0.263
DHT for Instruments		
(a)GMM Instruments for levels		
H excluding group	0.349	0.400

	(1)	(2)
Diff(null, H=exogenous)	0.422	0.229
(b) IV(years, eq(diff))		
H excluding group	0.366	0.346
Diff(null, H=exogenous)	0.461	0.126
Fisher	4197.68***	2283.83***
Instruments	6	6
Observations	35	35
Number of Listed banks	9	9

Source: Field Data (2022)

Notes: Standard errors are in parentheses; ***, **, and * are the significance levels of 1%, 5%, and 10% respectively. ROA is the return on assets, ROE is the return on equity, lnimpairment is the natural logarithm of loan impairment, BankGrth is Bank Growth, and BankAge represents the age of banks.

Table 6: Regression Results for Loan-to-Deposit Ratio

	(1)	(2)
Variables	ROA	ROE
L.ROA	0.489***	
	(0.0568)	
L.ROE		0.571***
		(0.0544)
lnLDR	0.00610***	0.0428**
	(0.00122)	(0.0164)

leverage	0.0259	0.324*
	(0.0152)	(0.183)
BankGrth	0.00783*	0.0528***
	(0.00429)	(0.00763)
lnbankage	-0.00990***	-0.0696***
	(0.00234)	(0.0177)
FSCleanupdummy	0.0114***	0.0370***
	(0.00193)	(0.00706)
Constant	0.0274	0.0254
	(0.0184)	(0.119)
AR(1) [p-value]	0.030	0.082
AR(2) [p-value]	0.642	0.105
Sargan OIR	0.724	0.957
Hansen OIR	0.380	0.528
DHT for Instruments		
(a)GMM Instruments for levels		
H excluding group	0.681	0.826
Diff(null, H=exogenous)	0.246	0.331
(b) IV(years, eq(diff))	0.314	0.438
H excluding group	0.647	0.989
Diff(null, H=exogenous)		
Fisher	1215.06***	2.73e+06***
Instruments	6	6
Observations	35	35
Number of Listed banks	9	9

Source: Field Data (2022)

Notes: Standard errors are in parentheses; ***, **, and * are the significance levels of 1%, 5%, and 10% respectively. ROA is the return on assets, ROE is the return on equity, lnLDR is the natural logarithm of loan-to-deposit ratio, BankGrth is Bank Growth, and BankAge represents the age of banks.

Table 7: Regression Results for Equity-to-Asset Ratio

	(1)	(2)
Variables	ROA	ROE
L.ROA	0.444***	
	(0.0993)	
L.ROE		0.488***
		(0.0526)
lnEAR	0.0115	0.0159
	(0.0152)	(0.0819)
leverage	0.0799	0.270
	(0.0705)	(0.371)
BankGrth	0.00877***	0.0585***
	(0.00251)	(0.0148)
lnbankage	-0.00854***	-0.0123
	(0.00283)	(0.00854)
FSCleanupdummy	0.0100***	0.0422***
	(0.00199)	(0.00832)
Constant	-0.00171	-0.111

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	(0.0342)	(0.149)
AR(1) [p-value]	0.012	0.091
AR(2) [p-value]	0.660	0.478
Sargan OIR	0.319	0.457
Hansen OIR	0.540	0.269
DHT for Instruments		
(a)GMM Instruments for levels		
H excluding group	0.944	0.636
Diff(null, H=exogenous)	0.301	0.166
(b) IV(years, eq(diff))		
H excluding group	0.456	0.255
Diff(null, H=exogenous)	0.794	0.338
Fisher	6077.80***	273.97***
Instruments	6	6
Observations	35	35
Number of Listed banks	9	9

Source: Field Data (2022)

Notes: Standard errors are in parentheses; ***, **, and * are the significance levels of 1%, 5%, and 10% respectively. ROA is the return on assets, ROE is the return on equity, lnEAR is the natural logarithm of equity-to-assets ratio, BankGrth is Bank Growth, and BankAge represents the age of banks.

