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NON-PERFORMING LOANS AND BANK PERFORMANCE, THE CASE OF RURAL BANKS IN GHANA

DORCAS AIDOO BUABENG

MASTER OF BUSINESS ADMINISTRATION

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NON-PERFORMING LOANS AND BANK PERFORMANCE, THE CASE OF RURAL BANKS IN GHANA

DORCAS AIDOO BUABENG
(220033401)

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DECLARATION

Student's Declaration

I, **Dorcas Aidoo Buabeng**, hereby declare that this is the result of my original research and that no part of it has been presented for another degree at this university or elsewhere.

Signature: …….....…….

Date: …….....…….

Supervisor's Declaration

I hereby declare that the preparation and presentation of this work were supervised under the guidelines for supervision of dissertation as laid down by the University of Education, Winneba.

Signature: …….....…….

Date: …….....…….

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DEDICATION

This dissertation is dedicated to the memory of my beloved late mother Madam Sarah Aidoo and my ever-cherished father.

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LIST OF ABBREVIATIONS

ROA	Return on Asset
FS	Firm Size
GDP	Gross Domestic
BS	Board Size
LR	Liquidity Risk
NPL	Non-Performing Loans
BOG	Bank of Ghana
RLS	Robust Least Square
PR	Policy Rate
IF	Inflation
CA	Capital Adequacy

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ABSTRACT

The long-term viability of rural banks is heavily reliant on their profitability, which is affected by a variety of factors, including firm-specific and macroeconomic variables. Previous research on the impact of these factors has mainly concentrated on mainstream banks, often overlooking the context of rural banks in Ghana. The inquiry examined the relationship between NPL and financial performance of rural banks, investigate the effect of liquidity risk on the financial performance of rural banks and finally, to examine the nexus between policy rate and financial performance of rural banks in Ghana. The investigation used the explanatory research design, quantitative approach and employed the purposive sampling technique to draw 14 rural banks. The robust least square estimation technique was employed to analyze 11years data. Results revealed a positive statistically significant relationship between NPL and financial performance. Again, the inquiry discovered a negative effect of liquidity risk on financial performance. Finally, the investigation found a positive statistically significant nexus between policy rate and financial performance of rural banks. The outcome of the study shed more light in the bank performance literature while enlightening managers of rural banks in Ghana. The inquiry implores rural banks should invest in advanced risk management systems and training to better anticipate and respond to changes in policy rates. Also, the bank of Ghana should ensure rural banks regularly comply with regulatory standards and maintain adequate capital reserves to manage the risks associated with high NPLs and sustain profitability.

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CHAPTER ONE

INTRODUCTION

1.1 Background of the study

The Ghanaian banking system is regulated and monitored by the Bank of Ghana (BoG) under the Banking Act 930 made by the parliament of Ghana. The Acts has regulations that guide the activities and operations of all banks and some other financial institutions found in the country. Unfortunately, data from the BoG revealed that the banking industry's profitability decreased precipitously from 2005 to 2007 due to a variety of factors, including NPLs (Non-Performing Loans). However, the banking sector saw better liquidity and profitability performance at the close of 2009 (BoG, 2012). Hamisu (2011) added that many banks in Ghana today are making huge losses due to the problem of excessive non-performing loans accumulated by these institutions indicated in their books.

Rural banks are considered the primary providers of financial services to rural populations and account for nearly half of all banking locations in Ghana (IFAD, 2008). By the end of 2008, these banks had established 421 branches, excluding their head offices. Including the head offices, the total number of service locations across the country reached 548. Every executive region is thought to have at least one rural bank, with the highest concentrations in the Central, Eastern, Western, and Ashanti regions (Nsobilla, 2016). Seventy-five percent of the 127 rural banks have resources ranging between GHS 1 million and GHS 8 million, while 20% have assets below GHS 1 million, and 5% possess assets exceeding GHS 10 million. Additionally, 44% of these banks have share capital under GHS 100,000, and only 6% have share capital above GHS 250,000. As a whole, rural banks have achieved a remarkable level of service

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delivery and financial performance (IFAD, 2008). By the end of 2008, these banks had accumulated deposits totaling GHS 343.9 million from over 2.8 million customers and issued loans and advances amounting to GHS 224.7 million to approximately 680,000 customers. According to Achou and Tenguh (2008), non-performing loans (NPL) has a negative significant influence on rural banks' profitability. Robison and Barry (1977) asserted that loan delinquencies and default as well as low levels of deposits are the main engines that propel liquidity challenges of rural banks. They claimed that banks with high-risk loan portfolios are more efficient than those with low-risk loan portfolios. Robison and Barry further exposed that the level of asset quality and availability of liquidity may help to reduce the risks of rural banks.

Liquidity risk among financial soared in the wake of the 2000-2009 global financial sector crunch (BoG, 2012; Jeong & Jung (2013). A smooth flow of funds is safeguarded at the asset side of the balance sheet of banks by loaning to deficit spending units while delivering liquidity to savers on the liability side. Furthermore, expediting trade via the delivery of payment and settlement systems, safeguarding the prolific investment of wealth and the profitability of other diverse purposes according to Nyarko-Baasi (2018) make banks vulnerable to a large number of risks including human resource risk, interest rate risk, foreign exchange risk, market risk, non-performing loans, regulatory risk, and liquidity risk. To attain greater profitability feet, financial institutions are therefore obliged to put up efficient and effective risk management mechanisms to eliminate or reduce risk employing varying managerial resources Boahene, Dasah and Agyei (2012), and so risk management has moved to center stage in defining superior performance of financial institutions. Aiyar and Bergthaler (2015) opined that, for non-performing loans to be reduced, there should be credit policies designed to guide and control the direction and activities of the banks in lending money to borrowers. This

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will help to prevent as far as possible potentially problematic lending. Other factors to minimize non-performing loans include proper loan structuring, not embarking on an inadequate or excessive loan amount, adequately monitoring loans, proper statement analysis, sufficient collateral from borrowers, and proper documentation (Barongo, 2013). Aside the enumerated factors found to reduce non-performing loans, a proper credit profiling of customers can reduce non-performing loans marginally. Two sets of factors were identified in literature to describe the growth of non-performing loans over the years (Aiyar & Bergthaler, 2015). According to Aiyar and Bergthaler, (2015), one group focuses on external factors like macroeconomic factors that impact on the borrowers' credibility to pay off loans, whilst the other group pays attention to the internal factors of the banks themselves. According to Nyarko-Baasi (2018), most banks in Ghana and other countries like Indonesia, Thailand, Mexico, Japan and Malaysia witnessed high non-performing loans and a decrease in their profitability during the year 2008 banking and financial crunches. The majority of banks in Thailand and Indonesia were shut down as a result.

According to Majumder (2014), there is a depletion of capital among banks when there is a high percentage of non-performing loans. Adverse effects of loans such as low capital base and low profitability are seen in the banking sector of Ghana. Boahene et al. (2012) found that non-performing loans significantly reduces the bank's performance in Ghana in terms of finances. Ongore and Kusa (2013) on financial performance determinants of banks in Kenya established that the most important determinants were capital adequacy (CAR), liquidity ratio, and non-performing loans.

Different studies have been undertaken on non-performing loans in the banking sector and banks profitability. For example, Blanco and Gimeno (2010) undertook research

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on banks in South Africa and Jeong and Jung (2013) considered Nigerian banks. The authors witnessed the profitability of the banks being affected by the non-performing loans. This calls for the need for serious attention in assessing the factors that determine credit risk among financial institutions since it was indicated by Blanco and Gimeno (2010) and Jeong and Jung (2013) that non-performing loans has adverse consequences on the banking sector's profitability. The determinants of non-performing loans among banks may differ for different financial systems in every country. This is a result of factors that relate to the bank activities and the level of economic conditions the banking industry is operating. Given how non-performing loans is detrimental to banks' profitability, the rapid expansion of the banking institutions found in Ghana and the marketing environment by which the banking industry operates, motivated the researcher to research the effect of non-performing loans, policy rate and liquidity risk on rural banks' profitability in Ghana.

For instance, the banks' profitability found among banks on the Ghana Stock Exchange such as Agricultural Development Bank; EcoBank; Ghana Commercial Bank; and Societe Generale Ghana as of 2016 recorded a profit of GH¢26.0 million, GHC 457,186 GHC 446,782 and GHS 63.8 million respectively. Irrespective of these profit margins, the average non-performing loan ratio stands at 20%. BoG (2017), reported that there has been a rise in non-performing loans from 18.8% in June 2016 to 21.1% in June 2017 skyrocketing the non-performing loans faced by Ghana's financial sector. In the same year, the NPLs reached GHC 8 billion, the pre-tax return on assets from 4.9% during the month of June in 2016 reduced to 3.7% during the month of June in 2017, whereas the return on equity over the same period reduced from 22.9 percent to 17.7 percent.

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1.2 Problem Statement

Many Rural banks have encountered plentiful effects of bad loans demonstrating the high credit risk the rural bank industry faces (Majumder, 2014). The issue of liquidity risk can be more pronounced among rural banks in Ghana (Adusei, 2015). When the quantity of bad loans is significant in the financial statement of banks it creates confusion and ultimately leads to rural banks collapsing. Bad loans have had a variety of repercussions on institutional practices, including unfavorable financial practices and lending operations. According to Aiyar and Bergthaler (2015), banks are primarily affected by loan default in two ways. These consequences include a restriction on the lending potential and financial performance (earnings) of rural banks. This proof is acknowledged in the context of a foreign nation (Obamuyi, 2009; Karim et al., 2010; Appiah, 2011; Awunyo, 2012).

A plethora of studies have delved into the factors that affect the profitability of banks detailing notable factors that range from credit issues to management issues. For instance, Adusei (2015) explored the factors that determine the profitability of rural banks in Ghana and concluded that bank size, liquidity risk, and bank stability as the predictors of rural banks' performance. Again, Kanas (2011) used a semi-parametric approach to analyze the determinants of profitability of United States commercial banks and found that non-performing loans, loan portfolio structure, short-term interest rate, and inflation expectations the significant determinants of banks' profitability. Also, Kosmidou (2008) investigated the factors that impact the financial performance of Greek banks using an unbalanced pooled series and discovered that high return on average asset, bank size, and cot-to-income ratio are the prevailing determinants of the profitability of banks. Moreover, Gadzo et al. (2019) examined the impact of non-performing loans and operational risk on the financial performance of commercial

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banks in Ghana through a structural equation modeling approach and discovered that non-performing loans adversely impacts the profitability of banks in Ghana. Furthermore, Ruziqa (2013) analyzed the effect of liquidity risk and non-performing loans on the financial performance of Indonesian universal banks with total assets of above 10 billion rupiahs with data from 2007 to 2011 and employed the fixed effect estimation technique and uncovered that non-performing loans exerts a negative effect on the profitability whilst liquidity risk yielded a positive significant effect on the profitability of commercial banks.

Though these studies provide intriguing evidence on the risk-profitability nexus nevertheless a considerable depth of gaps exist in the literature. The gaps in the literature that motivated this study are: First, several studies focused on banks in countries outside Ghana. Second, most of these studies used commercial banks for their analysis seemingly neglecting the case of rural banks regardless of their importance role in the financial system by providing capital to the rural economy. Third, most of these studies employed the ordinary regression estimation technique which has a weakness of being sensitive to outliers that can disproportionately influence regression and limit estimation accuracy. Fourth, all these research studies used outdated data that predate 2019. This presents a problem in the risk-performance literature because managers of rural banks require empirical evidence on the relationship between non-performing loans, policy rate, liquidity risk and financial performance of rural banks meanwhile most of the existing studies concentrated on commercial banks however the operations of commercial banks and their regulatory requirements differ from that of rural banks, again, the economic terrain and financial system of Ghana differs from that of other developed and developing countries. Therefore, anchoring on findings of studies that used commercial banks and based in other countries to set operational strategies by

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managers of rural banks may not serve the purpose and lead to unrealistic polices. Moreover, focusing on findings from studies that employed deficient estimation approaches such as the OLS to analyze panel data that may contain data inherent problems including heteroskedasticity and autocorrelation to set managerial policies may become problematic, therefore, this investigation used the robust least square estimation method. Furthermore, since the banking industry keeps evolving developing operational measures based on findings from scholarly apprehensions that used outdated data may not apply to the prevailing conditions in the rural banking industry. Additionally, the availability of inadequate evidence on the nexus between policy rate, liquidity risk and profitability of rural banks makes it difficult for managers of rural banks in Ghana to set appropriate liquidity management policies to remain efficient and profitable. The enumerated shortfalls leave a lacuna in the rural banks' loans-financial performance literature and incite research that incorporates post 2019 data, a robust estimation technique, and sample rural banks in Ghana.

