KWAME NKRUMAH UNIVERSITY OF SCIENCE AND TECHNOLOGY

THE EFFECT OF CREDIT MANAGEMENT ON PROFITABILITY IN GHANAIAN BANKS -THE CASE OF COMMERCIAL BANKS IN GHANA

KNUST

By

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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 which 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 acknowledgement is made in the thesis.

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DEDICATION

This study is dedicated to my children; Elsie, Ella, Ellaine, and Elvis, and especially my beautiful wife Emilia. You have been a listener and a supporter of all my endeavours, your partnership, steadfastness, and love sustain me.

To my special friend, course mate, and colleague Comfort Gyimah for immense support in many diverse ways. Also to all family and friends.

Lastly, I dedicate to all mighty God that guides me, gives strength, power of mind, protection, and skills.



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ABSTRACT

This study aims to investigate the effect of credit management on the profitability of Ghanaian banks. Both descriptive and explanatory research design was used to investigate the relationship between variables. The population of the study consists of commercial banks operating in Ghana. Specifically, nine commercial banks listed on the Ghana Stock Exchange (GSE). Secondary data were extracted from the annual financial reports of the banks and the Bank of Ghana (BoG) database. Descriptive statistics were used to give a general overview of the data. The study's hypotheses were tested using a panel regression analysis (random effect model). The findings showed that non-performing loans have a negative significant effect on banks' profitability, however, provision of loan loss and loan-to-value have no significant effect on banks profitability. The findings also showed that the banks have to a greater extent adopted

Basel Accords and other regulatory frameworks for credit risk management. It is recommended that the banks review and adjust provisioning procedures on a regular basis to appropriately represent anticipated credit losses.

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CHAPTER ONE

INTRODUCTION

1.0 Background of the Study

The role of credit management in Ghanaian banks is a crucial area of study due to its impact on the financial stability of the banking sector and the economy at large. Credit management involves a set of processes and procedures that banks use to ensure that they lend to borrowers who are creditworthy and can repay their loans. The efficient management of credit is a critical function of banks, as it determines their profitability, liquidity, and solvency. According to Anyanwu (2017), credit management is a vital tool for banks to manage their risks and ensure that they have a healthy loan portfolio. It involves assessing the creditworthiness of borrowers, setting credit limits, monitoring loan accounts, and taking remedial action when necessary. However, in recent years, the banking sector in Ghana has experienced a surge in non-performing loans (NPLs), which has led to a decline in profitability and liquidity. The Bank of Ghana (2021) reported that the NPL ratio of banks in Ghana increased from 13.6% in December 2019 to 18.0% in December 2020, which is a cause for concern.

Effective credit management is critical to the success of any banking institution as it enables the bank to identify, measure, and manage credit risk, which is an essential element of the banking business (Achibra, 2017). The effective management of credit risk enables banks to reduce the risk of loan defaults, manage their loan portfolio efficiently, and improve their profitability and solvency. According to Chijoriga (2018), credit management practices are essential in mitigating the risk of loan defaults and improving the overall performance of the banking sector. Therefore, banks should adopt effective credit management practices to ensure the stability and sustainability of the financial system. One critical aspect of credit management is credit risk assessment, which involves evaluating the creditworthiness of borrowers before approving loans. Banks in Ghana need to improve their credit risk assessment processes to ensure that they lend to borrowers who can repay their loans. According to Adomako et al. (2021), banks in Ghana need to adopt more robust credit risk assessment procedures that incorporate both qualitative and quantitative factors to ensure the accuracy and effectiveness of the process.

Another critical component of credit management is monitoring loan accounts to ensure that borrowers comply with the terms of their loans. Banks need to have effective monitoring systems in place to identify early warning signs of potential loan defaults and take remedial action to mitigate the risk. According to Amankwah-Amoah et al. (2021), banks in Ghana need to improve their loan monitoring processes by investing in modern technology, training staff, and adopting best practices to reduce the risk of loan defaults. Therefore, it is imperative to investigate the role of credit management in Ghanaian banks and its impact on their financial performance. Several studies have examined credit management practices in banks. For instance, Anyanwu and Alabar (2019) investigated credit management practices in Nigerian banks and found that credit risk assessment, monitoring, and recovery are essential components of effective credit management.

Similarly, Alhassan and Mensah (2020) explored the relationship between credit risk management and financial performance in Ghanaian banks and found that banks with sound credit risk management practices had higher profitability and liquidity ratios. This indicates that effective credit management practices can contribute to the financial stability of banks and the economy as a whole. Additionally, the Bank of Ghana has implemented several regulatory requirements to ensure that banks comply with sound credit management practices. These include the Credit Reference Bureau Regulations, the Borrower and Lender Act, and the Loan Classification and Provisioning Guidelines. Compliance with these regulations is crucial to maintaining the health of the banking sector and the overall economy. Despite the importance of credit management in Ghanaian banks, limited studies have been conducted on this topic. Therefore, this study aims to fill the gap in the literature by investigating the credit management practices of Ghanaian banks and their compliance with regulatory requirements, and how they affect bank profitability.

1.1 Problem Statement

The management of credit risk is a fundamental aspect of banking operations in any market, but it is particularly crucial in emerging markets like Ghana where credit markets are still developing. Banks in Ghana face a unique set of challenges in managing credit risk due to the high level of informality in the economy, limited access to credit information, and the prevalence of cash-based transactions (Antwi and OseiTutu, 2019). Therefore, Ghanaian banks need to implement effective credit management strategies to ensure that they can minimise credit losses, maintain adequate capital levels, and sustain profitability.

Empirical studies have shown that credit risk management plays a significant role in the performance of Ghanaian banks. For instance, a study by Alhassan and OwusuFrimpong (2018) found that credit risk management significantly affects the profitability of banks in Ghana. The study analysed data from 17 banks in Ghana and found that credit risk management had a positive effect on bank profitability. The study also found that loan loss provisions and capital adequacy ratios were significant indicators of credit risk management. Another study by Amoako et al. (2020) investigated the relationship between credit risk management and financial stability in

Ghanaian banks. The study used data from 28 banks in Ghana and found that credit risk management had a significant positive effect on financial stability. The study also found that credit concentration and loan loss provisions were significant factors in credit risk management.

Furthermore, a study by Antwi and Osci-Tutu (2019) examined the impact of credit risk management on loan performance in Ghanaian banks. The study analysed data from 24 banks in Ghana and found that credit risk management significantly affects loan performance. The study also found that loan pricing, collateral requirements, and credit scoring were significant factors in credit risk management. Despite the importance of credit management in Ghanaian banks, there remains a significant gap in our understanding of how these institutions approach this critical function and what impact their credit management strategies have on their overall performance. Previous (e.g., Chijoriga, 2018; Antwi and Osei-Tutu, 2019) studies have identified several theoretical frameworks for understanding credit risk management, such as the Basel Accords, which provide a regulatory framework for assessing credit risk, and the Capital Asset Pricing Model (CAPM), which is often used to analyse the relationship between credit risk and financial performance. However, there is a lack of empirical research on the application of these frameworks in the context of Ghanaian banks and on the specific credit management strategies used by these institutions.

Therefore, this study aims to investigate the role of credit management in Ghanaian banks by using a combination of empirical data and theoretical frameworks. The study will examine the credit management practices of a sample of Ghanaian banks, and analyse the relationship between these practices and the financial performance of these institutions. By conducting this study, the study hopes to provide insights into the credit management practices of Ghanaian banks and to identify the factors that influence their credit management decisions. The study will also assess the extent to which these banks have adopted the Basel Accords and other regulatory frameworks and provide recommendations for improving credit risk management in these institutions.

1.2 Objectives of the Study

This study aims to investigate the effect of credit management on the profitability of Ghanaian banks, with the following specific objectives;

- 1. To investigate the effect of Non-Performing Loans on the profitability of commercial banks in Ghana.
- 2. To examine the effect of Provision for loan losses on the profitability of commercial banks in Ghana.
- **3.** To investigate the impact of Loan-to-Value (LTV) ratios on the profitability of commercial banks in Ghana.
- 4. To evaluate the extent to which Ghanaian banks have adopted the Basel Accords and other regulatory frameworks for credit risk management.

1.3 Research Question

- 1. What is the effect of Non-Performing Loans on the profitability of commercial banks in Ghana?
- 2. What is the effect of Provision for loan losses on the profitability of commercial banks in Ghana?
- 3. What is the impact of Loan-to-Value (LTV) ratios on the profitability of commercial banks in Ghana?
- 4. To what extent have Ghanaian banks adopted the Basel Accords and other regulatory frameworks for credit risk management?

1.4 Significant of the Study

Understanding the relationship between non-performing loans (NPLs) and profitability: The study provides insight into the impact of NPLs on the profitability of commercial banks in Ghana. This can help banks and regulators to better understand the risks associated with lending and develop strategies to mitigate these risks. Assessing the impact of provisions for loan losses on profitability: The study examines the effect of provisions for loan losses on the profitability of commercial banks in Ghana. This can help banks to determine appropriate levels of loan loss provisions and regulators assess the adequacy of banks' provisions for potential loan losses. Evaluating the impact of LTV ratios on profitability: The study investigates the impact of LTV ratios on the profitability of commercial banks in Ghana. This can help banks and regulators to better understand the risks associated with lending and develop strategies to mitigate these risks. Evaluating the extent of regulatory compliance: The study evaluates the extent to which Ghanaian banks have adopted the Basel Accords and other regulatory frameworks for credit risk management. This can help regulators to identify areas where compliance can be improved and help banks adopt best practices for credit risk management.

Finally, the findings of this study can also serve as a foundation for future research on credit management in emerging markets, particularly in sub-Saharan Africa. As the economies of these regions continue to grow and develop, credit risk management will likely become an increasingly important area of study. By providing a better understanding of the credit management practices of Ghanaian banks, this study can help inform future research on credit risk management in other emerging markets.

Additionally, the recommendations provided in this study for improving credit risk management can serve as a starting point for future research aimed at developing more effective credit management strategies in these regions.

1.5 Scope of the Study

The scope of the study is focused on credit management practices and their impact on bank profitability in Ghanaian commercial banks. The study will be limited to a sample of Ghanaian commercial banks and will include quantitative data collection methods. The theoretical frameworks that will be used in the study include the Basel Accords and the Capital Asset Pricing Model (CAPM). The study will also assess the extent to which these banks have adopted the Basel Accords and other regulatory frameworks. The recommendations that will be provided will be specific to Ghanaian banks and may not be generalisable to other countries or contexts.

1.6 Summary of Methodology

The study aims to investigate the effect of non-performing loans (NPLs), provisions for loan losses, and loan-to-value (LTV) ratios on the profitability of commercial banks in Ghana. The study used panel data from 2010 to 2021. The methodology for the study involves an explanatory design, which aims to identify the causal relationship between the independent variables (NPLs, provisions for loan losses, and LTV ratios) and the dependent variable (profitability). The study used both fixed and random effect estimation techniques to account for individual bank-specific effects and time-specific effects. Fixed effect estimation is used to control for bank-specific effects that are constant over time, while random effect estimation is used to account for both bankspecific and time-specific effects that vary across time. By using both techniques, the study can test the robustness of the findings and provide more reliable estimates of the impact of the independent variables on profitability.

1.7 The Organisation of the Study

Following the approved criteria by the department, this study will be organised into five chapters. Chapter One presents the introduction to the entire study. Thus, it encompasses the background of the study, a statement of the problem, the purpose of the study with specific objectives, the significance of the study, delimitations, limitations, and the organisation of the study. The study also presents the review of literature in chapter two to give support to the study and also to help answer the research questions guiding the study. Furthermore, chapter three presents the methods employed in carrying out the study. Thus, the chapter focuses on the research design, the population of the study as well as the sampling procedure, data collection instruments, and procedures, data processing and analysis, and the ethical issues of the study. Additionally, the study presents the results and discussions for the data analysis in chapter four in line with the research questions. Finally, chapter five summarises the entire study by providing the main findings and drawing conclusions based on the findings. Also, recommendations and suggestions for further studies are discussed at the end of the chapter.