4.5 Hypotheses Testing

H_{01}: no significant relationship exists between non-performing loans and the profitability of listed banks in Ghana

Table 5 presents the results of the relationship between non-performing loans (NPLs) and bank performance. H_{01} tested whether NPLs had a significant relationship with bank performance. The study found an inverse relationship between NPLs and firm performance (for ROA, $\beta = -0.00120$, $p > 0.05$; for ROE, $\beta = -0.0215$, $p < 0.05$). Specifically, a negative and significant relationship was found between NPLs and ROE. The negative relationship between NPLs and ROA was statistically non-significant. The finding implies an adverse implication of NPLs on the performance of listed banks in Ghana. The study finds insufficient evidence to retain H_{01}. Consequently, the study rejects the hypothesis that no significant relationship exists between NPLs and bank profitability.

H_{02}: no significant relationship exists between the loan-to-deposit ratio and profitability of listed banks in Ghana

Table 6 presents the results of the relationship between loan-to-deposit ratio (LDR) and bank performance. H_{01} tested whether LDR had a significant relationship with bank performance. The study found a direct relationship between LDR and firm performance (for ROA, $\beta = 0.00610$, $p < 0.01$; for ROE, $\beta = 0.0428$, $p < 0.05$). Specifically, a positive and significant relationship was found between LDR and both ROA and ROE. The finding implies a positive impact of LDR on the performance of listed banks in Ghana. Increases in loans relative to deposits accrue more returns on assets and equity for listed banks. The study finds no evidence in support of H_{02}. Therefore, the study rejects the hypothesis that no significant relationship exists between LDR and bank profitability.

H₀₃: there is no significant relationship between the equity-to-assets ratio and profitability of listed banks in Ghana

Table 7 presents the results of the relationship between equity-asset ratio (EAR) and bank performance. H_{03} evaluated whether EAR had a positive but statistically non-significant relationship with bank performance. The study found a direct but non-significant relationship between EAR and firm performance (for ROA, $\beta = 0.0115$, $p > 0.05$; for ROE, $\beta = 0.0159$, $p > 0.05$). Specifically, a positive but insignificant relationship was found between EAR and both ROA and ROE. The study finds enough evidence in support of H_{03}. Therefore, the study maintains the hypothesis that no significant relationship exists between EAR and bank profitability – the positive relationship revealed possessed no statistical significance.

4.6 Discussion

The study examined the relationship between CRM and the performance of listed banks in Ghana. Stimulating findings were discovered from the systems GMM estimations. A discussion of these findings is made in this section.

4.6.1 Non-Performing Loans and the Profitability of Listed Banks

The study found a significant negative influence of NPLs on the profitability of listed banks in Ghana. This finding rests well with several studies like Saba *et al.* (2012) Osuka and Amako (2015), Etale *et al.* (2016), Ugoani (2016), and Taiwo *et al.* (2017). Saba *et al.* (2012), for instance, analysed the determining factors of NPLs among banks in the US and found that real aggregate loans had a direct significant influence on NPLs. Also, in Nigeria, Etale *et al.* (2016) examined the connection between NPLs and the performance of banks from 1994 to 2014 and found that in the long term, greater proportions of NPLs diminish the performance of banks. A similar observation was

disclosed by Ugoani (2016). Osuka and Amako (2015) revealed that CRM serves as a crucial determinant of the profitability and performance of banks.

The study also finds support for a Ghanaian study by Asantey and Tengey (2014) who assessed the influence bad loans had on the lending potentials and performance of Ghanaian banks. The study covered datasets between the period 2008 and 2013 and revealed a high inverse connection between bad loans and the lending potential of banks. A comparable relationship was found between bad loans (NPLs) and both net profit and return on investment of listed banks.