1.3 Purpose of the study

The main aim of this research is to explore the nexus between non-performing loans and profitability of rural banks in Ghana.

1.4 Specific objectives

The following objectives guided the study:

1. To examine the relationship between non-performing loans and financial performance of rural banks in Ghana.
2. To examine the relationship between liquidity risk and financial performance of rural banks in Ghana.

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3. To examine the effect of policy rate on the financial performance of rural banks in Ghana.

1.5 Research Questions

The following research questions are proposed for achieving the objectives of the research;

1. What is the relationship between non-performing loans and the financial performance of rural banks in Ghana?
2. Is there a relationship between liquidity risk and financial performance of rural banks in Ghana?
3. Has policy rate have effect on the financial performance of rural banks in Ghana?

1.6 Justification of the study

The study on the nexus between non-performing loans, policy rate, liquidity risk, and financial performance of rural banks in Ghana using the robust least square approach would serve several benefits. In the first place, findings from this research can provide valuable insights into the nature of these risks and inform the development of effective risk management strategies for rural banks. Again, Rural banks play a crucial role in supporting economic activities in rural areas. By investigating the relationship between non-performing loans, liquidity risk, and financial performance, the study contributes to the broader understanding of the factors influencing the financial stability of rural banks. This knowledge can aid policymakers, regulators, and bank management in promoting a more stable financial environment. Also, the study's outcomes can serve as a foundation for refining or developing regulatory frameworks for rural banks in Ghana. Understanding the dynamics of non-performing loans and liquidity risks allows

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regulators to tailor policies that strike a balance between fostering financial inclusion and ensuring the overall health of the rural banking sector. Moreover, Through the application of a robust least-squared approach, the study contributes to the empirical validation of risk models in the context of rural banks. This can enhance the credibility and reliability of risk assessment models, providing practitioners with more accurate tools for decision-making. Furthermore, the study adds to the body of knowledge in financial risk management, particularly in the context of rural banking. Researchers in academia can leverage the findings as a basis for further investigation, building a foundation for future studies on risk factors affecting financial institutions operating in rural economies. Additionally, bank executives and managers can benefit from the insights gained through this research when making informed decisions related to credit extension, liquidity management, and overall financial performance. The study equips practitioners with evidence-based information that can guide strategic planning and risk mitigation efforts.

1.7 Scope of the study

The study primarily focuses on assessing the underlying concepts in rural banks operating in Ghana for its exploration. The concentration of the study on rural banks in Ghana is justified on the following factors. To begin with, access to reliable and comprehensive data is crucial for robust research. By narrowing the focus to Ghana, the researcher can ensure a more thorough understanding of the available data, potentially improving data quality and reliability. Again, Ghana's regulatory environment for banking and finance may have its own set of policies and regulations that impact rural banks. Studying only Ghana allows for a more accurate analysis of how local regulations influence non-performing loans, liquidity risk, and financial performance. Also, the study's findings and recommendations are likely to have more direct policy

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implications for Ghanaian authorities, policymakers, and rural banking stakeholders. This targeted approach enhances the study's potential to influence positive changes in the local rural banking sector.

1.8 Organization of the Study

This research work is segregated into five different chapters which are interrelated. The research's introduction is contained in the first chapter. It consists of the research background, the problem of the research, research objectives, research questions, the significance of the research work, study coverage, and how the research is organized. Chapter two is the review of related literature, which delves into works done by other researchers on the topic and related topics. The research methods which include the design, the approach, the population, the sample and sampling technique, the data and sources of data, and the data analysis technique are covered in the third chapter. The fourth chapter contains the data analysis and discussions. The final chapter looks at the summary of the research work, conclusions, and recommendations of the analyzed data.

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CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter comprises a review of previous research that pertains to the current study. It has been categorized into four sections: conceptual review, theoretical review (which includes theories relevant to the study), and empirical review (documenting findings from previous research directly or indirectly related to this study). Lastly, the conceptual framework illustrates how the research variables and objectives were explored.

2.2 Theoretical Review

Different theories exist in determining and explaining non-performing loans and liquidity risk among banks. The theories underpinning non-performing loans and liquidity risk have important implications for evaluating NPLs, liquidity and performance. Therefore, it is of great importance to explain how some of the theories relate to non-performing loans, policy rate, liquidity risk, and financial performance. This study applies the asymmetric information theory, liquidity preference theory as applied by some researchers to have a linkage with liquidity and NPLs. These theories are presented in detail below:

2.2.1 Theory of Asymmetric Information

the asymmetric information theory informs that distinguishing between good and bad borrowers might be difficult, particularly in a country with poor information on the credit viability of the borrower (Richard, 2011). This usually leads to difficulty in selecting the right borrower and problems of moral hazard. The asymmetric information theory can be explained from the financial market perspective as the party

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that has accurate information about a certain product that has to be marketed (which in this situation represented by the borrower) who is merited to negotiate the terms and conditions of the product more than the second party (which in this situation the lender) (Mauludi & Winarso, 2020). Either wrong or right assessment and decision can be made by the other party who has little information about the product to be marketed. This links to financial institutions that might have little or little information about the borrower and permits the granting of a loan to the borrower (Richard, 2011; Chimkono, 2016). This left the financial institution either receiving the loan repayment from the borrower or not. If a wrong assessment and decision is made based on the little information available, the financial institution stands the risk of losing the loan granted to the customer resulting in a non-performing loan. Further, this theory emphasized that moral hazard and wrong selection lead to non-performing loans being accumulated by banks (Bofondi & Gobbi, 2003). In the rural banks' financial performance, high levels of NPLs can significantly impact the financial performance of rural banks. NPLs reduce the banks' income, as interest payments are not received, and they may need to make provisions for potential loan losses, thereby reducing profitability. Again, increased NPLs require banks to hold more capital to cover potential losses, which can strain the bank's capital adequacy ratio. This impacts the bank's ability to lend further and grow its business. Also, persistent high levels of NPLs can erode trust in the bank among depositors and investors, affecting its overall reputation and ability to attract and retain customers.

2.2.2 Liquidity Preference Theory

Liquidity Preference Theory, proposed by John Maynard Keynes, is a cornerstone in macroeconomic thought. It centers on individuals' and institutions' preferences for holding liquid assets, primarily money, in comparison to interest-earning assets. The

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theory asserts that the demand for money is influenced by the trade-off between liquidity and the opportunity cost of holding non-liquid assets (Keynes, 1936; Bibow, 2005). Keynes identified three motives for holding money: The Transaction Motive (for everyday transactions), the Precautionary Motive (for unforeseen contingencies), and the Speculative Motive for taking advantage of expected changes in asset values (Keynes, 1936). The theory posits that interest rates play a pivotal role in determining the quantity of money demanded. As interest rates rise, the opportunity cost of holding money increases, encouraging individuals and institutions to seek interest-earning assets (Bibow, 2005). Conversely, when interest rates fall, the demand for money rises due to reduced opportunity costs (Keynes,1936; Bertocco, 2014).

In the context of rural banks in Ghana, liquidity preference is crucial. These banks must strike a balance between holding liquid assets (like cash and reserves) to meet daily operational needs and investing in interest-earning assets to enhance financial performance. The theory's application to rural banks involves evaluating how changes in interest rates influence their liquidity decisions. During periods of high interest rates, rural banks may face challenges in managing liquidity as the opportunity cost of holding cash increases. Keynes (1936) laid out the theory in "The General Theory of Employment, Interest, and Money," serving as the primary reference for understanding liquidity preferences. Liquidity preference directly influences the financial performance of rural banks. The ability to make optimal choices between liquid and interest-earning assets impacts the overall profitability and stability of these institutions. Friedman (1971) extended discussions on liquidity and interest rates. Friedman's insights contribute to understanding how interest rates shape liquidity decisions and, consequently, financial performance. Empirical investigation on credit and liquidity risk applied the theory to explain the concept (Ghani & Hossain, 2023).

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2.3 Conceptual Review

This section of the study provides a conceptual review of the variables under review and explore how they relate to the dependent variable based on empirical studies.

2.3.1 Capital Adequacy (CA)

Capital adequacy is a critical measure in the banking sector, representing the ratio of a bank's capital to its risk-weighted assets. This metric serves as a key indicator of financial stability and is crucial for assessing a bank's capacity to absorb potential losses, thereby protecting depositors and maintaining confidence in the financial system. Regulators typically set minimum capital requirements to ensure that banks can withstand financial distress and continue to operate without necessitating a bailout. Previous studies have often focused on how capital adequacy influences bank profitability. For instance, Dao (2020) and Pradhan et al. (2017) found a positive correlation between higher capital ratios and bank profitability. This relationship is generally attributed to the risk management perspective that well-capitalized banks are perceived as safer, potentially attracting more deposits and allowing access to cheaper funding. Contrastingly, the positive relationship is refuted by the claimed put forward by Eyo and Offiong (2021) that there is no relationship between capital adequacy and financial performance of banks.

2.3.2 Firm Size (FS)

Bank size typically refers to the total assets owned by a bank. Larger banks often benefit from economies of scale, which can lead to lower costs and higher profitability. However, large banks may also suffer from inefficiencies related to more complex organizational structures (Fazam et al., 2021). Bank size is a terminology that is assess in the literature based on either the number of employees a can controls or the size of

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its asset relative to that of other players in the industry. Recent empirical studies have shown mixed results regarding the impact of bank size on financial performance. For instance, a study by Fazam et al. (2021) found that larger banks in Malaysia exhibited higher profitability, possibly due to better diversification and economies of scale. Conversely, other studies, such as Younis and Sundarakani (2019), suggest that after a certain threshold, the cost of complexity and regulatory scrutiny can outweigh the benefits of being larger.

2.3.3 Liquidity Risk (LR)

Liquidity risk involves the risk associated with a bank's ability to meet its short-term obligations without incurring unacceptable losses (Muriithi & Waweru, 2017). Higher liquidity levels can lead to lower risk but may also reduce profitability due to lower returns on more liquid assets. Research shows that managing liquidity risk is crucial for maintaining bank stability and performance. For instance, a 2017 by Abdellahi et al. suggested that better liquidity management correlates with improved profitability for banks in Central Europe. These findings underscore the importance of a balanced approach to liquidity that ensures safety without excessively sacrificing profitability. Other strand of literature proves that liquidity risk has no relationship with financial performance of banks (Muriithi & Waweru, 2017). Again, empirical study by Salim and Bilal (2016) using Omani banks shoed that liquidity risk has no relationship with financial performance.

2.3.4 Non-performing loans (NPL)

Non-performing loans refer to loans in which the borrower is not making the required payments, typically for a period of 90 days or more. NPLs are a specific manifestation of credit issues and represent loans that have already gone bad (Ogboi & Unuafe, 2013).

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This is a core risk for banks as loans constitute a significant portion of their assets. Conventionally non-performing loans assessed in literature by using the portion of a bank's total loans that borrowers have defaulted (Gadzo et al., 2019). Empirical studies consistently find a negative relationship between non-performing loans and financial performance. For example, Abdellahi et al. (2017) demonstrated that higher non-performing loans (a proxy for credit risk) significantly diminish bank profitability. Managing credit risk efficiently is thus critical for enhancing financial performance. Again, an empirical investigation by Ekinci and Poyraz (2019) revealed that non-performing loans has adverse impact on the financial performance measured through ROA and ROE. This was supported by existing study which discovered that non-performing loans have inverse relationship with commercial banks profitability (Serwadda, 2018).