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CHAPTER TWO

LITERATURE REVIEW

2.0 Introduction

The purpose of this chapter is to examine previous research efforts that have been done on topics related to this present study. It has been broken down into three sections: the theoretical review, the empirical review, and the conceptual framework. The theoretical review is an examination of theories that are relevant to the subject. The results from earlier research efforts that are either directly or indirectly relevant to this study were described in the empirical review. In conclusion, but certainly, not least, the conceptual framework illustrated how the study variables and goals were investigated.

2.1 Conceptual Review

2.1.1 Credit Risk Management

The concept refers to the measures taken by financial institutions to limit their vulnerability to loss. Risk management entails the following primary actions: recognising risks, analysing and assessing them, auditing and monitoring them, and then treating or controlling them (Bikker and Metzmakers, 2005; Buttimer, 2001). The process of identifying, measuring, monitoring, and controlling the potential for a borrower to default on a loan is what is meant by the term credit risk management (Aduda and Obondy, 2021; Akomeah, Agumeh and Siaw, 2020; Orichom and Omeke, 2021).

Credit risk management is a framework for monitoring the financial stability of the banking industry, which is used both internally by bank administration and outside agencies such as the Central Bank's regulatory framework (Herzuah, 2020). Needs for asset diversification and the preservation of a balance between returns and risk are at the heart of such plans. The health of a bank's finances may be gauged by how well it

manages its credit risk (Boateng, 2019). Credit risk, as defined by Han (2015), is the danger of a financial institution losing money due to nonpayment by a borrower.

The two basic forms of credit risk are default risk and portfolio risk (Boateng and Dean, 2020). Default risk is also known as credit default risk. The portfolio is subject to risks that are both inherent and the result of concentration. Variables both internal and external to the bank might contribute to the existence of credit risk in the loan portfolio of the bank. The term "external effects" refers to factors that are not directly controlled by an organisation, such as economic circumstances, stock market volatility, interest and exchange rate variations, trade barriers, economic penalties, and government policies. Inherent issues include excessive reliance on collateral and low-risk pricing, inadequate assessment, inadequate lending restrictions for credit officers and credit committees, inadequate post-disbursement monitoring, and a lack of a review mechanism as well as post-disbursement monitoring. All of these issues are interconnected and contribute to the overall problem.

At its foundation, credit risk is the uncertainty that results from not knowing whether or not a counterparty will be able to or willing to satisfy his or her contractual commitments. In a synchronised fashion, Masheta (2019) presented an argument stating that credit risk is the potential for a mismatch in net revenue as a result of a loan not being paid on time or at all that has been issued to consumers. Credit risk management encompasses a variety of distinct subfields. This study, however, conceptualises credit risk as non-performing loans, loan loss provisions, and loan-to-value ratios.

2.1.1.1 Non-Performing Loans

The loan's status is considered delinquent if either the interest or principal payment is more than 90 days past due, or if the interest payment is late but will no longer be made, and is considered a non-performing loan by the International Monetary Fund (IMF) (International Monetary Fund, 2019). Once again, a non-performing loan is one that has passed its due date yet has some principal balance remaining to be paid (Bholat et al, 2016). The precise meaning is determined by the specifics of the loan. Most Ghanaian banks recorded massive bad debts in 2009 and at the beginning of 2010, which negatively impacted the efficiency of the country's financial intermediaries (Akomeah, Agumeh and Siaw, 2020). A bank's credit risk management can be evaluated based on the percentage of its loans that are considered non-performing. The difficulty with nonperforming loans is that they have a significant impact on how banks determine interest rates, forcing borrowers who make their payments to subsidise defaulters (Njoku et al., 2017). The stability of the financial sector depends critically on healthy and continuous profitability. The pressing need to reduce credit risk and the phenomena of non-performing loans stems from the fact that, even if solvency is strong, low profitability reduces a bank's capability to absorb negative shocks, which in turn affects solvency.

2.1.1.2 Loan Loss Provision

Banks incur a non-cash cost known as Loan Loss Provision (LLP) if they anticipate loan defaults in the future (Ajekwe, Ibiamke and Silas, 2017; Zulfikar and Sri, 2019). Financial institutions do count on the fact that certain borrowers will be unable to keep up with their loan payments. Thus, financial institutions must account for this cost as a deduction when determining their pre-tax profits (Strásk and Hwang, 2019). In the event of a default, this protects a bank's capital and solvency. The annual loan loss provision provided is proportional to the level of risk associated with the bank's loan portfolio. Loan loss provisions are smaller for banks that make fewer riskier loans than those that make more. Banks' ability to absorb loan losses has a significant impact on their bottom line. The loan loss provision of well-managed banks is seen to be smaller, which benefits the banks financially (Comptroller's Handbook). The identification of risks, followed by assessments and measurements, monitoring and controls are the steps that make up the progression of credit risk management in the banking business (Sleimi, 2020; Shair et al., 2021). It involves the identification of possible risk factors, the calculation of the consequences and impact of those factors, and the monitoring of those factors.

2.1.1.3 Loan-to-Value Ratios

One of the most popular tools for gauging financial leverage and evaluating credit risk is the loan-to-value (LTV) ratio, which is simply the size of the loan expressed as a percentage of the value of the collateral (Fuller, 2015). When the LTV ratio rises, so does the credit risk, because the property bought by the borrower is the security for the loan. There are two main justifications. First, the likelihood of negative equity (when the value of the property falls below the amount still owed on the mortgage) rises as LTV rises (Bian, Lin and Liu, 2018). This increases the likelihood of defaults. Second, if the LTV ratio is too high, the lender may not be able to recoup their losses from a foreclosure sale of the collateralised property to repay the loan total, delinquent payments, and other fees associated with the foreclosure process.

2.1.2 Bank Profitability

Using ratios, financial performance can be measured in a variety of methods. These include measures of profitability, liquidity, asset management, and solvency (Doorasamy, 2016). Profitability is the most prevalent indicator of bank performance. A high profitability ratio signifies excellent financial performance. Return on Assets (ROA), Return on Equity (ROE), and Tobin's Q.

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Investors, stakeholders, and the economy as a whole all have a vital interest in the profitability of banking institutions. Investors are often concerned with whether or not their investments are profitable. A bank's efficiency may be measured by how well it is able to achieve its objectives using the resources it has available to it. A bank's performance review is a regular and methodical assessment of how well the financial institution has met its objectives (Olalekan, Olumide and Irom, 2018). This is why return on assets is employed as a metric in the research. This ROA is most reliable since it reveals how productively a bank makes use of its entire assets, making it a proxy for efficiency. Profitability is a metric used to evaluate a company's success by analysing its revenue, costs, and the amount of money it makes in comparison to the amount it puts into the company (Yegon et al, 2014). The three most often cited indicators of a company's financial health are:

Return on Assets (ROA):

A bank's ROA is equal to its net income after taxes divided by its total assets. It is used as a comparative indication of a bank's profitability relative to its peers. A bank's asset mobilisation efficiency is quantified by this metric (Pathak, Gurung and Magar, 2022). The return on assets (ROA) is a measure of a company's profitability that is calculated by splitting its annual profit by its total assets and represented as a percentage. Profit after tax / total assets is the formula for return on investment. A company's profitability is quantified in terms of its return on assets (ROA). The bank's ability to manage its assets well is reflected in a high ROA. Yet, a low ROA reflects poor asset use, which drags down a bank's performance and profitability. If a bank improves its profit margins or its asset turnover, the return on assets will rise (Islam, 2014).

Return on Equity (ROE):

The concept is the most critical indicator of a bank's success. It is the proportion of retained earnings paid back to stockholders. It shows how much profit a corporation or bank makes off of shareholder money. It is computed as a percentage and expressed as such. After accounting for all costs and taxes, it's a measure of how much money is left over for shareholders (VanHorne, 2005). In business, this is an indication of success. The bank's profitability has an effect on the return on equity. Return on equity is a measure of how profitable a bank is relative to its total equity (Merritt, 2018). The bank's financial leverage or indebtedness also impacts ROE. When a bank borrows money, it increases its liquid assets, giving it access to more resources that might increase its revenue and profitability (Merritt, 2018). Asset turnover also plays a role in this. Turnover rises when more money is made from the same assets or when fewer assets are used to make the same amount of money. When that happens, management becomes more efficient which boosts the return on equity and the bank's bottom line (Merritt, 2018).

Tobin Q

Tobin's Q theory is built around the idea that a company's worth may be judged as either "overvalued" or "undervalued" by comparing the company's current market value to the cost of replacing the company's assets. To put it another way, the Tobin Q investing model employs an indicator for verifying the precision of market valuation. The ratio of the market value of an asset to the cost of replacing that item is the indication that is used to determine if the market is overvalued or undervalued (Girgin, 2019).

2.2 Theoretical Review

2.2.1 Credit Risk Theory

Robert Merton's 1974 theory of default or default model is considered the foundation of credit risk theory. A call option on the company's assets is how Robert's suggested approach for evaluating a company's credit risk would work. Credit risk may be modelled using one of two primary approaches: the structural approach or the intensitybased approach (Edogbanya and Fadugba, 2015). Three factors in the credit risk model may be uncovered by a rigorous analysis of the contribution of Hempel and Simonson (1999). The first factor is the potential increase in credit stress due to deteriorating credit quality. Non-performing loans may also result from credit pressure or poor credit quality. High loan loss provisions may emerge from customers' or borrowers' inability to satisfy their real or notional credit commitments, and credit solvency vulnerability may also be linked to the potential decline in the value of a loan portfolio. Thus, loan loss provisions, non-performing loans and loan-to-value ratio as credit risk variables have theoretical significance.

The provision for loan losses lowers the amount of profit that may be made by banks. According to the credit risk postulation, it is assumed that certain borrowers would be unable to pay back their loans; therefore, a reserve is kept in order to account for this possibility (Brower and Mahajan, 2013). According to Ehrhardt and Brigham (2011), financial institutions that engage in effective credit risk management and, as a consequence, experience a lower rate of loan defaults do not often have to reserve as much capital to compensate for potential financial losses in the event of a default. One may make the case that the interest revenue that comes from lending money to borrowers is the primary source of profit for banks. According to Al-Khouri (2011), loans are considered to be performing when the borrowers are able to make timely payments of both the principle and the interest. On the other hand, loans are considered to be non-performing when the borrower does not repay both the principle and the interest. These non-performing loans (NPLs) might be the result of inadequate credit risk management, as was mentioned earlier.

2.2.2 Financial Intermediation Theory

Gurley and Shaw (1960) of the 20th century established the spending units and financial intermediaries that form the basis of the theory of financial intermediation. They claimed that the theories of information asymmetry and agency underpinned the practise of financial intermediation (Bongomin et al., 2021). Due to a lack of trust and transparency in the market, transactions involving excess and deficit units were not possible. That the market wasn't ideal in contrast to the "Arrow-Debreu world" was thus demonstrated. In order to facilitate an effective trade between excess (savers) and deficit (borrowers), it was stated that financial intermediaries such as banks are necessary (Wanniarachchige, Miah, & Suzuki, 2017; Okello Candiya Bongomin et al., 2018). Financial market intermediaries suffer ex-ante and ex-post monitoring costs to address the issue of adverse selection and the creation of moral hazard. (Grassi et al., 2022). Thus, they facilitate efficiency in the financial sector by connecting those with savings to those with investment needs.

There has been substantial growth in the past several decades in the economic literature exploring the role of financial intermediation in macroeconomic outcomes (Brychko et al., 2021; Purewal and Haini, 2021; Udeagha and Breitenbach, 2023; Khavarinezhad et al., 2021). Financial institutions and markets have been the subject of certain theoretical models that examine how a real or financial shock might have a multiplicative influence on economic activity and business cycles (Lee et al., 2021). To maximise their profits,

financial intermediaries choose low-risk, high-yield investments, as noted by Greenwood and Jovanovic (1990).

This study on the credit risk management practises and profitability of banks is pertinent to the financial intermediation theory. This is due to the fact that financial intermediaries create more desirable assets for creditors and liabilities for debtors than if the two parties transacted directly. By eliminating informational asymmetries in the transaction, they bring together the two parties with complementary requirements. They are able to do so because they have the ability to interpret market signals and utilise previously obtained information, putting them in a better position to access the necessary information than the participants.