This result implies that uncontrolled levels of NPLs lead listed banks to run into financial difficulties which result in poor financial performance in the long term. Thus, to manage risks efficiently, the levels of NPLs need to be regularly monitored and kept under control. As espoused by Ayunku and Uzochukwu (2020), an increase in the likelihood of loan defaults means a deterioration in the asset quality of banks, representing low profitability. To improve profitability, therefore, loan defaults must be contained and well-managed by listed banks. The fundamental cause of the failure and collapse of most banking institutions springs from their credit principles and style of management (Batra, 2003; Boateng, 2019). This means that to avoid distress, failure, and/or collapse, listed banks in Ghana need to develop effective policies directed toward reducing NPLs.

4.6.2 Loan-to-Deposit Ratio and Profitability of Listed Banks

Moreover, concerning the loan-to-deposit ratio (LDR) and bank profitability, the study found a positive relationship between LDR and the profitability of listed banks in Ghana. This observation was found to be commensurate with the conclusions of Hassan and Bashir (2003), Naceur (2003), Athanasoglou *et al.* (2006), Vong and Chan (2009),

and Ayunku and Uzochukwu (2020) when they all examined CRM and banks' profitability. A general conclusion arrived indicates that a low LDR signals that the bank is not realising optimal returns whereas a high LDR is an indication of somewhat optimal yields (returns). This result is also similar to the work of Mot *et al.* (2012) which found that capital risk, bad debts (credit risk), and liquidity influence bank performance, proxied by ROA. In the same study, only liquidity risk was revealed to influence performance, when proxied by ROE.

A confirmation of the findings of the study concerning LDR is gotten from Boateng's (2019) study of CRM and the performance of Ghanaian banks that employed different proxies for CRM. Inter alia, Boateng found that bank liquidity significantly influences the performance of banks. Since Ayunku and Uzochukwu (2020) suggest that an effective measure of liquidity of banks is the LDR, it is necessary for listed banks to continuously improve the LDR. A continuous improvement of the LDR is expected to influence profitability among listed banks in Ghana – because a low LDR signals that the bank is not realising optimal returns whereas a high LDR is an indication of higher returns.

4.6.3 Equity-to-Assets Ratio and Profitability of Listed Banks

As regards the equity-to-asset ratio (EAR), the study found a positive but statistically non-significant relationship between EAR and the profitability of listed banks in Ghana. Generally, the positive relationship, though non-significant, is in line with Athanasoglou *et al.* (2006) who examined the equity-to-assets ratio and profitability of banks in Southern Europe and found a significant positive relationship between EAR and bank profitability. According to Ayunku and Uzochukwu (2020), the EAR is measured as the worth of an entity's equity as a fraction of the worth of its assets so a high ratio suggests that a greater proportion of the entity is owned by shareholders, and

a low ratio implies that the entity is highly indebted. It is further suggested that the EAR has a positive co-movement with bank profitability. Abundant capital implies that there is less or no need for sourcing external funds, even though when sourced, it would be available at a lower required rate of return (Ayunku and Uzochukwu, 2020).

4.6.4 Control Variables and Bank Profitability

In addition to the main explanatory variables (NPLs, LDR, and EAR), the study controlled for the effect of relevant predictors of bank profitability such as bank growth, bank age, leverage, and more importantly, financial sector clean-ups (dummy variable).

A general finding from the study suggests that bank growth, measured by year-on-year changes in net interest income (revenue), has a significant direct effect on ROA and ROE. This is in line with Boahene *et al.*'s (2012) study in which the connection between credit risk and bank profitability from 2005 to 2009 was in the context of the fixed effect analysis. They found a positive connection between the growth of banks and bank profitability. In addition, the findings in this study suggest that firm age is inversely related to firm performance, proxied by ROA and ROE. The intuition is that listed banks may lose strategies and tactics as they grow old in the long run and may witness more cash outflow than inflows (Marfo-Yiadom and Agyei, 2011). The effect of capital structure was somehow found to be mixed, even though it was positive in some cases but non-significant. The implication is that listed banks in Ghana could benefit from an optimal capital structure.

Finally, on the control variables, a positive and significant influence of financial sector clean-ups was revealed on bank profitability. This finding suggests that the effectiveness of the financial management practices of listed banks is enhanced when governments and regulatory bodies roll out measures to improve the financial system.