2.3.5 Board Size (BS)

Board size refers to the number of directors on the board of a bank. Theoretically, larger boards can provide better oversight due to more diverse expertise, but too large a board might lead to coordination problems and diluted accountability (Kyere & Ausloos, 2021; Sharpe, 1996; Shair et al., 2019). The impact of board size on bank performance has been debated, with studies offering conflicting results. For instance, a study by Ellba (2022) found that smaller boards are more effective in fast decision-making, leading to better performance outcomes. However, larger boards might benefit risk management by providing a broader range of expertise and experience, which can be crucial in complex financial environments. This discovery is confirmed by the assertion of Pathan (2016) who also demonstrated that board size has positive impact on performance of companies.

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2.3.6 Performance (PFM)

In finance, performance generally refers to the effectiveness with which a firm, fund, or investment achieves its intended financial objectives (Viana et al., 2020). Performance is a critical metric for stakeholders, including investors, managers, and analysts, to assess the economic health and efficiency of various financial entities. These performance evaluations often guide investment decisions, strategic business adjustments, and portfolio management (Osubgeui, 2018). Performance in finance can be broadly categorized into two main dimensions: absolute performance and relative performance. Absolute Performance considers the return on an investment without comparison to any benchmark or standard. It is typically measured through metrics like Return on Investment (ROI), Net Profit, Earnings per Share (EPS), and Total Shareholder Return (TSR) (Mmari, 2019; Wagana, 2016). Relative Performance assesses how well a firm or investment performs in relation to a benchmark or a peer group. This is often measured through ratios such as Return on Equity (ROE), Return on Assets (ROA), or through indices that compare performance against market or specific sector indices (Dao, 2020; Okaro, 2016). Performance measurement in finance literature revolves around various methodologies depending on the context corporate finance, personal investment portfolios, or institutional investment management.

2.4 Empirical Review

This section of the study reviews previous studies conducted on the topic and similar ones that provide valuable information to aid the present inquiry. The review is sequestrated into three headings non-performing loans and financial performance, liquidity risk and its nexus with profitability and policy rate and financial performance of banks.

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2.4.1 Non-performing loans and financial performance of banks

Oduro et al. (2020) investigated the factors influencing bank credit risk and assesses the impact of credit risk on corporate financial performance. It utilized financial data from banks listed on the Ghana Stock Exchange over a 15-year period from 2003 to 2017 to understand how increased exposure to credit risk can threaten a bank's financial performance and survival. The study employed the two-stage least squares (2SLS) method to analyze the data. This approach helped to identify the determinants of credit risk and estimate its effects on corporate financial performance. The analysis revealed that variables such as capital adequacy, operating efficiency, profitability, and net interest margin are inversely related to credit risk. In contrast, bank size and the financing gap are positively associated with credit risk. Additionally, annual changes in inflation are found to increase credit risk. The study further demonstrated that an increase in bank credit risk negatively impacts corporate financial performance (Oduro et al., 2020).

This underscores the importance of effective credit risk management for the survival and financial stability of banks. The study provides valuable insights into the determinants of credit risk and its effects on financial performance. However, there are a few areas that could be improved or further explored: While the 15-year period provides a comprehensive view, expanding the dataset to include more recent years could validate whether the observed trends persist over time. Again, the study could benefit from a deeper examination of external economic factors that might influence credit risk, such as changes in regulatory policies or macroeconomic shocks. Also, the use of 2SLS is appropriate, but additional robustness checks using alternative methodologies could strengthen the findings. Furthermore, including qualitative factors such as management practices and corporate governance could provide a more holistic

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understanding of the determinants of credit risk. Additionally, a comparative analysis with banks in other emerging markets could offer broader insights and highlight whether the findings are specific to Ghana or have wider applicability.

Chimkono et al. (2016) examined the association that exists among some factors, banks' profitability level and credit risk ratio in Malawian banks. Their study covered the periods from 2008 to 2014 making seven years. The measure for financial performance was the ROA whereas the NPLs ratio was used to represent credit risk. It was discovered that the efficiency ratio in terms of cost, credit risk, and lending rate impacted the bank's profitability significantly in a positive direction. In the context of Ghana, Bentum (2012), embarked on empirical research on the profitability determinants of Ghanaian banks. ROE was used to represent the profitability of the selected banks. The study reported that factors related to the bank that affected the banks' profitability, from the researcher's findings were reserves on total assets and capital. Inflation, the growth rate of GDP, and money supply were the macroeconomic variables that impacted the banks' profit level at the time of the research.

Similarly, Saleh and Winarso (2021) conducted a study to expand the insight into credit in terms of analysis of Loan to Deposit Ratio (LDR) and Non-loan performance (NPL) at the Rural Bank of Bandung City. The researchers employed a descriptive and verification research methodology. The population in this study was Rural Banks in Bandung for the period 2014 - 2019 which amounted to 29. The research employed a multiple linear regression analysis using SPSS 20. The result indicated that credit risk and LDR affected profitability (ROA) has a positive effect on profitability. According to the results of their hypothesis test, credit risk and LDR have an 11% impact on profitability.

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Contrary to this study was research conducted by Viana et al (2021), which analyzed the effect of internal factors consisting of capital, liquidity, efficiency, credit risk, and total assets of conventional rural banks on ROA. The researchers employed secondary data in the form of the financial ratio of 320 conventional rural banks in Indonesia in 2015-2019. They utilized the panel data regression as the analysis tool. The panel data regression results showed that size (total assets) has a significant positive effect on ROA. Meanwhile, Operational Efficiency Ratio (BOPO) and Non-Performing loans have a significant negative effect on ROA. Capital Adequacy Ratio (CAR) and Loan to deposits Ratio (LDR) have no significant effect on ROA. This result also contradicts the positive evidence provided by Chimkono et al. (2016) that credit risk exerts a positive impact on the profitability of banks.

Mauludi and Winarso, (2020) investigated non-performing loans and the Loan to Deposit Ratio (LDR) on the performance of Rural Banks (BPR) as measured by Return on Assets (ROA). Data obtained from the financial services authority and regulations issued by Bank Indonesia (BI) obtained using E-views are rural bank financial reports from 2014 to 2019. They found that non-performing loans affects ROA adversely while LDR has no effect on ROA but simultaneously NPL and LDR have an effect on ROA. From the results of the Hypothesis test, it was found that the magnitude of the influence was 85.33% and the remaining 14.67% were other factors that were not examined. The researchers further recommended that the regulator should be stricter in supervising BPR operations, especially in the city of Bandung, and for BPR management it is hoped that it can increase ROA by channeling loans to borrowers on target so as not to increase NPL. The number of Rural Banks in Indonesia continued to decrease during 2015-2019, even when its assets increased positively (Mauludi & Winarso, 2020). Credit is the primary source of income for rural banks, so most assets are placed in

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lending. However, growth in lending was followed by higher growth in problematic lending so that the level of Non-Performing Loans (NPLs) continued to increase and exceeded the maximum limit set by Bank Indonesia. It indicates that Rural Banks have not worked optimally in Indonesia, especially in facing credit risks. The findings indicated that total assets had no bearing on NPL. NPL was positively impacted by the quality of earning assets, whereas it was negatively impacted by productivity, efficiency, and profitability (Hamdillah et al, 2021).

Sondakh et al. (2021) aimed to examine how third-party funds, credit risk, market risk, and operational risk collectively or individually impact the profitability of banks, particularly those falling under the BUKU 2 category. The study employed a saturated sampling method, resulting in a sample size of 54 banks. Quantitative data from the financial statements of BUKU 2 category banks for the period 2014-2017, sourced from the banks' websites, formed the basis of the analysis. Multiple linear regression analysis was used as the research method. Third-party funds were measured using the third-party fund (TPF) ratio, credit risk with non-performing loan (NPL) and non-performing financing (NPL) ratios, market risk with the net interest margin (NIM) ratio, operational risk with the BOPO ratio, and profitability with the return on assets (ROA) ratio. The study's findings indicated that, when considered individually, third-party funds and credit risk did not have a significant impact on profitability, while market risk had a notably positive effect, and credit risk had a significant negative effect. However, when all factors were considered simultaneously, including third-party funds, credit risk, market risk, and operational risk, they collectively had a significant impact on profitability (Sondakh et al., 2021).

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Again, Gadzo et al. (2019) assessed the impact of credit and operational risk on the financial performance of universal banks, using a structural equation model (SEM) within the context of Ghana. Data was collected from all 24 universal banks, and there were no missing variables. Employing the PLS-SEM analysis, the findings revealed that credit risk had a negative influence on financial performance, which contradicted some empirical studies but aligned with the principles of information asymmetry found in the "lemon theory." Additionally, operational risk was identified as hurting the financial performance of universal banks in Ghana. Furthermore, the study highlighted that bank-specific variables, including asset quality, bank leverage, cost-to-income ratio, and liquidity, had a significant positive influence on both credit risk, operational risk, and the financial performance of universal banks. In light of these findings, it is recommended that banks should consider lowering their lending rates to mitigate credit risk and subsequently enhance profitability. Regarding operational risk, banks are advised to reduce leverage and focus on more liquid investment income, which can contribute to improved profitability. The negative finding aligns with the result of Sondakh et al. (2021) who recorded that operational risk has a significant negative relationship ship with the profitability of banks.

Also, Mrindoko (2021) conducted an empirical assessment of how non-performing loans and operational risk influence the financial performance of commercial banks in Tanzania. The research design employed was explanatory, guided by a positivist philosophy, and it exclusively used a quantitative approach with secondary panel data spanning from 2006 to 2019. The dataset consisted of information from 41 commercial banks, resulting in 264 observations. The analysis was carried out using STATA and included descriptive statistics, generalized linear models, and structural equation modeling. The findings indicated that long-term debt ratio (LTDR), loan asset

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diversification ratio (LADLR), and exchange rate (EXCHR) had a positive and statistically significant impact on both return on assets (ROA) and return on equity (ROE). On the other hand, operating expense ratio (OER), cost-to-income ratio (CIR), provision for credit losses (PCL), loan growth rate (LGR), and GDP growth rate had a negative and statistically significant relationship with bank performance.

In contrast, the non-performing loan ratio (NPLR), capital adequacy ratio (CAR), and inflation rate showed no statistically significant relationship with bank performance. The adverse impact of operational risk on the profitability of commercial banks is consistent with the result of Gadzo et al. (2019) and Sondakh et al. (2021) who unanimously documented that operational risk exerts a significant negative effect on the profitability of banks. Furthermore, the structural modeling results indicated that both operational risk and credit risk hurt bank performance, which aligned with the theories of asymmetric information and credit risk. In summary, the study concluded that commercial banks in Tanzania faced moderate risk in their lending business, but profitability tended to increase with an escalation in risk. Therefore, the lending business in Tanzania was characterized as both risky and profitable. The study recommended that commercial banks should actively manage their operational risk by diversifying their investments into portfolios that yield returns and by reducing their leverage. The weakness of the study in its consideration of only 41 commercial banks which may limit its generalization to only commercial banks in Tanzania. Again, other non-bank financial institutions in Tanzania operate in the financial sector as recognized by the regulator of the financial sector in Tanzania meanwhile the study ignored these institutions therefore the findings cannot be generalized to these institutions. Per the ascertained relationship between credit risk and the financial performance of banks, the study put forth the following hypothesis.

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H_0: *Non-performing loans has no significant negative relationship with the financial performance of rural banks.*

H_A: *Non-performing loans has a significant negative relationship with the financial performance of rural banks.*

2.4.2 Liquidity risk and financial performance of banks

Ruziqa (2013) investigated the influence of credit and liquidity risk on the financial performance of Indonesian Conventional Banks with total assets exceeding 10 trillion Rupiah during the period from 2007 to 2011. The study focused on three key financial performance indicators: return on assets (ROA), return on equity (ROE), and net interest margin (NIM). Credit risk is assessed through the non-performing loan ratio, while liquidity risk is evaluated using the liquidity ratio. Additionally, the study explores the effects of bank capital and size on financial performance. The study employed a fixed estimation technique to examine the impact of credit and liquidity risk on bank financial performance. The sample included Indonesian Conventional Banks with total assets exceeding 10 trillion Rupiah during the years 2007 to 2011. Financial performance is measured using ROA, ROE, and NIM, while credit risk is assessed through the non-performing loan ratio, and liquidity risk is measured using the liquidity ratio. The results of the study revealed significant insights into the relationship between risk factors and financial performance. Credit risk is found to have a negative and significant impact on both ROA and ROE.