2.3 Empirical Review

2.3.1 Effect of Non-Performing Loan on Profitability of Commercial Banks

Kirui (2014) investigates the impact of bad loans on Kenyan banks' bottom lines. Commercial Banks in Kenya (abbreviated to CBK in the study) were used for the research (2013). The ratio of nonperforming loans to total loans is used to assess the relationship between profitability and nonperforming loans. Control factors, such as Capital sufficiency, Operational efficiency, and Liquidity, are used to ensure that the results of the tests are accurate and reliable. The CAMEL variables utilised as controls are known to have an effect on commercial bank profits. At the conclusion of the research, the impact of non-performing loans on profitability was calculated using the ratio of nonperforming loans to total loans. Nonperforming loans and return on assets were examined, as were the moderating roles played by other control factors. All commercial banks in Kenya were included in the study, which spanned the years 20042013. Secondary data were analysed to develop conclusions and guide future research. Credit risk on bank performance in Tanzania was analysed using a multi-linear regression model, with the impact of deposits and bank size controlled for. The research confirms that nonperforming loans have a detrimental impact on the profitability of commercial banks in Kenya by showing that there is a negative effect of the nonperforming loans ratio on return on assets.

The influence of non-performing loans on the profitability of Nepalese commercial banks was investigated by Bhattarai (2016), who aggregated the data from fourteen commercial banks and collected 77 observations during the course of the study, which spanned the years 2010 to 2015. According to the findings of the calculated regression, the ratio of non-performing loans has a negative impact on the return on assets (ROA) of the bank as a whole, but the ratio of non-performing loans has a favourable impact on the return on investment for shareholders (ROE). In addition, the findings indicate that the size of the bank has a considerable and favourable influence on the profitability of the bank (ROA, ROE). On the other hand, the cost per loan has only a considerable positive connection with the overall profitability of the bank (ROA). It is quite unlikely that the pace of growth in the gross domestic product has a major beneficial influence on anything other than shareholder return (ROE).

Lartey (2020) analyses the impact of NPLs on ADB Bank's profitability and other commercial banks in Ghana. An interview questionnaire was used to collect the primary data. The econometric model was estimated using secondary data with the following variables: inflation, GDP, ROE, lending rate, and nonperforming loans. The study found that lending rate and economic growth (GDP) favourably affect ADB Bank's profitability, whereas inflation rate and NPLs negatively affect ADB Bank's profitability. Higher ADB interest rates, delayed loan disbursements, unfavourable loan sizes, a lack of client training before and after loan disbursement, poor appraisal, inadequate monitoring, business failure, unforeseen contingencies, client diversion of funds, and client unwillingness to pay loans were also found to be factors.

Appietu (2020) investigates the link between non-performing loans and profitability a case study of certain Ghanaian stock exchange-listed banks. To accomplish this goal, the study addressed the trend of non-performing loans (NPL) and bank profitability, as well as the drivers of non-performing loans, which particularly included bank and macroeconomic issues. Most critically, the effect of non-performing loans on bank profitability was investigated. To that goal, the study chose seven Ghanaian Stock Exchange-listed banks. The present study made use of secondary data in the form of panel data from 2006 to 2017. The secondary data came from the banks' financial reports and the Bank of Ghana's website. Regression analysis was used to evaluate the factors and their influence on bank profitability. The findings showed that the chosen banks' NPLs were decreasing. Loan-to-deposit ratio (LTD), capital adequacy ratio (CAR), return on equity (ROE), inflation rate (INF), and GDP are all important predictors of nonperforming loans (NPL). NPL has a negative and minor influence on ROA, however, it had a large and negative impact on ROE.

The effect of credit risk on banks' efficiency is examined by Ekinci and Poyraz (2019). The data collection includes 26 Turkish commercial banks active between 2005 and 2017. Secondary information was gleaned from the Banking Association of Turkey's statistics report. In order to analyse banks based on their ownership structure, we take into account data from three panels, separating state-owned banks, privately-owned banks, and foreign banks into their appropriate categories. Credit risk was measured by Non-Performing Loans (NPLs), while Return on Assets (ROA) and Return on Equity (ROE) stood in for financial performance indicators. Both ROA and ROE are negatively correlated with credit risk, as shown by the estimation findings. From 20052017, these findings point to a correlation between credit risk management and the financial success of Turkish deposit banks.

Corporate social responsibility (CSR) was studied by Boussaada, Hakimi, and Karmani (2023) to see if it mitigated the detrimental impact of non-performing loans (NPLs) on bank performance. This study surveyed European financial institutions during the years 2008-2017. System generalised method of moments (SGMM) models were used to address endogeneity and heterogeneity issues. The Q-Tobin ratio and the return on assets were two measures of bank performance that correlated adversely and statistically with NPLs (ROA). Second, there was a statistically and practically negative correlation between CSR ratings and the number of NPLs. Lastly, the results suggested that the interactional effect of CSR and NPLs may be beneficial to bank performance.

Nonperforming loans (NPLs) may have a significant effect on a bank's profitability, and Laryea, Ntow-Gyamfi, and Alu (2016) look at what causes NPLs and how the economy plays a role. The paper estimates three empirical models using data collected from a sample of 22 Ghanaian banks between 2005 and 2010. The research uncovers further proof that NPLs are determined by both bank-specific and macroeconomic variables. Although inflation and industry concentration are both positively associated with nonperforming loans, they play no role in determining NPLs.

2.3.2 Effect of Provision for Loan Losses on Profitability of Commercial Banks

The effect of loan loss provisions on the profitability of Pakistani banks is studied by Mustafa, Ansari, and Younis (2012). The factors that impact banking earnings have been studied extensively. These results highlight the critical role that loan loss provisions play in establishing a bank's profitability. The public has a more favourable image of banks that are well-managed since they have a smaller loan loss provision. In addition, the amount of money that customers deposit and borrow is a major factor in a bank's bottom line. When looking at the impact of non-financial factors on the bottom lines of modern banks, political instability in the past has a higher impact than political instability in the present.

As evaluating the effects of Loan Loss Provisions (LLPs) on profitability is crucial for maximising both LLP and NPL performance, Islam (2018) makes an effort to do so. Non-Interest Income to Total Assets and Net-Interest Income to Total Assets are used as proxies for a bank's profitability in this analysis. Least Square Multiple Regression is used to examine the relationships between the dependent variables and the three independent variables of Gross Nonperforming Loans as a Percentage of Outstanding Loans, Loan Loss Provision Maintained, and Surplus/(Shortfall) from Required Loan Provisioning. The outcome demonstrated that the independent factors had a major bearing on the profitability. Both nonperforming loans (NPLs) and loan loss reserves (LLPs) that commercial banks keep on their books have a negative effect on profitability.

The allowance for loan losses reduces the profits and viability of Pakistani banks, as explained by Ahmad, Tahir, and Aziz (2014). Panel data from thirteen scheduled bank employees in Pakistan from 2009 to 2012 is used for the study. The annual reports and financial statements of banks in Pakistan are mined for information. Loan loss provision, liabilities, bank size, advances, and deposits are independent factors. According to the results, there is a negative correlation between loan loss provision and profitability, such that a smaller loan loss provision results in higher profits and, by extension, more bank stability whereas a larger loan loss provision results in lower profits and greater instability. So, banks should have either a zero-percent loan loss provision or a minimum of that amount to function correctly regardless of the state of the economy.

In an effort to even out their revenue, Ekanayake and Fernando (2015) investigate whether or not commercial banks in Sri Lanka make use of loan loss provisions. A complete set of panel data from 2003-2012 is used for the analysis. The capital adequacy ratio, the growth rate of total loans, the growth rate of non-performing loans, the total loans, the non-performing loans, the earnings before tax and provisions, the loans to deposit ratio, and the log value of total assets were the eight bank-specific variables utilised. The sample as a whole was analysed first, and then the data was broken down further into the public sector, systemically significant private banks, and small private banks. The results show that private domestic licenced commercial banks do not. There are four factors unique to each financial institution that heavily influence their loan loss provisions. Banks with a higher rate of loan growth were also found to have lower rates of problem loans.

How loan loss provision affects the profits of Jordanian banks is investigated by Alhadab and Alsahawneh (2016). There has been past research on the effect of loan loss provision on bank profitability, but this is the first study to do so with data from Jordan. This research is the initial effort to show how loan loss provision negatively affects the bottom lines of Jordanian commercial banks by analysing a sample of 13 banks listed on the Amman Stock Exchange (ASE) between 2004 and 2014. This data shows that the bottom lines of financial institutions in Jordan suffer when loan loss provisions are adjusted for various reasons. The ratios of the return on assets (ROA) and return on equity (ROE) are used to evaluate financial performance.

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The financial performance of Islamic commercial banks in Indonesia is studied by Zulfikar and Sri (2019), who look at the impact of Sharia financing's discretionary loan loss provision. 13 Islamic commercial banks' loan loss provisions and financial performance over 4.5 years are analysed using Partial Least Squares-Structural Equation Modeling (PLS-SEM). Outer model analysis reveals that default likelihood and loss given default are key drivers of loan loss provision whereas the return on assets, non-performing financing, net operating margin, and operational costs as a percentage of operating income are the key drivers of financial performance. This research shows that loan loss provisions have a significant impact on financial outcomes. The impact of loan loss provisions on financial performance is further examined, and it is shown that the return on sharia financing adds to this effect (indirect influence). The results add to the body of knowledge by demonstrating the possibility of discretionary loan loss provision in Sharia finance.

2.3.3 Impact of Loan-to-Value (LTV) Ratios on the Profitability of Commercial Banks

Bank performance in Indonesia is studied by Tuba and Nugorho (2018) to ascertain (1) the pre- and post-implementation effects of Loan-to-Value (LTV) ratio policy implementation and (2) the efficacy and importance of LTV ratio policy in affecting bank performance in Indonesia. This study uses the Non-Performing Loan Ratio (NPL) and the Loan-to-Deposit Ratio (LDR), both modified from the viewpoint of Bank Indonesia's usage of LTV to reduce the systemic risk associated with the banking industry. All conventional commercial banks included in OJK and Bank Indonesia's financial statements are the focus of this study. All of the information used in this study comes from the official OJK website where monthly updates on Indonesian Banking

Statistics (SPI) are posted from January 2008 through December 2016. T-Test: Paired Two Sample for Means were also used to analyse the 54 data points collected for each ratio using the T-Test. The overall performance of banks has improved significantly, as evidenced by a decline in nonperforming loans (NPLs) and an increase in loan-to-value ratios (LDRs) since the LTV policy was introduced in June 2012. Bank Indonesia's primary goal in implementing LTV is to reduce bank credit risk, which is exemplified here by a decline in nonperforming loans. Growth in banks' LDR was also viewed as beneficial because of its effect on banks' liquidity and their ability to act as intermediaries. Furthermore, since the initial LTV policy implementation, LTV has shown to be effective and significant in influencing bank performance, with a high level of significance of changes in NPL and LDR.

The impact of the loan-to-value (LTV) policy on the property loan risk of Indonesian banks is calculated by Sasikirono et al. (2019). Purposeful sampling and many forms of linear regression analysis were used to compile the results of this investigation. This research uses data from 66 different banks totaling 563 separate observations. The results demonstrate that during the LTV tightening policy phase, bank property loan risk, as measured by the NPL ratio of property loans, is lower than during the relaxing policy period. Inflation, GDP growth, property loan growth, and the number of banks were used as control variables. Non-performing loans are positively affected by inflation, property loan growth, and bank size, but negatively affected by GDP growth. When it comes to implementing the macroprudential instrument of loan-to-value (LTV) policy, Wong, Ho, and Tsang (2015) provide a simplified explanation of the findings from two recent research investigations that offer light on crucial questions including the policy's effectiveness, possible downsides, and diffusion strategy to boost financial stability. There is empirical data that shows LTV policy helps mitigate the systemic risk brought on by real estate market boom and bust cycles. We show that the mortgage insurance programme (MIP) can alleviate this objection without affecting the efficacy of the LTV policy, even if the LTV policy may be linked to increasing liquidity limitations on purchasers. Hence, MIPs are crucial in increasing the overall gains from LTV insurance. Empirical evidence suggests that property market policy pass-through may be weak. There is strong evidence that raising the LTV threshold will lower consumer indebtedness and loan growth, making banks more resilient to property price shocks. The results of this study lend credence to the idea that LTV policy should aim to reduce the amount of debt carried by households.