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Listed banks in Ghana respond positively to financial sector clean-ups. The intuition is that a clean financial system facilitates the efficient flow of funds from surplus spending units to deficit spending units within an economy. In this regard, listed banks tend to and are expected to effectively facilitate the flow of funds in an economy with a sound financial system.

4.7 Chapter Summary

Following the system dynamic GMM estimations, the presentation and discussion of results from data gathered were done in this Chapter. The discussion was twofold. The first part discussed issues relating to the descriptive profile of listed banks, while the second part related to the results from inferential statistics.
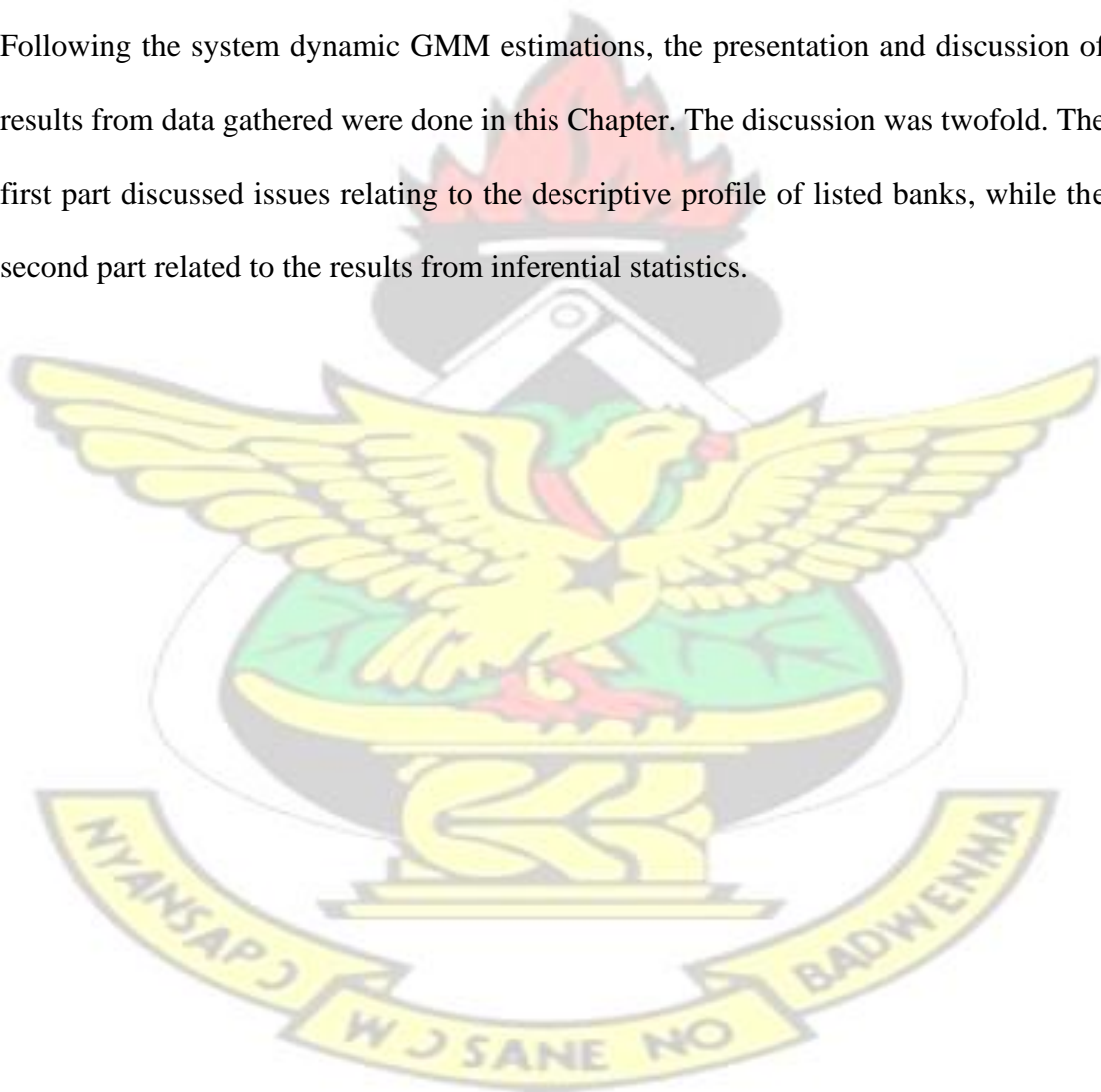
CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.0 Introduction