In contrast, the liquidity risk demonstrated a positive and significant effect on both ROA and ROE. Bank capital is identified as having a positive and significant impact on ROA, ROE, and NIM. However, bank size is found to have a negative significant impact on NIM. Interestingly, both credit risk and liquidity ratio are observed to have

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an insignificant impact on NIM. Despite the valuable findings, certain limitations exist in the study. These may include constraints related to the time frame of the study, data availability, and potential variations in the banking landscape during the specified period. Again, the study's concentration on only conventional banks with total assets of 10 trillion Rupiah and over may lead to the neglect of other medium-sized banks whose inclusion in the study might have led to comprehensive data for the analysis. Also, the focus of the study on only conventional banks in Indonesia may limit the generalizability of the findings of the study to other countries in the Eastern Asia economic bloc. Based on the findings, the study suggests that Indonesian Conventional Banks should pay close attention to managing and mitigating credit risk to enhance their ROA and ROE. Additionally, maintaining a favorable liquidity ratio is recommended to positively impact both ROA and ROE. Banks are advised to bolster their capital positions, as evidenced by the positive impact on ROA, ROE, and NIM. However, careful consideration should be given to the potential negative impact of increased bank size on NIM.

Similarly, Rahman et al. (2015) sought to explore various factors influencing bank profitability, both at the bank-specific and macroeconomic levels. The research investigates the impact of capital strength, credit risk, ownership structure, bank size, non-interest income, cost efficiency, off-balance sheet activities, and liquidity as potential bank-specific determinants, along with growth in gross domestic products (GGDP) and inflation as potential macroeconomic determinants of profitability. The analysis spans 25 commercial banks in Bangladesh over the period from 2006 to 2013, considering three distinct measures of profitability: return on assets (ROA), net interest margin over total assets (NIM), and return on equity (ROE). The study employs fixed and random effect estimations approaches to assess the influence of various factors on

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bank profitability. It utilizes a dataset comprising 25 commercial banks in Bangladesh, covering the years 2006 to 2013. Empirical findings revealed several noteworthy insights into the determinants of bank profitability. Capital strength, encompassing regulatory and equity capital, and loan intensity demonstrates a positive and significant impact on profitability.

Conversely, cost efficiency and off-balance sheet activities exhibit a negative and significant influence on bank profitability. The study notes that the impact of other variables is not uniform across different profitability measures. Non-interest income, and GGDP emerge as critical determinants for NIM, while liquidity risk and bank size have a positive and significant impact on ROA. The inverse relationship between credit risk, and profitability as found by the study is consistent with the finding recorded by Ruqiza (2013) whose empirical investigation of the relationship between the credit risk and profitability of Indonesian conventional banks showed a negative relationship. In a similar vein, the positive effect of liquidity risk on profitability is consistent with the positive effect of liquidity risk on banks' profitability (Ruqiza, 2013). Inflation is identified as having a negative and significant impact on both ROA and ROE. Despite the valuable insights gained, the study is not without potential critiques. Limitations may arise from data quality, availability, and the assumptions underlying the empirical models. Additionally, the generalizability of findings could be influenced by specific banking and economic conditions in Bangladesh. Building on the findings, the study recommends that banks in Bangladesh focus on strengthening capital positions and managing loan portfolios effectively to enhance profitability. Attention should be given to improving cost efficiency and carefully navigating off-balance sheet activities. The study also suggests that banks consider the implications of non-interest income, credit risk, and macroeconomic factors like inflation in their strategic planning.

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Again, Islam and Nishiyama (2016) utilizing the Generalized Method of Moments (GMM) estimator, aimed to empirically investigate the determinants of bank profitability across 259 commercial banks in South Asian countries, specifically Bangladesh, India, Nepal, and Pakistan. The study covers the extensive period from 1997 to 2012, shedding light on bank-specific, industry-specific, and macroeconomic factors influencing profitability. The study systematically evaluates various factors, including financial solvency, managerial competence, cost of funds, liquidity, funding gap, term structure of interest rates, economic growth rate, and inflation, to comprehensively understand their impact on bank profitability. Empirical results reveal notable insights into the determinants of bank profitability in the South Asian region. The study observes a low level of profit persistency and identifies a delayed impact of the global financial crisis on the banking sector within the specified countries. Contrary to the traditional Structure-Conduct-Performance (SCP) hypothesis, the research found no evidence supporting a direct relationship between market structure and bank profit. However, financial solvency and managerial excellence demonstrate a positive association with bank profitability. On the other hand, factors such as the cost of funds, liquidity, funding gap, term structure of interest rates, and economic growth rate exhibit a negative influence, while the rate of inflation positively affects bank profit.

The discovery that liquidity risk adversely impacts the profitability of banks contradicts the conclusion that there is a positive relationship between liquidity risk and the profitability if conventional banks as espoused (Rahman et al., 2025; Ruqiza, 2013). Additionally, the study notes operational inefficiencies in the manpower of South Asian banks. Despite the valuable insights gained, the study is not without limitations. It is crucial to acknowledge potential constraints in data availability, quality, and the assumptions inherent in the GMM estimation method. Moreover, the generalizability

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of findings may be influenced by specific regional nuances and contextual factors. Building on the findings, the study recommends that South Asian banks focus on enhancing financial solvency and managerial capabilities to bolster profitability. Additionally, attention should be directed towards optimizing cost structures, managing liquidity effectively, and aligning interest rate strategies to mitigate adverse effects on profit. Addressing inefficiencies in workforce utilization is also crucial for improving overall operational efficiency. Moreover, the inquiry failed to incorporate credit risk in its exploration. Additionally, selecting only four countries to represent South Asian countries may not be representative of the South Asian economic bloc.

Also, Golubeva et al. (2019) aimed to explore the repercussions of liquidity on bank profitability in the aftermath of the implementation of Basel III regulations. The study employs various indicators of bank liquidity, including the Liquidity Coverage Ratio (LCR), a novel metric derived from the Basel III framework, as well as the Loan-to-deposit and Financing gap ratios. Additionally, alternative proxies such as Earnings before Taxes, Depreciation, and Amortization are considered instead of conventional profitability measures. The analysis involves a dataset comprising 45 European banks, covering 180 observations spanning 2014-2017, with an additional 37 observations for the year 2018. To achieve the study's objectives, a quantitative model is proposed, utilizing Ordinary Least Squares techniques complemented by Weighted Least Squares regression analysis. The results indicate that alternative liquidity risk measures exhibit a significant and positive impact on certain proxies of profitability while showing an insignificant effect on others.

Notably, the Basel III liquidity measure, LCR, emerges as an insignificant contributor to all examined return proxies, prompting the need for further investigation. The

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positive effect of liquidity risk on the profitability of banks as discovered by the study concords with the revelation adduced by Ruqiza (2013), and Rahman et al. (2015) that liquidity risk has a positive significant impact on the profitability of commercial banks in Indonesia and Bangladesh whilst the positive effect debunks the negative relationship between liquidity risk and profitability of banks as documented (Islam & Nishiyama, 2016).

The study also reveals that an increase in bank size and net provisions for loan losses is associated with a decrease in profitability proxies. Furthermore, mixed results are observed concerning the effects of deposits and securities gains and losses on bank profits, with the study providing possible explanations for these outcomes. Though the findings contribute valuable insights, it is important to acknowledge potential limitations, such as the focus on European banks and the specific time frame considered. Per the outcome of the study, it is recommended that future research delves deeper into the inconclusive findings regarding the LCR's impact on profitability. Additionally, expanding the scope to include a broader range of banks and considering a more extensive time frame could provide a more comprehensive understanding of the relationship between liquidity and profitability in the post-Basel III era.

Moreover, Abdelaziz et al. (2020) seek to understand how credit risk and liquidity risk impact the profitability of MENA banks individually and in combination. Additionally, it aims to assess the influence of institutional quality, particularly law and order, on bank profitability and the levels of credit and liquidity risks. The research employs the Seemingly Unrelated Regression (SUR) method to analyze data from conventional banks in the MENA region during the period 2004–2015. The overall results revealed a significant negative sensitivity of MENA banks' profitability to increases in both

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credit and liquidity risks. This negative impact persists when examining the separate and interaction effects of these risks.

The finding that liquidity exerts a negative impact on the profitability of banks in the MENA region corresponds with the inverse relationship between liquidity risk and the financial performance of financial institutions (Islam & Nishiyama, 2016). Again, the adverse effect of liquidity risk as discovered by the study agrees with the results ascertained by the inquiry that investigated the nexus between liquidity risk and the profitability of commercial banks (Golubeva et al., 2019). Nevertheless, the negative relationship as found by the study opposes the result of the study that revealed a positive relationship between liquidity risk and profitability of banks (Ruqiza, 2013; Rahman et al., 2015). Furthermore, the study indicates that higher institutional quality, reflected in law and order, is associated with increased bank profitability and reduced levels of credit and liquidity risks. Though the study provides valuable insights, it is important to acknowledge potential limitations, such as the specific time frame considered (2004–2015) and the focus on conventional banks. Again, the study's sole focus on banks in the MENA may limit its generalizability. Also, the research used only commercial banks whose operational parameters and characteristics may differ significantly from those of rural banks. Based on the findings, it is recommended that policymakers and banking institutions in the MENA region prioritize measures to mitigate credit and liquidity risks. Additionally, efforts to enhance institutional quality, particularly in terms of law and order, can contribute to improved bank profitability and risk management.

Relatedly, Saleh et al. (2020) empirically examined the impact of credit risk, liquidity risk, and bank capital on the profitability of banks operating within an emerging market.

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By conducting a thorough investigation, the study seeks to enhance the understanding of these relationships, shedding light on the dynamics that influence the financial performance of banks over an extended period. The research methodology involves the application of econometric panel data analysis, specifically employing GMM methods. This approach allows for a dynamic examination of the relationships between credit risk, liquidity risk, bank capital, and bank profitability. The utilization of panel data ensures a comprehensive and nuanced understanding of these dynamics over the nine years. The results of the study reveal that credit risk and liquidity risk negatively and significantly affect the profitability of banks. The outcome of the study supports the finding that liquidity risk has an inverse relationship with the profitability of banks (Golubeva et al., 2019).

Again, the adverse impact of liquidity risk on the financial performance of banks as unveiled by the research is in concomitance with the negative effect narrative adduced by (Islam & Nishiyama, 2016). Also, the revealed negative effect of liquidity risk on the profitability of financial institutions unequivocally affirms the negative analogy of the relationship between liquidity risk and the financial performance of banks (Abdelaziz et al., 2020). Notwithstanding, the observed result that liquidity risk affects firm profitability negatively refutes the positive argument put forward by (Ruqiza, 2013). In relation, the significant negative effect of liquidity risk adduced by the study debunks the positive effect narrative championed by (Rahman et al., 2015). Contrastingly, bank capital variables exert a discernible impact on bank profitability in a positive direction. These findings contribute valuable insights into the intricate interplay between these factors, providing empirical evidence that can inform banking practices within the emerging market under consideration.

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In light of the study's outcomes, it is recommended that local and foreign bank managers operating in the studied emerging market pay careful attention to the implications of credit risk, liquidity risk, and bank capital on profitability. Understanding and effectively implementing Basel requirements can enhance overall bank efficiency, increase profitability, and fortify banks against potential risks. This recommendation underscores the practical relevance of aligning banking practices with regulatory standards to achieve optimal financial outcomes. While the study successfully examines the specified relationships, it is crucial to acknowledge potential limitations such as data constraints or assumptions within the econometric model. Additionally, considerations for external factors impacting the emerging market could further strengthen the study's robustness. Since banks do not operate in a vacuum, expunging macroeconomic variables as the controls in the study may lead to asymptotically skewed, unreliable, and less robust results. Per the recorded relationship between liquidity risk and the financial performance of banks, the study put for the following hypothesis.