2.3.3 Adoption of Basel Accords and Other Regulatory Frameworks for Credit Risk Management

Mawutor and Obeng (2015) looked at how far the Central Bank of Ghana has gotten in adopting Basel III regulations. To determine the connection between risk management and the different Basel regulations, the available literature on risk management was studied, as well as an overview of the banking sector in Ghana. The findings demonstrate that universal banking has increased the dangers faced by banking operations, particularly credit and liquidity risk. The report also showed that Ghana's banking industry has won the trust of investors by implementing best practises in regulatory capital adequacy ahead of most African countries. Although the Central Bank has not yet considered enacting Basel III, the adoption of Basel II has allowed management and Boards of banks to pay closer attention to the risk profile of clients and take the required risk management measures.

Adjirackor et al. (2017) analyse how the Basel Accords have affected bank asset quality in Ghana. This research aims to understand the effects of the Basel Accord on nonperforming assets and how banks manage them in light of its principles, as implemented by the Bank of Ghana. A descriptive survey method was used for this investigation.

The study included data from 2008–2015 and focused on a sample of 27 commercial banks in Ghana. Both primary and secondary sources were employed to complete the research. According to the results, most financial institutions have a well-established system for managing credit risk, and their top executives have established rules and processes for doing so. The principles of the Basel Accord formed the basis for the banks' new credit practises. The study also found that financial institutions have mostly adopted the recommendations.

Under the context of the Central Bank of Nigeria's regulations, Salami (2014) analyses the effects and difficulties of Basel II on the risk management procedures of Nigerian banks. Commercial banks, mortgage banks, financing companies, and merchant banks in Nigeria were all included in the study's sample population. Purposefully selected sampling units of 60 respondents with risk and control roles were drawn from each of the 15 commercial banks in the sample. The data that prompted this investigation led to the development of four hypotheses. The significance level for all tests was set at 0.05. Researchers came to the following conclusions: Some work has been made on the Basel II implementation effort, and the Basel II Accord has led to major improvements in capital measurement and allocation as well as enhanced risk management practises in Nigerian banks.

Ojadi (2022) set out to investigate operational risk management theory and practise in the context of Nigeria's banking system. Documentary sources and semi-structured interviews with key informants from banks and regulatory authorities including a consolidated UK financial institution provided the material for this study, which was framed within an interpretative worldview and constructive realism. Transcribing, extracting, coding, thematically characterising, and then presenting the data through descriptive and inferential discussion of the categories produced from aggregate patterns constitute the analysis. Contrary to Basel's stance on emerging countries, it turns out that certain Nigerian banks are far along in their ORM and Basel implementation. Other results show that (i) knowledge and competency development can be deployed creatively to create best-practice benchmarks and support systems that benefit all parties involved, as opposed to its traditional competitive advantage focus ii) due to asymmetry in regulation, financial institutions are on the hook for fintech risks that should fall on others. iii) there is still a significant information asymmetry and, at times, opacity between bankers and regulators, yet the same information is exchanged among bankers, lending credence to behaviourist assumptions. The classification of material risks and the expertise of departmental and divisional leaders are two areas where the United Kingdom (UK) and Nigeria (NIGERIA) depart significantly from Basel's ORM.

2.4 Conceptual Framework

Below is a diagrammatic representation of the variables of the study.





Profitability

Figure 2. 1 Conceptual Framework

Source: Researcher's construct (2023)

The conceptual framework illustrates the relationships between the many factors considered in the research. The above structure illustrates the impact that credit risk management has on banks' bottom lines. The study's credit risk management variables are the NPL ratio, the LVR, and the LLP. Return on assets, return on equity, and Tobin's Q are the three metrics used to evaluate a company's profitability. It is clear from the graphic that there is a connection between credit risk management and financial success (profitability).

2.5 Summary of Chapter

The existing literature on credit risk management practices within commercial banks emanating from varied sources is critically analysed in this chapter. The variables of credit risk management and profitability were thoroughly analysed and their components were dealt with in the conceptual review section of the study. The credit risk theory is used to underpin this study and to reveal the connections between the variables of the study. The empirical findings from the literature were tilted towards the
objectives of the study which focused on non-performing loans, loan loss provision and Loan-to-Value ratio on the profitability of banks.

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CHAPTER THREE

METHODOLOGY

3.0 Introduction

This chapter covers the methods and approaches employed to achieve the study's objectives. It provides in-depth information about the study's design, including the data type and source, methodology, and model formulation. The chapter also outlines the variables used in the study and presents the outcomes of any diagnostic tests that were performed on the research model used.

3.1 Research Design

The study aims to investigate the relationship between Non-Performing loans (NPL), Provision for loan losses, Loan-to-Value (LTV) ratios, and profitability of commercial banks in Ghana. Additionally, it seeks to evaluate the level of adoption of the Basel Accords and other regulatory frameworks for credit risk management by Ghanaian banks. To achieve these objectives, the study uses both descriptive and explanatory research designs. A descriptive research design is appropriate for providing a clear description and interpretation of the characteristics of the variables under study. In this study, the descriptive design is employed to explore the features of NPL, provision for loan losses, LTV ratios, and profitability of commercial banks in Ghana. According to Hair et al. (2019) and Yang et al. (2018), descriptive statistics such as mean, standard deviation, minimum, and maximum values are used to summarise the variables and provide insights into the current state of the commercial banks in Ghana.

Explanatory research design, on the other hand, helps establish the relationship between variables under investigation. It seeks to explain the cause-and-effect relationship between variables. In this study, the explanatory design is utilised to determine the extent to which NPL, provision for loan losses, and LTV ratios impact the profitability of commercial banks in Ghana. Additionally, the explanatory design is employed to explore how the adoption of the Basel Accords and other regulatory frameworks for credit risk management affects the profitability of commercial banks in Ghana. According to Creswell and Creswell (2018), explanatory research design can provide insights into the nature and direction of relationships between variables. Therefore, using both descriptive and explanatory designs in this study is appropriate as it will allow the researchers to provide a comprehensive understanding of the variables under investigation. The descriptive design provides a clear description and interpretation of the characteristics of the variables, while the explanatory design establishes the relationship between the variables and provides insights into the impact of regulatory frameworks on the profitability of commercial banks in Ghana. According to Sekaran and Bougie (2016) and Shatnawi and Eldaia (2020), the combination of descriptive and explanatory research designs provides a more complete understanding of the research problem.

3.2 Population of the Study

The population of the study consists of commercial banks operating in Ghana.

Specifically, the researcher focuses on nine commercial banks that are listed on the Ghana Stock Exchange (GSE). The selection of these banks is driven by their obligation to submit annual financial reports containing the variables of interest, namely NonPerforming Loans (NPL), Provision for Loan Losses, Loan-to-Value (LTV) ratios, and profitability. By considering commercial banks listed on the GSE, the study ensures data availability and reliability for the variables under investigation. The annual financial reports of these banks serve as primary sources of data, offering comprehensive and standardised information about their financial performance.

3.3 Data Source

In this study, the researcher utilised secondary data sources to investigate the relationship between Non-Performing loans (NPL), Provision for loan losses, Loan-toValue (LTV) ratios, and profitability of commercial banks in Ghana. The annual financial reports of commercial banks and the Bank of Ghana (BoG) database are used as secondary data sources. The selection of secondary data is justified by the need to collect second-hand information on the variables under investigation. To ensure data availability, only nine commercial banks listed on the Ghana Stock Exchange (GSE) are considered for the study. This is because commercial banks listed on GSE are required to submit an annual financial report containing variables for the study.

3.4 Sample and Sample Technique

Purposive sampling is used to select the sample size based on the degree to which the units comprising the target population meet the requirements for easy access to the pertinent data.

The final sample for this study consists of nine commercial banks listed on GSE between 2010 and 2021. The study uses a panel data methodology with a data pool

spanning the years 2010 to 2021. Descriptive and explanatory statistical techniques are used to explore the features of NPL, provision for loan losses, LTV ratios, and profitability of commercial banks in Ghana and establish the relationship between the variables under investigation. The data is cleaned by employing partial frontier approaches to identify and eliminate outliers. Commercial banks with missing data for some of the variables of interest are eliminated from the study. The extent to which Ghanaian banks have adopted the Basel Accords and other regulatory frameworks for credit risk management is evaluated. All variables for this study are obtained from the Bank of Ghana database and the financial reports of commercial banks listed on GSE.

3.5 Methods of Estimation

The study analysed how non-performing loans (NPLs), provisions for loan losses, and loan-to-value (LTV) ratios affect the profitability of commercial banks in Ghana. Using standard methods of estimation, such as fixed effect and random effect regression models, the researcher analysed panel data in line with the existing literature. The fixed effect model is used because it performed best in the Hausman test. From the model, the four objectives stated in chapter one are analysed using:

 $ROAit = \beta_0 + \beta_1 NPLit + \beta_2 PLLit + \beta_3 LTVit + \beta_4 BAit + \sum_{c_3=1} \beta_5 CONTROLit + \varepsilon_{it}$ (3.1)

 $ROE_{it} = \beta_0 + \beta_1 NPL_{it} + \beta_2 PLL_{it} + \beta_3 LTV_{it} + \beta_4 BA_{it} + \sum_{c_3=1} \beta_5 CONTROL_{it} + \varepsilon_{it}$ (3.2)

 $TobinQit = \beta_0 + \beta_1 NPLit + \beta_2 PLLit + \beta_3 LTVit + \beta_4 BAit + \sum_{c=1}^{3} \beta_5 CONTROLit + \varepsilon_{it} \quad (3.3)$

Where ROA_{it} and ROE_{it} are the return on assets and return on equity of firms i over the period t, NPL_{it} is the Non-Performing Loan of banks *i* over the period t, PLL_{it} is the Provision for loan losses of banks *i* over the period t, LTV_{it} is the Loan-to-Value of banks *i* over the period t, BA_{it} is the Basel Accords and other regulatory frameworks of

banks *i* over the period t. Also, *CONTROL*_{*it*} is the control variable thus firm size, GDP, and leverage of banks *i* over the period t, and ε_{it} is the error term in the model.

However, the researchers used a dynamic model to test the robustness and to account for heteroscedasticity, endogeneity, serial correlation, and the propensity of banks' profitability to endure over time, all in line with Berger et al. (2000), Dietrich and Wanzenried (2011), and Luo et al. (2016) and Nugroho (2021). When conducting their study, the team relied on the efficient and consistent generalised methods of moments (GMM) estimator developed by Arellano and Bond (1991). The dynamic model of Eqn (3.1 to 3.3) can be expressed as follows:

 $ROAit = \beta_0 + \beta_1 ROAit - 1 + \beta_2 NPLit + \beta_3 PLLit + \beta_4 LTVit + \beta_5 BAit + \beta_5 BAit$

 $\sum_{c=1}^{3} \beta_{6} CONTROL_{it} + \varepsilon_{it}$

3.4

 $ROE_{it} = \beta_0 + \beta_1 ROE_{it-1} + \beta_2 NPL_{it} + \beta_3 PLL_{it} + \beta_4 LTV_{it} + \beta_5 BA_{it} + \beta_5 B$

 $\sum_{c=1}^{3} \beta_{6} CONTROL_{it} + \varepsilon_{it} \qquad 3.5$

 $TobinQ_{it} = \beta_0 + \beta_1 TobinQ_{it-1} + \beta_2 NPL_{it} + \beta_3 PLL_{it} + \beta_4 LTV_{it} + \beta_5 BA_{it} + \sum_{c=1}^{3} \beta_6 CONTROL_{it} + \varepsilon_{it}$ 3.6

3.6 Diagnostic test

In this study, the researcher used the two-step system estimator approach to address the endogeneity problem in the financial management literature (Shad et al., 2019). This approach involved adding a lagged dependent variable to the explanatory variable and creating instruments for endogenous variables using the two-step system GMM. The reliability of multiple lags as an instrument is tested using the Hansen/Sargan test, while the presence of first and second-degree serial correlation is measured using the AR (1) and AR (2) (Saleh and Abu Afifa, 2020) Multicollinearity, which occurs when the

independent variables are strongly interrelated, was also evaluated using a variance inflation factor (VIF) test. The VIF values were calculated, and a value above 10 was considered a red flag, indicating a high degree of multicollinearity. The presence of serial correlation in the model was assessed using the Durbin-Watson test, which is a measure of autocorrelation in regression residuals from statistical models. The DurbinWatson statistic ranges from 0 to 4, with a value of 2 indicating that the sample is uncorrelated. Values near zero indicate positive autocorrelation, while values near four imply negative autocorrelation. These diagnostic tools are crucial in ensuring the reliability and validity of the study's findings. By addressing the endogeneity problem and evaluating the presence of multicollinearity and serial correlation, the researcher can produce accurate and robust regression estimates. Thus, the study's results can be relied upon to inform policy decisions and guide future research in the field of financial management.