The chapter entails summarised discoveries, conclusions and recommendations derived in the course of the study. The findings encapsulate or highlight the key issues that were discovered during this research. The chapter also comprises some recommendations that could help listed banks better their performance.

5.1 Summary of Findings

The data used in the study were processed and analysed under the systems GMM framework. The following key findings were reported.

First, the study found a significant negative relationship between NPLs and ROE. Concerning ROA, the negative relationship revealed was insignificant. This means that NPLs have a detrimental effect on the profitability (notably, ROE) of listed banks in Ghana. Second, another finding revealed in the study suggests a positive and significant relationship between LDR and both ROA and ROE. That is, LDR positively influences the profitability of listed banks in Ghana. Third, a positive but insignificant relationship was found between EAR and both ROA and ROE. Among listed banks in Ghana, the study found no significant relationship between EAR and profitability, proxied by ROA and ROE.

Furthermore, financial sector clean-up was found to be directly and significantly related to bank profitability. That is, the study found listed banks to positively respond to clean-ups in the financial sector. Lastly, bank growth was found to be a significant predictor of bank profitability, proxied by ROA and ROE, however, bank age proved to be

inversely related to the profitability of listed banks in Ghana. Leverage was found to have mixed relationships with bank profitability.

5.2 Conclusion

The study concludes that uncontrolled levels of credit risk, particularly NPLs, would lead listed banks into financial difficulties which would further result in poor profitability or financial performance in the long term. The study, also, concludes that a continuous improvement of the LDR would improve profitability among listed banks in Ghana. Listed banks can increase profitability by enhancing their LDRs. Moreover, a consistent EAR would improve the profitability of listed banks in Ghana. Listed banks can increase profitability by maintaining a consistent EAR. The study further concludes that listed banks in Ghana respond positively to financial sector clean-ups. The effectiveness of the financial management practices of listed banks is enhanced when governments and regulatory bodies roll out measures to improve the financial system. With a sound financial system, efficient fund allocation would be facilitated by listed banks.

5.3 Recommendations

The following recommendations were deemed relevant following the key findings of the study.

1. For listed banks to manage risks efficiently, the levels of NPLs need to be regularly monitored and kept under control. An increase in the likelihood of loan defaults means deterioration in asset quality of banks, representing low profitability. Therefore, to improve profitability, loan defaults must be contained and well-managed by listed banks.

2. Listed banks should roll out policies that facilitate the regular improvement of the LDR because a low LDR signals that the bank is not realising optimal returns whereas a high LDR is an indication of higher returns.

3. Since a high EAR suggests that a greater proportion of the entity is owned by shareholders and a low ratio implies that the entity is highly indebted, the study, additionally, recommends the management of listed banks to efficiently utilise existing assets to generate additional equity for owners.

4. Furthermore, policymakers and governments should put in place measures to ensure a clean financial system that would enable listed banks to facilitate the efficient flow of funds from surplus spending units to deficit spending units within the economy.

5.4 Recommendations for Further Studies

Since the study was bounded by some limitations, future studies could capitalise on these limitations. Future research could pay attention to listed banks that have data for more periods than was utilised in this study. In addition, credit risk management could be proxied by different variables to determine their impact on bank profitability.

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APPENDIX

List of Banks

No.	Name of Bank
1.	GCB Bank
2.	Ecobank Ghana
3.	Standard Chartered Bank

4.   Société Générale Ghana

5.   Agricultural Development Bank

6.   CAL Bank Ghana

7.   Republic Bank