H_0: *Liquidity risk has no significant negative relationship with the financial performance of rural banks.*

H_A: *Liquidity risk has a significant negative relationship with the financial performance of rural banks.*

2.4.3 Policy rate and financial performance of banks.

Kumar et al. (2020) used New Zealand banks to examine the impact of monetary policy on banking profitability between 2006 and 2018. Their findings, which were based on a Generalized Methods of Moments (GMM) panel of 19 New Zealand banks, demonstrate that rising short-term rates increase bank profitability while rising long-

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term rates decrease it. The study concluded that monetary policy rate being examined reflect how monetary policy affects banking profitability. Additionally, it was discovered that cost-to-income ratios used as proxy for bank efficiency, nonperforming loans, and adequate capital are important factors that influence bank profitability. Though the study provides a profound insight into the policy rate and banks performance nexus it concentration only new banks in New Zealand may not yield results that reflect the reality in the New Zealand banking sector.

Akomolafe et al. (2015) investigated the effect of monetary policy on the performance of commercial banks in Nigeria. The money supply and interest rate were used as stand-ins for monetary policy, and profit before tax (PBT) was used to gauge how well commercial banks performed. The analysis used pooled regression, fixed effect regression, and random effect regression. However, its analysis cantered on the fixed effect regression results, according to the Hausman test. The findings demonstrated a favourable inverse relationship between bank profits and policy rate monetary policies, as measured by the money supply and interest rate. The inverse significant results as recorded by the study conflict the positive findings ascertained by Kumar et al. (2020). The use of 10 years data for the study may not yield results that is applicable to the present period due to the evolving nature of the banking sector. Again, the consideration of only Nigeria may limit the applicability of the study results to other countries.

Areghan et al. (2021) investigated how Nigerian listed banks' exposure to loan risk is affected by monetary policy and examined the relationship between monetary policy and banks' performance. The data analysis for this study was conducted using a Vector Error Correction Model (VECM) framework and ordinary least square multivariate regression. Results revealed that policy rate inversely relates to bank profitability. The

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study's findings indicate that lending rates do not significantly affect loans and advances. The most significant impact on listed bank loans and advances, as supported by its accurate estimate, is revealed by the monetary policy rate. This indicates that the monetary policy rate is a reliable parameter for assessing how well banks allocate their credit facilities. The negative relationship between policy rate and banks profitability as recorded by the study coincide with the negative finding ascertained by Akomolafe et al. (2015) meanwhile the inverse result deviates from the account of Kumar et al. (2020) who discovered a positive e effect of policy rat on bank profitability. The weakness of the study is it reliance on only listed in Ghana though there are other reputable commercial banks in Ghana that are not listed on the Ghana stock exchange.

Amidu and Wolfe (2015) looked at the impact of monetary policy on bank lending and profitability in Ghana. The study used Pooled mean regression estimation technique to analyse a data of 10years collected from banks operating in Ghana. Their research showed that the country's economic factors and variations in the policy rate have a significant impact on the lending behaviour of Ghanaian banks and consequently impact banks performance positively. Additionally, their findings demonstrated that bank lending is adversely impacted by inflation but statistically insignificant. Their study found that bank size and liquidity have a significant impact on the bank's capacity to extend credit, when necessary, based on firm level characteristics. The positive effect of monetary policy on banks profitability confirms the positive impact of policy rate on banks profitability as adduced (Akomolafe et al., 2015). Nevertheless, the finding is opposed by the result of negative relationship between policy rate and banks profitability revealed by (Areghan et al., 2021). The adoption of the pooled mean method for estimation may not yield reliable results due to some inherent weakness associated with the estimation technique.

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Similarly, Campmas (2020) used 445 banks from 26 different European economies to examine the impact of European policy rates on banking profitability between 1999 and 2015. The study shows that monetary policy rate has a negative impact on bank profitability using dynamic panel data analysis method. This negative finding is consistent with the results of Akomolafe et al. (2015) and Areghan et al (2021) in whose study was recorded that policy rate has a significant negative relationship with banks profitability. Meanwhile the negative result is inconsistent with the account that there is a positive relationship between policy rate and banks profitability (Kumar et al., 2020; Amidu & Wolfe, 2015). However, the research discovered that lower interest rates, which show an expansionary monetary policy, has a positive effect on net interest margins while having a negative effect on return on assets and equity. The weakness associated with the investigation is its concentration on only banks in the European region making the generalizability of its result to other regions and economic blocs problematic.

Zimmerman (2019) used 17 economies from various continents between 1970 and 2015 to examine the impact of monetary policy proxied by policy rate and money supply on banking profitability through the pooled mean regression technique. The study demonstrates that policy rate tightening (contractionary monetary policy) increases both deposit and lending spreads but decreases banking profitability by using cumulative projection estimation models and country-level data. Also, the inquiry furthered that loan losses and a slowdown in credit growth are what cause the variation in spread and profitability. The inverse relationship between policy rate and banks profitability aligns with the findings that there is negative relationship between policy rate and profitability of banks as championed (Campmas, 2020; Areghan et al., 2021).

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This negative result is also supported by the finding of Akomolafe et al. (2015) whose study revealed that increasing policy rate has a dampening implication on the profitability of banks. On the other hand, the negative discovery is challenged by the strand of literature that found that there is positive effect of policy rate on profitability of commercial banks (Kumar et al., 2020; Amidu and Wolfe, 2015). The estimation technique used by the study is associated with a several weaknesses which makes the veracity of the study findings contestable to some extent.

Similarly, Altavilla et al. (2018) used proprietary and commercial banking data on the euro area to examine the impact of standard and unconventional monetary policy (policy rate and money supply) on banking profitability. The quarterly bank level data alongside data for macroeconomic variables data for the study which was collected from respective banks from 2000 to 2016 was analyzed using generalized method of moment estimation technique. Result revealed that policy rate has no effect on the profitability of the studied commercial banks within the Euro region. Additionally, different measures of banking profitability are affected in a variety of significant ways by accommodative monetary conditions. As a result, while accommodating monetary conditions have a positive impact on non-interest income and loan loss provisions, they also cause net interest margins to decline. Once more, extended periods of low interest rates cause a decline in profitability, which only becomes noticeable after extended periods of low interest rates.

Aydemir and Ovenc (2016) looked into the impact of Turkey's short-term interest rate and yield curve slope on banking profitability. Their findings, which were based on dynamic panel data from 26 banks, demonstrate that while short-term interest rates and the slope of the yield curve have a significant negative impact on profits in the short

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run, they have a positive long-term impact. They conclude that the profitability of banks in emerging markets is more sensitive to changes in policy rates by comparing the sensitivity of profitability of Turkish banks to banks in the UK. Bank profitability is impacted by monetary policy in two ways. First, by decreasing their funding costs and raising borrowers' creditworthiness, lower interest rates have a positive macroeconomic impact that supports banks.

Second, a monetary policy that is accommodating could cause a decline in net interest income (Dao, 2020). Studies that investigated the connection between monetary policy and bank profitability exist. There is no clear agreement among researchers on whether the monetary policy has an impact on the performance of banks in a positive, negative, or neutral way because the area is still understudied (Altavilla et al., 2018). The short-term interest rate and bank profitability (ROA) appear to be positively correlated, according to a recent study by Altavilla et al. (2018) on 109 large international banks from 14 developed economies between 1995 and 2012. Based on the identified nexus between policy rate and financial performance of banks, the study hypothesizes that;

H_0: *Policy rate has no significant positive effect on financial performance of rural banks.*

H_A: *Policy rate has significant positive effect on financial performance of rural banks.*

2.5 Conceptual Framework

The primary aim of this study is to assess the effects of nonperforming loans on the rural banks' profitability in Ghana. Per the review of the literature, bank-related factors and macroeconomic factors determine the credit risk of banks. In the framework below internal variables like non-performing loans as measured as the non-performing ratio of a bank's total credit, empirically a rise in the credit risk of a bank leads to reduction

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in the profitability of bank (Hamdilliah et al., 2021). Liquidity risk measured as the ratio of advances to deposit received banks reduces the ability of banks to credit and dampen the profitability of banks (Oduro et al., 2020; Gadzo et al., 2019). Interest rate measured as the policy rate, liquidity risk and credit risk are captured as the interested independent variables to cause an effect on the financial performance of rural banks as proxied with return on asset. Again, other bank-specific variables such as firm size, capital adequacy, and board size together with macroeconomic variable inflation rate are used as control variable and expected to cause a direct effect on the profitability of rural banks. Figure 2.1 below displays the framework designed for the study.

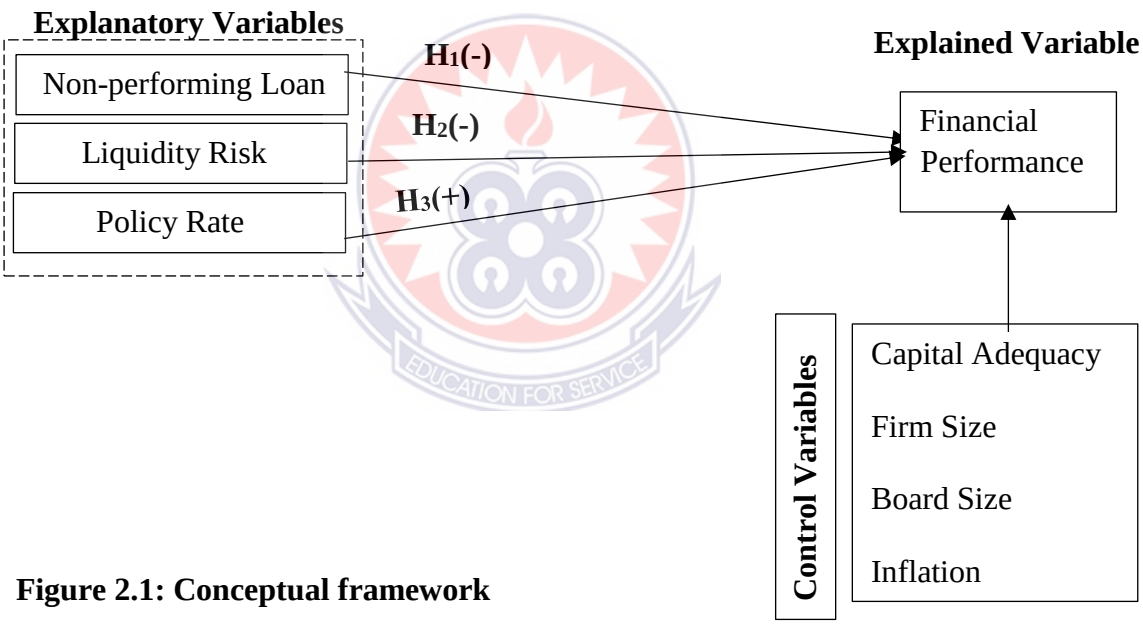

Figure 2.1: Conceptual framework

Source: Author's construct, 2024.

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CHAPTER THREE

METHODOLOGY

3.1 Introduction

This chapter of the study presents and explains the research design, research approach, data, and sources of data. Again, the data analysis procedure which comprises model specification and estimation technique as well as ethical considerations are presented in this chapter. This chapter is important in scientific research as it lays down the procedures for the study to give other researchers the ability to understand the methods as well as replicate them if needed.

3.2 Philosophy of the study

Research philosophy is the assumption and beliefs regarding knowledge formulation and development (Crossan, 2003). This study applied the positivist philosophy which is a research philosophy that advocates the use of scientific methods to study and develop knowledge about phenomena (Richey & Klein, 2014). It is based on the belief that reality is objective and can be observed and described from an external point of view. Positivism relies heavily on observable and measurable data, knowledge is considered valid only if it can be empirically verified, and data collection and analysis are performed using quantitative methods, such as experiments, surveys, and statistical analysis (Chia, 2002). Again, positivist research aims to be objective and free from researcher bias. The researcher maintains a detached and neutral stance, the goal is to discover general laws or principles that govern phenomena. Moreover, positivism often employs a deductive approach, where hypotheses are formulated based on existing theories and then tested through empirical research. The emphasis is on hypothesis

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testing, verification, and falsification. The objectives of the study and the data under consideration informed the choice of positivism philosophy.