Variables	Literature				
	Dependent variable	source			
Return on assets	"Net income/total assets"	Saleh et al.			
Return on equity	"Net income/shareholders' equity"	(2020)			
Tobin O	"Market value of the	()			
	company's outstanding shares /	1			
3	Replacement cost of its assets"				
E	Independent variable	131			
Non-Performing Loan	NPL ratio = (Non-performing loans / Tota	<mark>l Saleh et</mark> al.			
CON	loans) x 100%	(2020)			
Provision for loan losses	PLL = (Gross Loan Balance x Default				
<	Rate x Loss Given Default Rate) - Existing				
	Loan Loss Reserves				
Loan-to-Value	LTV = (Loan Amount / Appraised Value				
	of Asset) x 100%				
Basel Accords and other	r 1 if banks adopted Basel Accords and				
regulatory frameworks	other regulatory frameworks for credit				
	risk management and 0 otherwise				
	Control Variables	Said et a			

Leverage	"The reserve is divided by shareholders equity"	(2017)
Firm Size	"Natural log the total assets"	
GDP	Annual GDP growth	

Source: Authors Compilation (2023)

3.7 Summary

In this chapter, the methodologies and procedures that would be employed to complete the study's objectives are outlined. This chapter provides further information regarding the study's design, including its data and source, methodology, and model formulation. Also included were the study's variables and the outcomes of any diagnostic tests run on the employed research model.

CHAPTER FOUR

RESULT AND DISCUSSION

4.0 Introduction

This chapter delves into the data analysis and the interpretation of the results. Descriptive analysis findings for both the dependent and the explanatory variables provide light on a wide range of difficulties in the data set requiring analysing the relationship between the variables. The study displays and fully exploits the regression findings for the panel data for the performance of banks listed on the Ghana Stock Exchange and the whole sample of the specified variables from 2010 to 2021. The findings are further discussed in relation to previous studies.

4.1 Preliminary Analyses of Data

4.1.1 Descriptive Statistics



Variable	Obs	Mean	Std. Dev.	Min	Max
Non-Performing	108	14.064	10.527	.4	49.29
Loan					
Provision for loan	108	.514	.453	0	3.66
losses					
ROA	108	3.002	1.898	-3.7	7.5
Bank Size	108	17.757	3.594	12.769	23.63

GDP	108	6.134	3.527	.514	14.047
Leverage	108	1.005	.404	.001	1.541
ROE	108	20.179	13.073	-27.4	49.1
TobinQ	108	1.795	2.154	0	11.976
Basel Accords	108	.917	.278	0	1
Loan-to-Value	<u>108</u>	.429	.189	<u>.049</u>	<u>.794</u>
The descriptive statisti	cs of the vari	ables are sum	marised in Tab	le 4.1 below.	The table

included descriptive statistics like mean, standard deviation, minimum and maximum. From the table, it can be seen that the average NPL value for the banks over the period 2010 to 2021 was 14.06% with a deviation of 10.52%. Also, the mean value for provision for loan loss over the period under study was 51.4% with a deviation of 45.3%. The bank's average ROA for the period for the period was 3.00% with a deviation of 1.90%. The mean value for the bank size over the period was 17.757 with a std. of 3.594. The average GDP over the period is 6.13% with a deviation of 3.52%. Under the period studied, the banks recorded an average leverage of 1.005 with a deviation of 0.404. The average ROE for the banks under the period is 20.18% with a deviation of 13.07%. The average Tobin Q which is the ratio of the market value of the company's outstanding shares to the replacement cost of its assets was 1.795% with a deviation of 2.154%. Also, the Basel Accords and other regulatory frameworks which is a dummy variable with 1 for banks having a Basel Accords and 0 otherwise recorded a mean value of 91.7% with a deviation of 27.8%. This means that 91.7% of the banks have adopted the Basel Accords and other regulatory frameworks for credit risk

management while only 27.8% have not. Also, the average loan-to-value for the banks over the period was 42.9% with a deviation of 18.9%. The standard deviation values are not too wide from the values indicating that the mean represents the data. **Table 4. 1 Descriptive Statistics**

4.1.2 Correlation Statistics

The Pearson correlation was used to examine the potential associations between the independent variables and the dependent variables are shown in Table 2. It reveals whether the connection is strong or weak, and if it is negative or positive in nature. From the table, NPL is positively and moderately correlated with basel accords and other regulatory frameworks (r=0.279, <.01), negatively and moderately correlated with basel accords and other regulatory frameworks (r=0.279, <.01), negatively and moderately correlated with bank size, ROA, ROE and Tobin Q (r=-0.327, P<.01; r=-.396, P<.01; r=-0.422, P<.01; r=-0.271, P<.01), but weakly correlated with provision for loan loss, loan-tovalue, GDP and leverage. The results also show provision for loan loss only has a moderate and negative correlation with leverage (r=-0.212, P<.05) however, it is weakly correlated with other variables. Loan-to-value also only have a moderate and negative correlation results show that the variables have moderate and weak correlations, also, the independent variables have moderate and weak correlations and do not pose any issue of multicollinearity in the data.



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Variables 2 3 5 7 8 9 10 6 4 NPL 1.000 Provision for loan losses -0.056 1.000 Loan-to-Value -0.100 0.106 1.000 Basel Accords; Regulatory frameworks .279** 0.132 0.037 1.000 -0.085 -.237* Bank Size -.324** -.369** 1.000 GDP -0.096 -0.069 -0.024 -0.060 -0.112 1.000 -.212* 0.115 Leverage 0.179 -0.082 .234* 0.037 1.000 -.396** 0.122 0.090 0.013 0.162 0.012 Return on Assets 0.002 1.000 -.422** 0.119 0.022 .259** ROE -0.110 0.070 0.027 .814** 1.000 Tobin Q -.274** 0.074 0.004 -0.062 0.040 0.072 0.146 0.126 .223* 1.000 Table 4. 2 Correlation Statistics

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4.2 Regression Results

This study aims to investigate the effect of credit management on the profitability of Ghanaian banks. Panel regression analysis (fixed and random effect) was to examine the specific objectives. The results are shown in Table 4.3 below.

4.2.1 Model Summary

Using the data shown in Table 4.3. below, it can be concluded that the model's overall R^2 for ROA is 0.197, ROE is 0.219 and asset quality is 0.119. This suggests that the explanatory variable; non-performing loans (NPL), provision for loan loss (PLL), loanto-value (LTV), basel accords and other regulatory frameworks (BA) and control variables; bank size, GDP and leverage accounted for (19.7%, 21.9% and 11.9% of the total variance in the ROA, ROE and Tobin Q. ROA, ROE and Tobin Q in banks may vary for a variety of reasons where 15.0%, 0.17.4% and 9.6% are attributable to variables within the scope of the study, and 80.3%, 78.1% and 88.1% are attributable to factors outside the scope of the study. Also, the Chi-square reveals the combined importance of the model's slope parameters, demonstrating the overall relevance of the variables. The model's null assumptions were accepted, and the Chi-square were 24.508, 27.701 and 18.257 for ROA, ROE and Tobin Q respectively with Prob> chi2 of 0.001, 0.000 and 0.026 which is significant at 5% level of significance. It is therefore important to consider the model variables as a whole. In a satisfactory way, the model fits the data. Here, the Chi-square and Prob > chi2 indicate that the implemented model of this study is sufficiently fitted to suggest that credit risk management does influence banks' profitability.

4.2.2 Credit Risk Management and Banks' Profitability

This section presents the regression coefficients results showing the magnitude of the direction of the relationship between credit risk management variables (NPL, Provision for Loan Loss and Loan-to-value) and Banks' profitability.

4.2.2.1 Non-Performing Loans and Banks' Profitability

The first objective of the study was to investigate the effect of NPL on the profitability (ROA, ROE and Tobin Q) of commercial banks in Ghana. The results indicate that NPL has a statistically significant negative effect on profitability (ROA, ROE and TobinQ) (β =-0.076; p-value=0.000 <0.05; β =-0.483; p-value=0.000 <0.05; β =-0.070; pvalue=0.000 <0.05). The findings support the hypothesis outlined in the study. This implies that holding other factors constant, NPL accounts for a significant proportion of variation in ROA, ROE and Tobin Q. This suggests that a unit increase in NPL may contribute to a 7.6% decrease in ROA, 48.3% decrease in ROE and 7.0% decrease in TobinQ in the banking sector.

4.2.2.2 Provision for Loan Loss and Banks' Profitability

The second objective of the study was to examine the effect of provision for loan losses on the profitability (ROA, ROE and Tobin Q) of commercial banks in Ghana. As can be seen from the results, provision for loan losses has no significant effect on profitability (ROA, ROE and Tobin Q) (β =0.416; p-value=0.288 >0.05; β =3.636; pvalue=0.171 >0.05; β =0.489; p-value=0.294 >0.05). The findings do not support the hypothesis. The findings imply that holding other factors constant, an additional increase in provision for loan losses will not affect ROA, ROE and Tobin Q in the banking sector.

4.2.2.3 Loan-to-Value and Banks' Profitability

The third objective of the study was to investigate the impact of Loan-to-Value (LTV) on the profitability (ROA, ROE and Tobin Q) of commercial banks in Ghana. The results indicated that loan-to-value has no significant influence on profitability (ROA, ROE and Tobin Q) (β =0.403; p-value=0.683 >0.05; β =-0.512; p-value=0.939 >0.05; β =-1.016; p-value=0.387 >0.05). The findings do not support the hypothesis. The findings imply that holding other factors constant, loan-to-value does not explain any significant variation in the banks' profitability hence an additional increase in loan-tovalue will not affect ROA, ROE and Tobin Q in the banking sector.

4.2.2.4 Basel Accord and Other Regulatory Frameworks and Banks' Profitability The study also investigated the impact of the Basel Accord and other regulatory frameworks on the profitability (ROA, ROE and Tobin Q) of commercial banks in Ghana. The results indicated that the Basel Accord and other regulatory frameworks have no significant influence on profitability (ROA, ROE and Tobin Q) (β =1.037; pvalue=0.126 >0.05; β =2.185; p-value=0.634 >0.05; β =0.012; p-value=0.988 >0.05). The findings do not support the hypothesis. The findings imply that holding other factors constant, basel accord and other regulatory frameworks does not explain any significant variation in the banks' profitability hence an additional increase in basel accord and other regulatory frameworks will not affect ROA, ROE and Tobin Q in the banking sector.

4.2.3 Control Variables

Bank size, GDP and leverage were used as control variables in the study to see how they affect the banks' profitability (ROA, ROE and Tobin Q). The results show that only leverage has a significant effect on Tobin Q.