3.3 Research Design

Research design encompasses the overall strategy that guides the researcher in collecting and analyzing data to address research questions or test hypotheses effectively (Creswell & Creswell, 2017). This study adopted the explanatory research design. Explanatory research design also known as causal research design is a research design that is used in exploring a concept in detail (Sreejesh et al., 2024; Swedberg, 2020). The explanatory research design is applicable when the phenomenon or the concepts under study seek to examine the relationship among variables of interest (Stebbins, 2001). The study adopted the explanatory design because it attempts to determine the effects of non-performing loans, policy rate, liquidity risk, and other control variables on the performance of banks. Again, Khalid et al. (2012) used an exploratory design which inspires its adoption in the present study.

3.4 Research Approach

The research approach is the comprehensive framework or structure that addresses the research objectives and answers the research questions (Sekaran & Bougie, 2016). The present study adopts the quantitative approach toward its exploration. Quantitative research refers to a systematic and empirical approach to scientific investigation that involves collecting and analyzing numerical data to identify patterns, relationships, and trends. It aims to measure variables, test hypotheses, and generalize findings to a larger population. In this type of research, researchers use statistical methods to analyze data and draw objective conclusions. For example, a study by Gadzo et al. (2019) used a quantitative research approach. Similarly, according to Sekaran and Bougie (2016),

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quantitative research is a systematic approach to inquiry that primarily focuses on the collection and analysis of numerical data. It involves the use of structured research instruments, such as surveys or questionnaires, to gather data from a sample or population. The data is then analyzed using statistical techniques to identify patterns, relationships, and trends, and to draw objective conclusions.

Quantitative research is characterized by its emphasis on measurement, objectivity, and generalizability. It aims to quantify variables, test hypotheses, and make predictions based on numerical evidence (Khalid et al., 2012). This type of research is commonly used in social sciences, business, and other fields where numerical data can provide insights into behaviors, attitudes, preferences, or outcomes. The adoption of quantitative research is inspired by the specific objectives of the study which is exploring the effect of non-performing loans, policy rate, and liquidity risk on the performance of rural banks. Again, the adoption of the quantitative research approach was justified by the data analysis technique deployed by the study. Also, the preference for a quantitative approach is hinged on the use of secondary data in the present study. Moreover, the choice of quantitative research is motivated by its empirical use (Oloyede 2022).

3.5 Population of the Study

A target population refers to the complete set of individuals, cases, or objects who exhibit some common noticeable characteristics in a defined jurisdiction for research where a study chooses to generalize (Sekaran & Bougie, 2016). The targeted population for the study is 23 rural banks fully licensed and have operated for more than 10 years. Also, the decision to focus on these rural banks was informed by the fact that these institutions dominated the Club 100 rankings. Again, for this study, any rural bank that

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does not have a complete set of financial statements for the considered period was not included in the population. Though there are over 100 rural and community banks however, most of these institutions do not have up to 5 years of readily available complete sets of financial statements, this also influenced the size of the target population.

3.6 Sampling Technique and Sample

The sampling technique refers to the approach used in selecting a representative sampling for the study (Yin, 2018). For this reason, an appropriate technique must be adopted in selecting a sample size whose characteristics, attitudes, and behaviors can reflect that of the entire target population (Saunders et al., 2018). The study adopted the purposive sampling technique in selecting the sample for the study. Per the explanation by Saunders et al. (2018), purposive sampling is a sampling technique that draws a sample for a study taking into consideration the elements within the population that can provide adequate information to achieve the purpose of the study. The choice of the purposive sampling technique was based on the quantitative research approach used by the study. Again, the focus and objectives set to be achieved by the study influenced the selection of purposive sampling. Also, the presence of missing data and the data collection period influenced the choice the purposive sampling technique.

Sample refers to any segment of a population drawn for data collection (Flick, 2014). The process of determining a sample size may be quite complicated because it depends on a varied number of factors that range from the type of sampling technique, the characteristics of the population, and the time duration for a study. In this research, a sample size of 14 was chosen through the purposive sampling method. The decision to select 14 rural banks was based on the availability of a complete set of data. The

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selected sample size is justified on the basis that the study seeks comprehensive data which has to include as many rural banks as possible. Again, the sample size of 14 rural banks was chosen based on their existence for the years in which data was collected for the study. Also, the sample size of 14 was justified based on the assertion by Mugenda and Mugenda (2003) who alluded that using a sample size that forms 30% to 60% of a population is representative of achieving reliable results. Anchored on this assertion the sample size of 14 rural banks that form 51% of the target population is representative. Again, the availability of a complete set of data for the period under review motivated the sample size.

3.7 Data and Sources of Data

In statistical research data refers to observable or quantifiable raw information that can be processed to draw conclusions and generalize to a larger population (Kothari, 2000; Sakaran & Bougie, 2016). Research data can be grouped into two forms primary and secondary data. Primary data is collected firsthand from its source and mainly used in exploratory research whilst secondary data is collected from existing sources such as industrial catalogs, and governmental agencies' websites (Kasano et al., 2013). Per the above description, the study would use annual panel secondary data from 2012 to 2022. The consideration of 2012 to 2022 was a result of some of the banks not having complete data for periods before 2012.

Again, the 11-year data is considered appropriate based on the assertion by Rashid (2020) who documented that conducting a study with a data period of 10 years and above is capable of arriving at reliable results as confirmed by Agana et al. (2016), Oduro et al. (2019) who used data for over 10 years, and Oduro (2024) who used 10 years data in their studies and reported reliable results. Again, the consideration of the

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2012 to 2012 was influenced by the economic ups and down that has characterized the last decade including the covid-19 pandemic. Also, availability of data for most of the selected rural banks motivated the consideration of the chosen data period. The variables for which data would be collected include Return on Asset (ROA) for bank profitability; Non-performing Loan (NPL), Liquidity Risk (LR), Policy Rate (PR) Capital Adequacy (CA), Firm Size (FS), Inflation (IF) and Board Size (BS) as control variables. The data for the variables will be estimated based on published financial statements of the banks which would be sourced from the website of various banks' websites.

3.8 Data Analysis Procedure

The study employs various methods in estimating and analyzing the study's findings. These methods would include the model for the study, estimation technique, and diagnostics tests.

3.8.1 Estimation Technique

The study employs a Robust Least Square (RLS) technique in examining the effect of non-performing loans, policy rate, and liquidity risk on performance of the rural banking sector in Ghana. Previous studies may use different estimation techniques to examine the concept under discussion. The objectives of the present study which is to examine the effect of non-performing loans and liquidity risk on performance of the rural banks in Ghana is entirely different from that of existing studies and this makes the RLS technique appropriate. Also, the strength of the robust least square method which is capable of yielding a best estimate influenced its adoption by the study. Additionally, the strength of the RLS in normalizing data inherent problems such as autocorrelation and heteroskedasticity inspired its usage. Furthermore, the adoption of

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the RLS method is supported by its empirical application in extant literature in examining the effect of independent variables on a dependent variable (Aboagye-Otchere & Boateng, 2023).

$Y = \alpha + \beta_1 X + \varepsilon$ … … … … … … … … … … … … … … … … … … … .. (1)

$Y_{i,t} = \alpha + \propto_1 X_{i,t} + \varepsilon_t$ … … … … … … … … … … … … … … … … … …. (2)

Where Y= dependent variable

α= constant

β= coefficient

X= independent variables

ε= error term

t= time

i= the bank in question

3.8.2 Model Specification

The present study uses the multivariate linear model in relating the independent variables to the dependent variable based on the various objectives set to be achieved by the study. Linear models are employed when a researcher seeks to assess the non-exponential or non-quadratic relationship between dependent and independent variables (Ngaruiya, 2014). For the study that uses ROA to measure the dependent variable (bank performance), a separate equation would be modeled. The notion behind the model for the study is that as the banks engage in appropriate credit measures bank performance would increase as asserted by (Dike & Tuffour, 2021; Kulu et al., 2022).

$ROA = f(NPL, LR, PR, FS, IF, BS, CA)$……..…(3)

$ROA_{i,t} = \beta_0 + \beta_1 NPL_{i,t} + \beta_2 LR_{it} + \beta_3 PR_{it} + \beta_4 IF_{it} + \beta_5 FS_{it} + \beta_6 BS_{it} + \beta_2 CA_{it} + \varepsilon_t$……..(4)

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Where:

ROA= Return on Asset

LR= Liquidity Risk

CA= Capital Adequacy

FS= Firm Size

PR= Policy Rate

NPL= Non-Performing Loans

IF= Inflation

BS= Board Size

$\beta_{0=}$ Constant

β_{1-} β_7 = coefficient of independent variables

ε= Error term

t= time series factor

i= bank in question

3.9 Measurement of study variables

The various variables deployed in the study are defined and described in this section of the study.

3.9.1 Capital adequacy

Capital adequacy is an essential indicator in the banking industry, signifying the proportion of a bank's capital relative to its assets adjusted for risk. This ratio is vital for gauging a bank's financial health and its ability to cover potential losses, thus safeguarding depositors' interests and sustaining trust in the financial system (Eyo & Offiong, 2021). In this study capital adequacy was measured through the Capital Adequacy Ratio (CAR), also known as the Capital to Risk-Weighted Assets Ratio (CRAR) as applied in the literature (Dao, 2020; Pradhan et al., 2017). This ratio

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assesses the capacity of the bank to manage its risk by comparing its capital to its assets, with an emphasis on the risk nature of these assets.

3.9.2 Firm Size

The concept of company size generally involves comparing the magnitude of an entity. Essentially, it is categorized into four groups: large companies, medium-sized companies, small companies, and micro companies (Ellba et al., 2022). According to Hery (2017), company size is a scale that reflects the magnitude of a company. Kayobi and Anggraeni (2015) add that company size can be gauged by considering total assets, sales, and market capitalization. In this study firm size is measured as the natural log of the total asset as applied in the literature (Ellba et al., 2022). Again, previous studies such as Kayobi and Anggraeni (2015), Hery (2017) have applied this measure of firm size in their studies.

3.9.3 Return on Asset

Return on Assets (ROA) is a financial metric used to evaluate a company's profitability relative to its total assets. It offers valuable insights into how effectively a company can generate earnings from the assets at its disposal. ROA is typically presented as a percentage and reflects the proportion of net income a company generates about its total assets (Okaro, 2014). A higher ROA indicates that a company is adept at utilizing its assets to produce profits, whereas a lower ROA implies reduced efficiency in this regard. This metric holds significant importance for assessing a company's overall financial health and profitability.

3.9.4 Policy Rate

Policy rate is the reference interest rate issued by central bank of a country which serve as the ceiling for commercial banks in a financial system (Kumar et al., 2020). In this

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study, policy rate was measured as the reference rate issued by the monetary policy committee of bank of Ghana. This measured was adopted due to its previous use by (Chinedu, 2021; Okaro, 2014). Policy rate is expected to a have a positive effect on financial performance of universal banks.

3.9.5 Board Size

Board size refers to the total number of directors that constitute the board of a firm (Hery (2017). The total number of individuals who have been appointed and approved by the owners of a firm to participate in the annual proceedings and be accountable to the shareholders of the firms while been hold liable for any liability that arise in the course of carrying on their mandate (Kanas et al., 2012). In this context the total number of individuals who constitute the board of the sampled rural banks would be used as applied by (Mayur & Saravanan, 2016).

3.9.6 Non-performing Loans

Non-performing loans is characterized by loans that, over an extended period, have not generated any income, signified by the non-payment of interest rates for the past 90 days (Mrindoko, 2021). Non-performing loans (NPLs) represent loans with uncertain cash streams that, according to the bank's assessment, are unlikely to generate income until the borrower's financial situation improves, leading to a reduction in interest rates (Mmari, 2019). Mmari (2019) emphasize that NPLs serve as a crucial indicator in determining the credit quality of a portfolio. As per Karanja (2019), NPLs denote loans facing a decline in credit quality, raising doubts about the collection of principals, loan interest, or advances. Factors such as borrower actions, including placing the loan at risk or filing for bankruptcy, form the basis for categorizing a loan as doubtful or bad.

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Karanja (2019) elaborate that a borrower may default on one or more loan terms, or the loan's assets may be situated in an economy undergoing an economic downturn.

3.9.7 Liquidity risk

Liquidity risk is a risk arising from a bank's inability to meet its obligations when they come due without incurring unacceptable losses (Comptroller of the Currency, 2001). This risk can adversely affect both bank's earnings and the capital. Therefore, it becomes the top priority of a bank's management to ensure the availability of sufficient funds to meet future demands of providers and borrowers, at reasonable costs. Research studies have shown mixed results in the relationship between bank liquidity risk and return on assets (ROA). Some studies, such as Kosmidou, Tanna, and Pasiouras (2005) realized that the ratio of liquid assets to customer and short-term funding is positively related to ROA and statistically significant. Also, they found a significant positive relationship between liquidity and bank profits. Kosmidou (2008) examined the determinants of performance of Greek banks during the period of EU financial integration (1990-2002) using an unbalanced pooled time series data set of 23 banks and found that less liquid banks have lower ROA. This is consistent with their previous findings like Bourke (1989) who found out that there is a positive relationship between liquidity risk and bank profitability.

Recently, Olagunju, David and Samuel (2012) found out that there is a positive significant relationship between liquidity and profitability. They concluded that there is a bi-directional relationship between liquidity and profitability where the profitability in commercial banks is significantly influenced by liquidity and vice-versa. The specific relationship may depend on various factors such as regulation, bank size, and country-specific factors. Liquidity risk which is proxied by liquidity ratio, is measured

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by loan to deposit ratio, following Ariff and Can (2008) and Jiang et al. (2009). Loan to deposit ratio is one of liquidity ratio that measures the extent of the bank's ability in distributing their loan and gathering deposit funds (Kanas et al., 2012). Liquidity risk depends on the liquidity ratio in which the higher the liquidity ratio, the higher the liquidity risk. in this study liquidity risk is measured as the core liquidity to asset ratio.

3.9.8 Inflation (IF)

Inflation has been ascribed as the persistent rise in the price of good and services over a specified period of time (Antwi, 2021). This means that the intermittent hike in the prices of commodities and services within an economy represent inflation. Inflation in the sub-Saharan African countries especially Ghana has experienced tremendous variations over the last decade (Bamanga et al., 2016). In this study, inflation is measured as the consumer price index (WDI, 2021). This measurement is adopted in the study due to its empirical use by previous studies (Asamoah et al., 2021; Antwi, 2021).

Table 3.1: Summary of variables

Variable	Measurement	Reference
Inflation	Consumer price index	Antwi (2021); Asamoah et al. (2021)
Policy Rate	Bank of Ghana reference rate	Okaro (2014)
Board Size	Number of board members	Kanas et al. (2012); Al-Hawary (2011)
Capital Adequacy	Capital adequacy ratio	Dao (2020) Pradhan et al. (2017)
Return on Asset	Revenue to asset ratio	Okaro (2014).
Firm Size	Log of total asset	Kayobi and Anggraeni (2015), Hery (2017)
Non-performing loans	Proportion of loans with uncertain cash streams.	Makri et al. (2014); Makri et al. (2014)
Liquidity Risk	Loan to deposit ratio	Kosmidou et al. (2005); Jiang et al. (2009).

Source: Author's summary

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3.10 Ethical Consideration

In both applied and non-applied research, researchers have a responsibility to address various ethical considerations, which depend on the study's focus and the involvement of participants. Studies involving primary data collection from human subjects must adhere to ethical principles such as respect and confidentiality. On the other hand, ethical principles guiding secondary data research differ from studies involving human participants. In line with the guidelines and principles set forth by the University of Education, Winneba (UEW, 2019), the current study diligently observed all ethical requirements, including proper acknowledgment of all sources from which information is obtained. This research ensured that all sources from which information was retrieved are appropriately city.

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CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

This chapter of the study presents the results ascertained from the several statistical tests conducted to assess the objectives of the research, the chapter proceeds to analyze the results and compares the findings with existing findings in the literature to know the extent of consistency or deviation from literature. This chapter is important in empirical studies since it shows the relation of the study's findings to conventional findings.

4.2 Descriptive Analysis

In statistical research, descriptive analysis is conducted to explore the characteristics of the data under discussion. The descriptive statistics result for the study is presented in Table 4.1 below. According to Table 4.1, the mean of return on asset showed that on average the rural banks in Ghana recorded a positive performance of 4.35%, this was accompanied by a deviation of 6%. The maximum revealed that in the years under review, the rural banks in Ghana recorded the highest profitability of 48.54% alongside a loss of 17.10%. The data for return on asset was found to be normally distributed based on Jarque-Bera probability of 0.0800. The skewness revealed that the profitability of the rural banks in Ghana was positively skewed. Non-performing loans among the rural banks averaged 65% indicating rural banks in Ghana recorded huge volumes of bad loans this was supported by the maximum non-performing loans of 0.9380 with a moderate standard deviation of 0.3724. The average rate at which sampled Ghanaian rural banks can default on their short-term obligation stood at

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0.0678, this was accompanied by maximum and minimum statistics of 0.6202 and -0.8155 respectively.

This variable was found to be normally distributed based on the probability of 0.07 which is above the rejection level of 0.05. The average policy rate stood at 19.22%, this indicates that the reference rate has been high which is evidenced by its maximum value of 27 for the years under review. The probability of 0.5 which is above the alpha of 0.05 means that the data is not different from normal distribution. On inflation, the mean of 13.76%, maximum of 31.26%, and minimum of 7.14% alongside a deviation of 6% implies that the cost of goods and services has been high for the years under discussion. Rural banks in Ghana have moderately expanded in size over the last decade, this was evidenced in the maximum firm size of 65.58%, an average of 37.61% meanwhile this growth was marred by a deviation of 15.18%. The rural banks under consideration were found to be composed of high numbers of board members with the lowest number of 8 board members. The data for board size was not different from normal distribution as demonstrated by a probability of 0.05 which equals the significant level of 5%. This gives the characteristics of the variable under study and paves the way for further analysis.

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Table 4.1: Descriptive Statistics

Variable	ROA	NPL	LR	PR	IF	FS	CA	BS
Mean	0.0435	0.6535	0.0678	19.2273	13.7627	0.3761	0.2042	9.5909
Median	0.0386	0.7205	0.0334	17.0000	11.6700	0.4071	0.1504	9.0000
Maxi	0.4854	0.9380	0.6202	27.0000	31.2600	0.6588	0.9952	12.0000
Mini	-0.1710	0.0203	-0.8155	12.5000	7.1400	0.0119	0.0089	8.0000
Std. Dev.	0.0607	0.3724	0.1394	4.9073	6.4583	0.1518	0.1841	1.2763
Skewness	2.4470	0.5713	0.2625	0.3684	1.6386	-0.5542	2.3728	0.4397
Kurtosis	22.6390	5.6749	16.8706	1.6565	5.1742	2.5450	8.7854	2.0741
Jarq-B.	2628.5270	54.2912	1236.2970	15.0669	99.2476	9.2121	359.2793	10.4637
Prob	0.0800	0.1100	0.0700	0.5005	0.0860	0.0100	0.2200	0.0553
Sum	6.7001	100.6439	10.4360	2961.0000	2119.4600	57.9193	31.4452	1477.0000
Sq. Dev.	0.5645	21.2176	2.9719	3684.5450	6381.5360	3.5250	5.1882	249.2273
Obs	154	154	154	154	154	154	154	154

Source: Author's construct. The variables used in the table have the following NPL=Non-Performing Loans; LR=Liquidity Risk; PR=Policy Rate; IF=Inflation; FS=Firm Size; CA=Capital Adequacy; BS=Board Size.

4.3 Correlation Analysis

Correlation is a measure that is used to assess the strength of the relationship between a variable with each other in the series. The lower the correlation coefficient the weaker the strength of the relationship whilst the higher the coefficient the stronger the relationship. The positive coefficient means that the variables under consideration move in the same direction whilst a negative correlation coefficient means that the variables move in the opposite direction. Thus, an increase in one would lead to an increase in the other whilst a decrease in one would mean a decrease in the other in positive and negative correlation respectively. According to existing studies, a correlation coefficient of above 0.7 (Field, 2006) shows the presence of multicollinearity.

According to the correlation results presented in Table 4.2, non-performing loans and board size recorded a negative association with return on asset implying that a rise in bad loans and number of board members can cause a debilitating effect on performance.

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Liquidity risk, policy rate, inflation, firm size, and capital adequacy registered a moderate and positive correlation with return on asset which indicates that an increase in these variables can lead to improvement in the financial performance of rural banks in Ghana. The highest correlation of 0.6163 registered between the policy rate and inflation was less than the acceptable margin of 0.7 as asserted (Field, 2006). Based on these results, the study concludes that there is no presence of multicollinearity implying that all the variables behave differently.

Table 4.2 Correlation Matrix

Variable	ROA	NPL	LR	PR	IF	FS	CA	BS
ROA	1.0000							
NPL	-0.2986	1.0000						
LR	-0.0493	-0.0149	1.0000					
PR	0.2291	-0.0740	0.0104	1.0000				
IF	-0.0361	-0.0062	-0.0292	0.6163	1.0000			
FS	0.1244	0.1487	-0.0777	0.1574	0.1074	1.0000		
CA	0.0831	-0.0548	0.0560	0.0768	0.0561	-0.2695	1.0000	
BS	-0.1482	-0.1805	0.0156	-0.1765	-0.0639	-0.0555	0.1103	1.0000

Source: Author's construct. The variables used in the table have the following NPL=Non-Performing Loans; LR=Liquidity Risk; PR=Policy Rate; IF=Inflation; FS=Firm Size; CA=Capital Adequacy; BS=Board Size.

4.4 Estimation diagnostics

The model used to assess the objectives recorded an intercept of 0.0462 at a significance level of 0.0175** which implies that in the event all the regressors assume a value of zero financial performance of rural banks will still be positive. To examine the goodness of fit for the model used in estimating the study's results as presented in Table 4.3 with ROA as the dependent variable, the model recorded an R-square of 75% with an adjusted R-square of 71%. Since R-square is used to determine the combined effect of the independent variables with an expected threshold of 70% and above, the study concludes that the sampled independent variables exerted a significant explanatory power of 75%. The study concludes that the model is free of errors based on the

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standard error of regression of 0.14 which is less than 1. Also, the prob for the F-statistics which is used to assess the significance of the entire model revealed a prob of 0.0090*** which means that the model is significant for assessing the objectives of the study.

Table 4.3: Relationship between non-performing loans, liquidity risk, policy rate, and bank performance.

Variable	Coefficient	Std. Error	z-Statistic	Prob.
NPL	-0.0377	0.0070	-5.4164	0.0000***
LR	0.0195	0.0280	0.6964	0.4288
PR	0.2021	0.0597	3.3853	0.0620*
IF	-0.0095	0.0185	-0.5135	0.8084
FS	0.0210	0.0077	0.7272	0.0332**
CA	0.0171	0.0143	1.1924	0.2331
BS	-0.0029	0.0020	-1.3975	0.1623
C	0.0462	0.0162	2.8519	0.0175**

Robust Statistics			
R-squared	0.7557	Adjusted R-squared	0.7152
Rw-squared	0.7209	Adjust Rw-squared	0.7205
Akaike info criterion	183.5329	Schwarz criterion	211.7126
Deviance	0.1462	Scale	0.0292
Rn-squared statistic	52.3413	Prob (Rn-squared stat.)	0.0090***

Source: Author's construct. The variables used in the table have the following NPL=Non-Performing Loans; LR=Liquidity Risk; PR=Policy Rate; IF=Inflation; FS=Firm Size; CA=Capital Adequacy; BS=Board Size.

4.5 Discussion of findings

This section of the study presents the interpretation of the findings ascertained from the estimations conducted to assess the objectives of the study.

4.5.1 Relationship between non-performing loans and financial performance of rural banks

According to the statistical estimates as presented in Table 4.3, non-performing loans registered an inverse significant linkage with return on asset. Based on this result, the inquiry fails the first null hypothesis (**H_0**). This relationship stood at a magnitude of -

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0.0377 and a significance level of 0.000***. This relationship shows that a percentage rise in non-performing loans will lead to a 3.7% decline in return on assets. NPLs represent loans that are not generating expected interest payments. Since interest income is a primary source of revenue for banks, a higher level of NPLs directly leads to a reduction in this income stream. This reduction lowers the overall profitability of the bank. The inverse relationship between non-performing loans signifies that persistently high levels of NPLs can negatively affect the bank's reputation and creditworthiness, making it more difficult and expensive to raise capital. Lower investor confidence can lead to higher costs of funding, further reducing profitability.