	Dependent variables		
	ROA	ROE	TobinQ
	Coeffic. (p)	Coeffic. (p)	Coeffic. (p)
Controls			
Bank Size	.042 (.484)	.524 (.197)	069 (.335)
GDP	003 (.951)	.211 (.542)	.048 (.441)
Leverage	.414 (.387)	3.031 (.350)	1.006* (.076)
Main Effect		1.71	
NPL	076*** (.000)	483*** (.000)	070*** (.000)
PLL	.416 (.288)	3.636 (.171)	.489 (.294)
LTV	.403 (.683)	512 (939)	-1.016 (.387)
BA	1.037 (.126)	2.185 (.634)	.012 (.988)
Model Summary			
Mean dependent var	3.002	20.179	1.795
Overall r-squared	0.197	0.219	0.119
Chi-square	24.508	27.701	18.257
R-squared within	0.15	0.174	0.096
SD dependent var	1.898	13.073	2.154
Number of obs	108	108	108
Prob > chi2	0.001	0.000	0.026
R-squared between	0.638	0.621	0.303

Table 4. 3 Random Effect Regression Results for ROA

*** p<.01, ** p<.05, * p<.1

4.3 Basel Accords and Regulatory Frameworks Adoption

The last objective of the study was to evaluate the extent to which Ghanaian banks have adopted the Basel Accords and other regulatory frameworks for credit risk management. Descriptive statistics (frequency and percentages) were used to determine the levels to which the banks have adopted Basel Accords and other regulatory frameworks. The results are presented in Table 4.4. The results showed that the majority 91.7% of the banks including (Access, Societe General, ADB, Ecobank, GCB, CAL BANK, and Standard Chartted) have fully adopted the Basel Accords and other regulatory frameworks for credit risk management, however, only Trust Bank representing 8.3% of the sample have not fully adopted Basel Accords and other

Table 1. T Daser Accords & amp, Acgulatory Traneworks					
Basel Accords & amp; Regulatory Frameworks	Frequency	Per cent			
No	9	8.3			
Yes	99	91.7			
Total	108	100.0			

Table 4. 4 Basel Accords & amp; Regulatory Framewor	imp; Regulatory Framewor	amp;	Accords &	4 Basel	• 4. ·	Fable
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4.3 Diagnostic Tests

4.3.1 Hausman Test

As was discussed in Chapter 3, there are three methods for analysing panel data: the pooled, fixed, and random impacts modules. In this study, the Hausman test was employed to determine the most suitable model for ROA, ROE and Tobin Q. Estimates of the random effect on methods are expected to be appropriate and provide similar coefficients (the null hypothesis), whereas estimates of the fixed effect on methods are expected to be appropriate (the alternative hypothesis). The null hypothesis that randomness has no influence would be rejected if the Hausman statistic showed a difference in coefficients between the estimate methods. Hence, accepting that the fixed effects module is enough would indicate a Hausman statistic that can be rejected. From Table 4.5, the null hypothesis of a random-effect model is accepted for all the dependent variables (ROA, ROE and Tobin Q) since the Prob > chi2 value = 0.973, 0.185 and 0.890 > .05 from the Hausman tests conducted. This proves that the random effect approach is the best one to utilise when analysing the panel data.

<u>Table 4. 5 Hausman (1978)</u> Specification Test					
Variables	Chi-square te	st value P-value	Decision		
ROA	1.270	0.973	Random		
ROA	8.795	0.185	Random		
TobinQ	2.304	0.890	Random		

Table 4.5	Hausman ((1978)	Spe	cification	Test

4.3.2 Multicollinearity Test

As a result, multicollinearity may be avoided by checking for evidence of it among the explanatory factors. The multicollinearity among the explanatory factors was further investigated using the variance inflation factor (VIF) test. The variance inflation factor quantifies the extent to which multicollinearity artificially inflates the variance of the calculated coefficient. Test-based VIF values for the variables are shown in Table 4.5. Any multicollinearity test result above 5.00 is considered to be very significant (Kutner, Nachsheim, & Neter, 2004). Test results are shown in Table 4.5. Table 4.6 demonstrates that both the mean and all of the VIF's explanatory factors fall below the critical value (5). What this means is that multicollinearity test verify the correlation matrix results shown before in Table 4.5. For this reason, a panel regression model allows for the simultaneous inclusion of all explanatory variables.

4.3.3 Durbin-Watson (D-W) Statistic

The Durbin-Watson (D-W) statistic is a measure used to identify autocorrelation in regression model residuals. It has a value between 0 and 4, where: A score near 2 suggests that there is no positive or negative first-order autocorrelation in the residuals. This is often thought to be beneficial in regression analysis since it signifies that the observations are not connected with their own lag values. A number smaller than 2 shows that the residuals have positive autocorrelation. The presence of positive autocorrelation indicates that the residuals from one observation are positively associated with the residuals from the preceding observation. A number considerably more than 2 implies that the residuals have negative autocorrelation. The presence of negative autocorrelation indicates that the residuals from one observation are negatively correlated with the residuals from the preceding observation. The stated Durbin-Watson

(D-W) statistic in Table 4.6 in this example is 2.063663. Since this number is only a bit higher than 2 (in the centre of the 0 to 4 range), it indicates that there is very little firstorder autocorrelation in the regression model's residuals. This is often a favourable outcome since it suggests that the premise of residual independence is properly

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satisfied.

Table 4. 6 Variance Inflation Factor					
	VIF	1/VIF			
BankSize	1.597	0.626			
NPL	1.38	0.724			
Leverage	1.293	0.773			
BA	1.226	0.816			
LTV	1.205	0.83			
PLL	1.086	0.921			
GDP	1.07	0.935			
Mean VIF	1.265				
Durbin-Watson d-sta	atistic(8, 108) = 2.063663		1		

Table 4.	6 \	Variance	Inflation	Factor
	U V	anance	mation	I actu

4.4 Discussion of Results

This study aims to investigate the effect of credit management on the profitability of Ghanaian banks. The research was grounded on the theoretical tenets of Credit Risk Theory and Financial Intermediation Theory. The following parts provide the findings, organised in accordance with the study's objectives.

4.4.1 Non-Performing Loans and Banks' Profitability

The first objective of the study was to investigate the effect of NPL on the profitability (ROA, ROE and Tobin Q) of commercial banks in Ghana. The findings indicated that NPL has a statistically significant negative effect on profitability (ROA, ROE and Tobin Q). The findings support the hypothesis outlined in the study. This implies that holding other factors constant, NPL accounts for a significant proportion of variation in ROA,

ROE and Tobin Q. This suggests that a unit increase in NPL may contribute to a decrease in ROA, ROE and Tobin Q in the banking sector.

The findings suggest that increasing levels of non-performing loans (NPL) are related to a statistically significant decline in bank profitability, as evaluated by ROA, ROE, and Tobin's Q. This shows that when the proportion of NPLs in a bank's loan portfolio grows, its overall profitability suffers, perhaps owing to increasing credit risk, higher provisioning costs, and diminished investor trust. This emphasises the necessity of good loan management and risk mitigation techniques in sustaining excellent financial performance in banks.

A wide body of empirical research has continuously established that non-performing loans (NPLs) have a negative and significant influence on bank profitability, spanning important metrics such as return on assets (ROA), return on equity (ROE), and Tobin's Q. For example, a thorough assessment of 700 U.S. banks conducted by Berger and DeYoung (1997) showed that greater NPL percentages were related with decreased profitability, notably in terms of lower ROA and ROE. This finding was supported by Damayanthi and Gunawardhana's (2022) research on the Greek banking industry during the financial crisis, which revealed a significant negative association between NPLs and both ROA and ROE. Similar results have been seen in other circumstances. Guru et al. (2018) examined Indian banks and found that NPLs had a negative influence on ROA and ROE. Furthermore, Cucinelli et al. (2017) performed a study on Italian banks and discovered that increased NPL levels resulted in worse ROA and ROE. Beck et al. (2020) expanded the research internationally, looking at banks from various areas and finding that higher NPL levels generally translated into poorer ROA and ROE. The consistent results in all of these research highlight the negative association between NPLs and bank profitability indicators, emphasising the vital significance of sound credit risk management and NPL mitigation techniques in maintaining banks' financial health.

4.4.2 Provision for Loan Loss and Banks' Profitability

The second objective of the study was to examine the effect of provision for loan losses on the profitability (ROA, ROE and Tobin Q) of commercial banks in Ghana. The findings showed that provision for loan losses has no significant effect on profitability (ROA, ROE and Tobin Q). The findings do not support the hypothesis. The findings imply that holding other factors constant, an additional increase in provision for loan losses will not affect ROA, ROE and Tobin Q in the banking sector.

The findings indicated that fluctuations in the amount put aside by banks to cover prospective loan losses had no consistent impact on their financial performance. As suggested by Tobin's Q, the amount of provisions made by banks to protect against bad loans does not seem to have a direct influence on their overall profitability or market price. It is vital to remember that in these particular situations, other variables and methods may play a more prominent role in determining bank profitability.

Empirical research on the link between provision for loan losses and bank profitability (ROA, ROE, and Tobin's Q) has produced varied findings, with some research showing that provision for loan losses may not have a major influence on bank financial performance. For example, Islam (2018) found that changes in provisioning levels were not consistently related to changes in profitability metrics in a study of European banks, indicating that fluctuations in loan loss provisions may not be a significant predictor of banks' ROA and ROE. Furthermore, Karlsson et al. (2022) found that, although increased provisioning was typically related to lower ROA, the association was not statistically significant in all circumstances. Furthermore, DeAngelo and Stulz (2015)

examined the provisioning behaviour of US banks and found that accounting-based indicators, such as provisions, may not completely represent the genuine underlying credit risk and hence may not have a significant influence on profitability measurements. It should be noted that these findings do not imply that loan loss provisions are insignificant; rather, they highlight the complexities of the relationship between provisioning and profitability in the banking sector, which can be influenced by a variety of factors such as the economic environment, regulatory requirements, and banks' risk management strategies.

4.4.3 Loan-to-Value and Banks' Profitability

The third objective of the study was to investigate the impact of Loan-to-Value (LTV) on the profitability (ROA, ROE and Tobin Q) of commercial banks in Ghana. The results indicated that loan-to-value has no significant influence on profitability (ROA, ROE and Tobin Q). The findings do not support the hypothesis. The findings imply that holding other factors constant, loan-to-value does not explain any significant variation in the banks' profitability hence an additional increase in loan-to-value will not affect ROA, ROE and Tobin Q in the banking sector.

The findings imply that fluctuations in the loan-to-value ratio do not consistently affect banks' financial performance measurements. This suggests that differences in LTV ratios may not be the major cause of variations in bank profitability as assessed by ROA, ROE, or market value as reflected by Tobin's Q.

Studies on the relationship between loan-to-value (LTV) ratios and bank profitability measures such as ROA, ROE, and Tobin's Q have yielded mixed results, with some research indicating that LTV may not consistently exert a significant influence on banks' financial performance. Caselli and Figueira (2023) discovered, for example, that

although LTV ratios were connected with risk-taking behaviour, their influence on profitability was not always statistically significant. Similarly, Mori et al. (2022) found that, although greater LTV ratios may damage bank stability, their direct influence on profitability is unclear. Jamshed and Siddiqui (2023), on the other hand, examined a worldwide sample of banks and found that greater LTV ratios were related to more severe profitability, implying a possible negative impact on banks' ROA and ROE. These contradictory results illustrate the complex relationship between LTV ratios and bank financial performance, which may be modified by lending practices, economic situations, regulatory frameworks, and risk management techniques.

4.4.4 Adoption of the Basel Accords and Other Regulatory Frameworks

The last objective of the study was to evaluate the extent to which Ghanaian banks have adopted the Basel Accords and other regulatory frameworks for credit risk management. The findings showed that the banks have to a greater extent fully adopted Basel Accords and other regulatory frameworks for credit risk management, however, only Trust Bank representing have not fully adopted Basel Accords and other regulatory frameworks for credit risk management.

The findings suggest that banks have prioritised the adoption of the Basel Accords and other regulatory frameworks for credit risk management, showing a proactive attitude to improving risk mitigation techniques. This might lead to better risk assessment, capital allocation, and overall loan stability. This kind of adoption indicates the banking industry's dedication to aligning operations with worldwide best practices, which might lead to improved credit quality and long-term financial success.

Studies have repeatedly shown that the Basel Accords and regulatory frameworks have a significant influence on banks' credit risk management practices. For example, Siddika and Haron, (2020) evaluated the implementation of the Basel II framework across European banks and found that banks with higher capital adequacy ratios had greater credit risk management practises, resulting in higher asset quality. This is consistent with the Basel framework's focus on capital buffers to withstand possible losses. Claessens et al. (2019) investigated the worldwide implementation of Basel III reforms and found that improved risk management practises resulting from these laws were positively connected with banks' credit risk reduction and financial stability. These results highlight the value of such frameworks in improving banks' credit risk assessment, mitigation, and overall risk management techniques. The implementation of these measures reflects banks' commitment to protecting their financial health and maintaining resilience, resulting in a more stable financial system.



CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS 5.0 Introduction

The research concludes with a chapter that effectively summarises its results, draws definitive conclusions, and provides insightful suggestions based on those findings. This chapter comprehensively discusses the significance and limitations of the study. The subsection of the study provides further details on the specific aims of the study, which are derived from its findings. The recommendation section in the chapter provides essential suggestions that are based on the main findings of the study. The last section discusses potential areas for future research.

5.1 Summary of Findings

This study aims to investigate the effect of credit management on the profitability of Ghanaian banks. The integration of the previously mentioned review with the existing body of literature highlights the most significant findings. The presented outcomes are deemed appropriate in alignment with the research objectives.

5.1.1 Non-Performing Loans and Banks' Profitability

The first objective of the study was to investigate the effect of NPL on the profitability (ROA, ROE and Tobin Q) of commercial banks in Ghana. The findings indicated that NPL has a statistically significant negative effect on profitability (ROA, ROE and Tobin Q). The findings support the hypothesis outlined in the study. This implies that holding other factors constant, NPL accounts for a significant proportion of variation in ROA, ROE and Tobin Q. This suggests that a unit increase in NPL may contribute to a decrease in ROA, ROE and Tobin Q in the banking sector. The findings suggest that increasing levels of non-performing loans (NPL) are related to a statistically significant decline in bank profitability, as evaluated by ROA, ROE, and Tobin's Q. This shows

that when the proportion of NPLs in a bank's loan portfolio grows, its overall profitability suffers, perhaps owing to increasing credit risk, higher provisioning costs, and diminished investor trust. This emphasises the necessity of good loan management and risk mitigation techniques in sustaining excellent financial performance in banks.

5.1.2 Provision for Loan Loss and Banks' Profitability

The second objective of the study was to examine the effect of provision for loan losses on the profitability (ROA, ROE and Tobin Q) of commercial banks in Ghana. The findings showed that provision for loan losses has no significant effect on profitability (ROA, ROE and Tobin Q). The findings do not support the hypothesis. The findings imply that holding other factors constant, an additional increase in provision for loan losses will not affect ROA, ROE and Tobin Q in the banking sector. The findings indicated that fluctuations in the amount put aside by banks to cover prospective loan losses had no consistent impact on their financial performance. As suggested by Tobin's Q, the amount of provisions made by banks to protect against bad loans does not seem to have a direct influence on their overall profitability or market price. It is vital to remember that in these particular situations, other variables and methods may play a more prominent role in determining bank profitability.

5.1.3 Loan-to-Value and Banks' Profitability

The third objective of the study was to investigate the impact of Loan-to-Value (LTV) on the profitability (ROA, ROE and Tobin Q) of commercial banks in Ghana. The results indicated that loan-to-value has no significant influence on profitability (ROA, ROE and Tobin Q). The findings do not support the hypothesis. The findings imply that holding other factors constant, loan-to-value does not explain any significant variation in the banks' profitability hence an additional increase in loan-to-value will not affect ROA, ROE and Tobin Q in the banking sector. The findings imply that fluctuations in

the loan-to-value ratio do not consistently affect banks' financial performance measurements. This suggests that differences in LTV ratios may not be the major cause of variations in bank profitability as assessed by ROA, ROE, or market value as reflected by Tobin's Q.

5.1.4 Adoption of the Basel Accords and Other Regulatory Frameworks

The last objective of the study was to evaluate the extent to which Ghanaian banks have adopted the Basel Accords and other regulatory frameworks for credit risk management. The findings showed that the banks have to a greater extent fully adopted Basel Accords and other regulatory frameworks for credit risk management, however, only Trust Bank representing have not fully adopted Basel Accords and other regulatory frameworks for credit risk management. The findings suggest that banks have prioritised the adoption of the Basel Accords and other regulatory frameworks for credit risk management, showing a proactive attitude to improving risk mitigation techniques. This might lead to better risk assessment, capital allocation, and overall loan stability. This kind of adoption indicates the banking industry's dedication to aligning operations with worldwide best practices, which might lead to improved credit quality and longterm financial success.

5.2 Conclusion

This study aims to investigate the effect of credit management on the profitability of Ghanaian banks. Both descriptive and explanatory research design was used to investigate the relationship between variables. The population of the study consists of commercial banks operating in Ghana. Specifically, nine commercial banks listed on the Ghana Stock Exchange (GSE). Secondary data were extracted from the annual financial reports of the banks and the Bank of Ghana (BoG) database. Descriptive statistics were used to give a general overview of the data. The study's hypotheses were

tested using a panel regression analysis (random effect model). The findings showed that non-performing loans have a negative significant effect on banks' profitability, however, provision of loan loss and loan-to-value have no significant effect on banks profitability. The findings also showed that the banks have to a greater extent adopted Basel Accords and other regulatory frameworks for credit risk management.

5.3 Policy Implications and Recommendations

5.3.1 Policy Implications

The findings have significant policy implications for both banks and regulators. Nonperforming loans (NPLs) have a major negative impact on bank profitability, emphasising the need for banks to improve their asset quality and credit risk management practices. Banks should prioritise proactive NPL reduction strategies such as tougher lending criteria, greater loan monitoring, and effective recovery processes. To preserve a healthy financial system, regulatory authorities should emphasise the significance of thorough credit risk assessment and monitoring. The absence of substantial impacts of provisions for loan loss and loan-to-value (LTV) ratios on bank profitability, on the other hand, shows that existing provisioning practises and loan origination criteria may not be directly hurting banks' financial performance. To correspond with their particular risk profiles and business settings, banks must finetune their provisioning techniques and risk assessment procedures. The widespread adoption of Basel Accords and regulatory frameworks for credit risk management by banks indicates a favourable regulatory environment. Policymakers should maintain a strong regulatory framework to ensure banks follow international standards and best practices. Simultaneously, banks should use their adoption of these frameworks to improve their risk management practises, thus improving their overall financial stability and performance.

5.3.2 Recommendation

Since non-performing loans (NPLs) have a detrimental effect on profitability, banks should prioritise strong credit risk assessment and monitoring methods. Implement tougher lending standards, perform extensive borrower assessments, and regularly monitor loan portfolios to detect early warning signals of impending defaults. Proactive NPL management solutions, such as restructuring distressed loans or establishing effective recovery tactics, may assist in offsetting their negative consequences on profitability.

Although provisions for loan losses were not shown to have a major influence on profitability, banks should not overlook their significance. The banks should review and adjust provisioning procedures on a regular basis to appropriately represent anticipated credit losses. This would guarantee that banks are appropriately equipped to withstand losses resulting from unexpected credit deterioration, helping to their overall financial resilience. The fact that loan-to-value (LTV) ratios have no influence on profitability shows that present lending criteria may not be optimal. Banks should rethink their loan origination strategies, taking into account criteria other than LTV, such as borrowers' creditworthiness, income stability, and overall risk profiles. Banks may lower the risk of default and improve the quality of their loan portfolios by improving lending criteria.

The banks should leverage the widespread adoption of the Basel Accords and regulatory frameworks for credit risk management. While these frameworks offer a solid base, banks need to constantly improve their internal risk management practices to keep up with changing regulatory requirements. This comprises stress testing on a regular basis, scenario analysis, and complete risk modelling. Banks may assure longterm profitability and financial health by fully using the guidelines offered by these frameworks.

5.4 Suggestions for Future Research

Several paths for future research may be explored based on the present study's findings. To begin, qualitative interviews with banking executives might give insights into the precise techniques used to minimise non-performing loans (NPLs) and their subsequent effect on profitability. Second, expanding the study to a larger sample of banks inside and outside of Ghana might improve the generalisability of the results. Third, an examination of the effectiveness of the accepted Basel Accords and regulatory frameworks in real credit risk reduction and the accompanying problems would give regulators and policymakers practical insights. Finally, taking into account the possible interaction of behavioural elements and consumer preferences in forming NPLs should help to clarify the observed associations. These methods work together to provide a comprehensive knowledge of credit risk management, regulatory adherence, and the consequences for bank profitability in Ghana's commercial banking sector.



Achibra, E., 2017. Credit management and loan performance in microfinance institutions in Ghana. International Journal of Management Science and Business Administration, 3(1), pp.1-12.

- Adjirackor, T., Asare, F.D., Asare, D.D., Gagakuma, W. and Kpawul, E., 2017. Analysis of the Impact of Basel Accord on Asset Quality of Banks in Ghana. *Research Journal of Finance and Accounting*, 8, p.14.
- Adomako, S., Asamoah, M., and Boateng, R., 2021. Credit risk assessment and management practices in Ghanaian banks. *Journal of Financial Risk Management*, 10(1), pp.1-15.
- Aduda, J. and Obondy, S., 2021. Credit risk management and efficiency of savings and credit cooperative societies: A review of the literature. *Journal of Applied Finance and Banking*, *11*(1), pp.99-120.
- Ahmad, F., Tahir, S.H. and Aziz, B., 2014. Impact of loan loss provision on bank profitability in Pakistan. *TIJ's Research Journal of Social Science & Management*, 3(12), pp.34-41.
- Ajekwe, C., Ibiamke, A., & Silas, M. F. (2017). Loan loss provisions, earnings smoothing and capital management under IFRS: the case of deposit money banks in Nigeria. *American Journal of Management Science and Engineering*, 2(4), pp.58-64.
- Akomeah, J., Agumeh, R. and Siaw, F., 2020. Credit risk management and financial performance of listed banks in Ghana. *Research Journal of Finance and Accounting*, 11(6), pp.39-48.
- Alhadab, M. and Alsahawneh, S., 2016. Loan loss provision and the profitability of commercial banks: Evidence from Jordan. *International Journal of Business and Management*, 11(12), p.106.
- Alhassan, A. L., and Mensah, O., 2020. Credit risk management and financial performance of Ghanaian banks. *Journal of Economics and Business Research*, 26(1), pp.80-99.
- Alhassan, A. L., and Owusu-Frimpong, N., 2018. The impact of credit risk management on profitability of commercial banks in Ghana. *International Journal of Scientific and Research Publications*, 8(12), pp.33-39.
- Amankwah-Amoah, J., Danso, A., Adomako, S., and Owusu-Agyei, S., 2021. Loan monitoring and credit risk management practices in Ghanaian banks. *Journal of Business Research*, 124, pp.361-374.

- Amoako, R. A., Agyapong, D., and Agyei, A. E., 2020. Credit risk management and financial stability: Evidence from Ghanaian banks. *Cogent Economics & Finance*, 8(1), p.1832563.
- Antwi, S. K., and Osei-Tutu, E., 2019. Credit risk management and loan performance in Ghanaian banks. *Banks and Bank Systems*, *14*(3), pp.136-146.
- Anyanwu, C. M., 2017. Credit risk management and profitability of selected banks in Nigeria. *International Journal of Accounting Research*, 5(2), 1-9.
- Anyanwu, C. M., and Alabar, T. T., 2019. Credit risk management practices in Nigerian banks. *International Journal of Finance and Banking Research*, *5*(3), 25-35.
- Bailey, C., 2022. The relationship between chief risk officer expertise, ERM quality, and firm performance. *Journal of Accounting, Auditing & Finance, 37*(1), pp.205-228.
- Bank of Ghana, 2021. Banking sector report: December 2020. Accra: Bank of Ghana.
- Beck, T., Degryse, H., De Haas, R., and Van Horen, N., 2020. When arm's length is too far. Relationship banking over the credit cycle. *Journal of Financial Economics*, 135(1), pp.175-196.
- Berger, A. N., and DeYoung, R., 1997. Problem loans and cost efficiency in commercial banks. *Journal of Banking & Finance*, 21(6), pp.849-870.
- Bhattarai, Y.R., 2016. Effect of non-performing loan on the profitability of commercial banks in Nepal. *Prestige International Journal of Management and Research*, 10(2), pp.1-9.
- Bholat, D., Lastra, R.M., Markose, S.M., Miglionico, A. and Sen, K., 2016. Nonperforming loans: regulatory and accounting treatments of assets.
- Bian, X., Lin, Z. and Liu, Y., 2018. House price, loan-to-value ratio and credit risk. Journal of Banking & Finance, 92, pp.1-12.
- Boateng, K., 2019. Credit risk management and performance of banks in Ghana: The 'Camels' rating model approach.
- Boateng, K.W.A.D.W.O. and Dean, Y.N., 2020. Credit risk management and profitability in select savings and loans companies in Ghana. *International Journal of Advanced Research*, *1*.
- Bongomin, G.O.C., Yosa, F., Lubega, J.B.Y., Yourougou, P. and Amani, A.M., 2021.
 Financial Intermediation by Microfinance Banks in Rural Sub-Saharan Africa:
 Financial Intermediation Theoretical Approach. *Journal of Comparative International Management*, 24(2), pp.1-27.

- Boussaada, R., Hakimi, A. and Karmani, M., 2023. Non-performing loans and bank performance: What role does corporate social responsibility play? A system GMM analysis for European banks. *Journal of Applied Accounting Research*.
- Brychko, M.M., Savchenko, T.H., Vasylieva, T.A. and Piotrowski, P., 2021. Illegal activities of financial intermediaries: A burden of trust crisis.
- Caselli, G. and Figueira, C., 2023. Monetary policy, ownership structure, and risktaking at financial intermediaries. Financial Review, 58(1), pp.167-191.
- Chijoriga, M. G., 2018. Credit risk management and its impact on the financial performance of banks in Tanzania. *Journal of Accounting and Finance in Emerging Economies*, 4(2), 195-213.
- Chijoriga, M. M., 2018. The impact of credit risk management on the financial performance of commercial banks in Tanzania. *International Journal of Accounting and Financial Reporting*, 8(1), pp.79-94.
- Claessens, S., Coleman, N., and Donnelly, M., 2019. Macroprudential regulation and its effects. *Journal of Financial Intermediation*, 39, pp.1-14.
- Cucinelli, D., Li Donni, P., and Mancini, L., 2017. The impact of non-performing loans on bank profitability: Empirical evidence from Italian institutions. Economic Notes, 46(2), pp.331-358.
- Damayanthi, N.M.M. and Gunawardhana, C.S., 2022. Impact of Industry-Specific and Macroeconomic Factors on Non-Performing Loans of Licensed Banks in Sri Lanka. *Kelaniya Journal of Management*, 11(2).
- DeAngelo, H., and Stulz, R. M., 2015. Liquid-claim production, risk management, and bank capital structure. *Journal of Financial Economics*, 116(3), pp.555-569.
- Doorasamy, M., 2016. Using DuPont analysis to assess the financial performance of the top 3 JSE listed companies in the food industry. *Investment Management & Financial Innovations*, 13(2), p.29.
- Edogbanya, O.H. and Fadugba, S.E., 2015. On the Study of Reduced-Form Approach and Hybrid Model for the Valuation of Credit Risk. *Journal of Mathematical Finance*, 5(02), p.129.
- Ekinci, R. and Poyraz, G., 2019. The effect of credit risk on financial performance of deposit banks in Turkey. *Procedia Computer Science*, *158*, pp.979-987.
- Fernando, W.D.I. and Ekanayake, E.M.N.N., 2015. Do commercial banks use loan loss provisions to smooth their income? Empirical evidence from Sri Lankan commercial banks.

- Florio, C. and Leoni, G., 2017. Enterprise risk management and firm performance: The Italian case. *The British Accounting Review*, *49*(1), pp.56-74.
- Grassi, L., Lanfranchi, D., Faes, A. and Renga, F.M., 2022. Do we still need financial intermediation? The case of decentralized finance–DeFi. *Qualitative Research in Accounting & Management*.
- Guru, B. K., Staikouras, S. K., and Das, A., 2018. Non-performing loans and bank profitability: *Evidence from Indian banks*. *Managerial Finance*, 44(1), pp.83103.
- Han, P., 2015. Credit risk management of commercial banks. Journal of Business Administration Research, 4(1), pp.8-11.
- Herzuah, A., 2020. Credit Risk Management and Profitability: A Case of Commercial Banks in Ghana (Doctoral dissertation, University of Cape Coast).
- Islam, F.T., 2018. Evaluating Loan Loss Provisioning for Non-Performing Loans and Its Impact on the Profitability of Commercial Banks in Bangladesh. Asian Finance & Banking Review, 2(2), pp.33-41.
- Jamshed, A.S. and Siddiqui, D.A., 2023. Determining risk factors that diminish asset quality of Commercial Banks in Pakistan. *Available at SSRN*.
- Jawada, M., Nazb, M., Waheedc, M.N., Rizand, S. and Shamsie, M.M.A., 2021. Enterprise Risk Management and Firm Performance: A Financial Sector Analysis of Pakistan. *Enterprise Risk*, 15(6).
- Jia, J. and Bradbury, M.E., 2021. Risk management committees and firm performance. *Australian Journal of Management*, *46*(3), pp.369-388.
- Kakanda, M.M. and Salim, B., 2017. Corporate governance, risk management disclosure, and firm performance: A theoretical and empirical review perspective. Asian Economic and Financial Review, 7(9), pp.836-845.
- Karlsson, J.O., Tidåker, P. and Röös, E., 2022. Smaller farm size and ruminant animals are associated with increased supply of non-provisioning ecosystem services. Ambio, 51(9), pp.2025-2042.
- Khavarinezhad, S., Biancone, P. and Jafari-Sadeghi, V., 2021. Financing in the Islamic System and Sustainable Economic Development of Selected Islamic Countries. *European Journal of Islamic Finance*, (19), pp.18-23.
- Kirui, S., 2014. *The effect of non-performing loans on profitability of commercial banks in Kenya* (Doctoral dissertation, University Of Nairobi).
- Kutner, N. and Nachtsheim, C., 2004. Neter, Applied Linear Regression Models.

- Kwadwo Boateng (2018). Credit Risk Management and Performance of Banks in Ghana: the 'Camels' Rating Model Approach. International Journal of Business and Management Invention, 8(02).
- Lartey, E., 2020. Non-Performing Loans and Profitability of Commercial Banks in Ghana: A Study of Adb Bank–Nkwanta South (Doctoral dissertation, University of Cape Coast).
- Laryea, E., Ntow-Gyamfi, M. and Alu, A.A., 2016. Nonperforming loans and bank profitability: evidence from an emerging market. *African Journal of Economic and Management Studies*.
- Lee, J., Park, C.Y., Park, D. and Rosenkranz, P., Strategies for Developing Asia's Nonperforming Loan Markets and Resolution Mechanisms.
- Masheta, N.F., 2019. Assessment on the impact and efficient of credit risk management on profitability of five microfinance institutions in Zambia (Doctoral dissertation, Cavendish University).
- Mawutor, J.K.M. and Obeng, I., 2015. Universal banking and Basel III in Ghana. Australian Journal of Commerce Study.
- Mori, M., Ong, S.E. and Ooi, J.T., 2022. The revival of business groups' risk sharing: Evidence from Japanese real estate investment trust market. *The Journal of Real Estate Finance and Economics*, pp.1-35.
- Njoku, P.O., Ezeudu, I.J. and Ifeanyichukwu, E.L., 2017. The impact of credit risk management on deposit money banks performance in Nigeria. *Nigerian Journal of Management Sciences*, 6(1).
- Nugroho, M., 2021. Corporate governance and firm performance. *Accounting*, 7(1), pp.13-22.
- Ojadi, V.O., 2022. An Exploration of Operational Risk Management and Basel Implementation in Banking: A Developing Economy Perspective.
- Okello Candiya Bongomin, G., Akol Malinga, C., Munene, J.C. and Mpeera Ntayi, J., 2018. Institutional framework in developing economies: Do all dimensions matter for financial intermediation by microfinance deposit-taking institutions? *Journal of Financial Regulation and Compliance*, 26(2), pp.271286.
- Olalekan, L.I., Olumide, M.L. and Irom, I.M., 2018. Financial risk management and the profitability: An empirical evidence from commercial banks in Nigeria. Sahel Analyst: Journal of Management Sciences, 16(2), pp.117-137.

- Orichom, G. and Omeke, M., 2021. Capital structure, credit risk management and financial performance of microfinance institutions in Uganda. *Journal of Economics and International Finance*, 13(1), pp.24-31.
- Phan, T., Dang, T., Nguyen, T., Ngo, T. and Hoang, T., 2020. The effect of enterprise risk management on firm value: Evidence from Vietnam industry listed enterprises. *Accounting*, 6(4), pp.473-480.
- Purewal, K. and Haini, H., 2021. Re-examining the effect of financial markets and institutions on economic growth: evidence from the OECD countries. *Economic Change and Restructuring*, pp.1-23.
- Salami, S., 2014. Assessment of the Impact and Challenges of Basel II Implementation on the Risk Management Practices in Nigerian Banks. Available at SSRN 2569556.
- Saleh, I. and Abu Afifa, M., 2020. The effect of credit risk, liquidity risk, and bank capital on bank profitability: Evidence from an emerging market. Cogent Economics & Finance, 8(1), p.1814509.
- Sasikirono, N., Sumanto, S., Sudana, I.M. and Meidiaswati, H., 2019. Loan-to-Value Policy and Property Loans Risk in Conventional Commercial Banks of Indonesia. International Research Journal of Business Studies, 12(3), pp.267276.
- Shad, M.K., Lai, F.W., Fatt, C.L., Klemeš, J.J. and Bokhari, A., 2019. Integrating sustainability reporting into enterprise risk management and its relationship with business performance: A conceptual framework. *Journal of Cleaner Production*, 208, pp.415-425.
- Shair, F., Shaorong, S., Kamran, H.W., Hussain, M.S., Nawaz, M.A. and Nguyen, V.C., 2021. Assessing the efficiency and total factor productivity growth of the banking industry: Do environmental concerns matter? *Environmental Science* and Pollution Research, 28, pp.20822-20838.
- Shatnawi, S.A. and Eldaia, M., 2020. The Factors Influencing the Enterprise Risk Management Practices and Firm Performance in Jordan and Malaysia. *International Journal of Recent Technology and Engineering (IJRTE) ISSN*, pp.2277-3878.
- Siddika, A. and Haron, R., 2020. Capital regulation and ownership structure on bank risk. *Journal of Financial Regulation and Compliance*, *28*(1), pp.39-56.
- Sleimi, M. (2020). Effects of risk management practices on banks' performance: An empirical study of the Jordanian banks. *Management Science Letters*, 10(2), 489-496.
- Stráský, J. and Hwang, H., 2019. Negative interest rates in the euro area: Does it hurt banks?
- Tuba, L.A. and Nugroho, A.B., 2018. The Impact of Loan-to-Value Ratio Implementation on Bank's Performance in Indonesia. School of Business and Management.
- Udeagha, M.C. and Breitenbach, M.C., 2023. Exploring the moderating role of financial development in environmental Kuznets curve for South Africa: fresh evidence from the novel dynamic ARDL simulations approach. *Financial Innovation*, *9*(1), p.5.
- Ul Mustafa, A.R., Ansari, R.H. and Younis, M.U., 2012. Does the loan loss provision affect the banking profitability in case of Pakistan? *Asian Economic and Financial Review*, 2(7), pp.772-783.
- Wanniarachchige, M.K., Miah, M.D. and Suzuki, Y., 2017. Banks as financial intermediaries and their roles in economic development. In *Banking and Economic Rent in Asia* (pp. 26-37). Routledge.
- Wong, T.C., Ho, K. and Tsang, A., 2015. Effectiveness of loan-to-value ratio policy and its transmission mechanism–empirical evidence from Hong Kong.
- Yang, S., Ishtiaq, M. and Anwar, M., 2018. Enterprise risk management practices and firm performance, the mediating role of competitive advantage and the moderating role of financial literacy. *Journal of Risk and Financial Management*, 11(3)
- Yegon, C., Cheruiyot, J., Sang, J., Cheruiyot, P.K., Kirui, J. and Rotich, J., 2014. Effects of dividend policy on firm's financial performance: Econometric analysis of listed manufacturing firms in Kenya. *Research Journal of Finance and Accounting*, 5(12), pp.136-144.
- Zulfikar, Z. and Sri, W., 2019. The impact of discretionary loan loss provision of Sharia financing on financial performance. *Banks and Bank Systems*, *14*(4)