Again, a negative relationship means that banks with high NPL ratios may face increased scrutiny from regulators and may be required to hold higher capital reserves to safeguard against potential losses. This regulatory pressure limits the bank's operational flexibility and ability to generate returns on its assets leading to low financial performance. Also, the plausible reason for the negative effect is that managing and attempting to recover NPLs requires additional resources and operational costs, such as legal fees, administrative expenses, and efforts to restructure or collect delinquent loans, these additional costs further erode profitability. High levels of NPLs erode the bank's capital base. Banks might need to allocate more capital to cover potential losses, impacting their ability to invest in other profitable ventures or expand their lending activities.

Moreover, banks must set aside provisions to cover potential losses from NPLs. These provisions are accounted as expenses, reducing the bank's net income, higher provisions indicate higher expected losses, which adversely affects profitability. The inverse relationship can be explained through the lens of the theory of asymmetric

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information in the sense that information asymmetry leads to adverse selection and moral hazard, both of which increase the likelihood of loan defaults, thereby raising NPL levels. Higher NPLs necessitate increased loan loss provisions and reduced interest income, leading to lower profitability as measured by ROA (Chimkono et al., 2016; Winarso, 2014). The inverse relationship is consistent with existing studies that discovered a negative relationship between non-performing loans and financial performance (Mauludi & Winarso, 2020; Gadzo et al., 2019; Mauludi and Winarso, 2020; Viana et al, 2021). The recorded negative relationship opposes the findings that NPL affects profitability in a positive direction (Chimkono et al., 2016). Again, the inverse relationship contradicts the argument championed by Winarso (2014) who argued that there is a positive relationship between non-performing loans and the financial performance of banks. Also, the negative significant effect on return on assets refutes the result of an investigation that documented that non-performing loans have no significant effect on the financial performance of banks (Mrindoko, 2021; Sandakh et al., 2021).

4.5.2 Effect of Liquidity risk on the financial performance of rural banks

On objective two which assessed the effect of liquidity risk on the financial performance of rural banks, the analysis revealed a coefficient of -0.0195 associated with a probability of 0.0620*. Thus, the investigation failed to reject the second null hypothesis (**H_0**). This result signifies that liquidity risk has an inverse relationship with financial performance which implies that a percentage rise in liquidity risk will cause a reduction in return on asset by 1.95%. The ascertained negative finding can be attributed to the fact that banks are often required to comply with regulatory liquidity ratios, such as the liquidity coverage ratio and net stable funding ratio. These regulations ensure that banks maintain a sufficient buffer of high-quality liquid assets

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to survive acute liquidity stress scenarios, compliance with these regulations necessitates holding a significant portion of assets in low-yield instruments, which reduces overall income and profitability, leading to a lower ROA. Again, the inverse relationship between liquidity risk and the financial performance of rural banks connotes that high liquidity risk can erode the confidence of investors and depositors. If stakeholders perceive that a bank is at high risk of liquidity problems, they may withdraw their deposits or demand higher returns for their investments, increasing the bank's funding costs. The aftermath of higher cost of capital and potential outflows of funds reduce the bank's net income, adversely affecting ROA. Moreover, in times of liquidity stress, banks may need to borrow funds on short notice to meet their obligations, this borrowing often comes at a higher interest rate due to the urgency and the perceived risk by lenders. The increased cost of borrowing raises the bank's expenses, which reduces net income. Lower net income, when divided by total assets, results in a lower ROA. The negative relationship between liquidity risk and return on assets largely aligns with the principles of the Liquidity Preference Theory (Keynes, 1936; Friedman, 1971). Banks prioritize liquidity to mitigate risk and ensure stability, often at the expense of higher returns from riskier assets. While there may be instances where market dynamics or regulatory factors influence this relationship differently, the core tenets of preferring liquidity over potentially higher returns resonate with both investor behavior and strategic banking decisions in managing liquidity risk (Ghani & Hossain, 2023; Bertecco, 2014).

The negative effect of liquidity risk is a testament to the adverse effect of liquidity risk on the financial performance of banks (Islam & Nishiyama, 2016). Also, in concomitance to the negative results is the result of Abdelaziz et al. (2020) whose empirical investigation proved that liquidity risk has a significant inverse relationship

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with the financial performance of financial institutions. Nonetheless, the inverse relationship between liquidity risk and financial performance is incoherent with the assertion that there is a positive nexus between liquidity risk and the financial performance of financial institutions (Ruziqa, 2013). In addition, the negative effect of liquidity risk on finances debunked the finding of those who documented that liquidity risk has a positive significant relationship with the financial performance of firms (Rahman et al., 2015; Golubeva et al., 2019).

5.5.3 Nexus between the policy rate and financial performance of rural banks

The third objective which sought to examine the relationship between policy rate and financial performance of rural banks reported a coefficient of 0.2021 alongside a probability of 0.0620*. This result indicates a positive significant relationship between the policy rate and returns on assets which stands to reason that an upward review in the policy rate by a percentage will cause a possible increase in rural bank profitability by 20.21%. On that note, the inquiry rejects the third null hypothesis (**H_0**). The recorded results mean that when the central bank increases the policy rate, commercial banks typically raise the interest rates they charge on loans, the higher loan rates lead to higher interest income from loans, boosting the bank's overall income and positively affecting ROA. Also, a rising policy rate might signal a growing economy, where demand for loans increases, leading to higher income for banks. Strong economic conditions improve the creditworthiness of borrowers, reducing default rates and boosting bank profitability. Furthermore, the positive significant effect of the policy rate on the financial performance of rural banks is possible because banks may also earn higher returns on their investments in securities, which are influenced by the policy rate. Banks can strategically adjust their interest rates on both assets and liabilities to optimize returns and manage risks effectively leading to improved financial performance.

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The positive significant effect of the policy rate on ROA aligns with some implications of the Liquidity Preference Theory, particularly regarding the attractiveness of interest-bearing assets over liquid cash when rates are high (Keynes,1936; Bertecco, 2014). Thus, in times of rising reference rates, banks get the edge to upwardly review their interest rate while giving out more loans due to higher interest advantage, resulting in higher interest income and consequently higher profit. However, it does not directly align with the core focus of the Liquidity Preference Theory, which is on liquidity preference and money demand rather than bank profitability (Keynes,1936). The ascertained positive relationship between policy rate and the financial performance of rural banks concords with the discovery that policy rate has a positive significant impact on the profitability of banks (Amidu & Wolfe, 2015).

In affirmation of the positive relationship is the positive significant evidence of policy rate on financial performance adduced by Aydemir and Ovenc (2016). Notwithstanding, the positive relationship result contravenes the evidence evinced by existing studies that documented a negative relationship between interest rates and the financial performance of banks (Akomolafe et al., 2015). Again, the positive relationship found between the policy rate and financial performance disaffirms the negative results reported by scholarly investigation (Omankhanlen et al., 2015). Moreover, the significant positive finding registered by the study disaccord with the negative significant relationship results unearthed by empirical inquiry (Campmas, 2020). On the other hand, the finding of the study opposes the no effect of policy rate on financial performance argument spearheaded by Altavilla et al. (2018).

On the control variables, inflation registered an inverse non-significant relationship with financial performance at a magnitude of -0.0095 at a p-value of 0.8084 associated

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with a standard error of 0.0185. The inverse relationship means that the rising cost of goods and services dampens the profitability of rural banks. The negative finding is attributed to banks holding a significant portion of their assets in the form of loans and fixed-income securities. As inflation rises, the real value (adjusted for inflation) of these fixed-income assets decreases, and the fixed interest payments on loans and securities do not increase with inflation, leading to reduced real income for the bank. Reduced real income from fixed-income assets translates into lower profitability, thus negatively impacting the return on assets (ROA). Also, inflation leads to higher operational costs for banks, including wages, utilities, and other administrative expenses. These increased costs can erode the profit margins of banks. When banks face higher costs of operation, they may not be able to pass on these costs to customers through higher fees or interest rates, especially in a competitive market, which reduces net income and negatively affects ROA.

Nonetheless, firm size recorded a positive significant relationship with financial performance at the extent of 0.0210 and a p-value of 0.0332** which implies that the growing firm can earn higher revenue. The ascertained result connotes that larger firms often benefit from economies of scale, where they can spread their fixed costs over a larger revenue base. This efficiency allows them to achieve higher profitability per unit of asset compared to smaller firms. Also, larger firms may have better access to resources, technology, and expertise, enabling them to optimize their operations and processes more effectively. This efficiency translates into higher returns generated from their assets. Larger firms typically have diversified business lines or geographic presence, reducing their overall risk exposure, this diversification can stabilize earnings and enhance profitability across different economic cycles. Additionally, with greater financial resources and capabilities, larger firms can implement robust risk

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management practices. This includes managing credit risk, interest rate risk, and operational risk more effectively, thereby minimizing losses and improving ROA.

However, the estimates show that capital adequacy has a positive but statistically insignificant effect on return on assets. This effect stood at a magnitude of 0.0171 with a probability of 0.2331 indicating a potential increment in profit with adequate capital. The finding of a positive, insignificant effect on ROA indicates that simply holding more capital does not automatically lead to higher profitability in terms of returns generated from assets. This insignificant effect can be attributed to the following reasons Firstly, while higher capital levels provide a buffer against financial distress and potential losses, they also come with costs. Banks may face higher funding costs to maintain adequate capital levels, especially if they need to raise capital through equity issuance or retained earnings rather than more cost-effective debt financing.

Secondly, the deployment of excess capital does not always yield proportionate returns. Banks must strike a balance between maintaining regulatory compliance and optimizing their capital structure to maximize profitability, excessive capital may sit idle or be invested in low-yielding assets, thereby diluting the overall return on assets. Moreover, the relationship between capital adequacy and ROA can be influenced by external factors such as economic conditions, interest rate environments, and competitive pressures within the banking industry. In dynamic and uncertain economic climates, banks may prioritize capital preservation over aggressive asset growth, impacting their ability to generate higher returns on assets.

Finally, board size proved to be negatively related to financial performance at an extent of -0.0029 and a p-value of 0.1623 which stands to reason that an increase in board members does not significantly impact financial performance. One possible explanation

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for this finding lies in the dynamics and functioning of larger boards. While diversity of perspectives can theoretically lead to better decision-making, larger boards may also face challenges in achieving consensus and coordinating actions effectively. The increased complexity of communication and decision-making processes within larger boards can potentially hinder their ability to respond swiftly to market changes or capitalize on strategic opportunities that could enhance ROA.

Furthermore, the costs associated with maintaining a larger board size such as higher compensation, administrative expenses, and logistical challenges can impact overall profitability if not justified by corresponding improvements in governance effectiveness or strategic outcomes. These costs need to be carefully managed to ensure that they do not outweigh the potential benefits of a larger board in terms of governance quality and decision-making efficacy.

4.6 Robustness Checks

Robustness checks otherwise known as post-estimation diagnostics are assessment tests conducted to analyze the reliability and robustness of a study's result.

4.6.1 Cross-Section Dependence

Cross-section dependence is an assessment test conducted to assess the possibility of observation across different cross-sectional units to correlate. The study tested the presence of a cross-section effect through the Breusch-Pegan LM, Peseran scaled LM test, and the Peseran CD test which test the null hypothesis that there is no cross-section dependence. According to the results, presented in Table 4.4, both the Peseran CD and Breusch-Pagan LM recorded a p-value greater than the alpha of 0.05, based on this result the inquiry failed to reject the null hypothesis and concluded that observations

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are independent across cross-sectional units. This also justifies that the estimation is without bias.

Table 4.4: Cross-section Dependence Test

Test	Statistic	d.f.	Prob.
Breusch-Pagan LM	1.440778	91	0.6303
Pesaran scaled LM	3.934390		0.0001
Pesaran CD	-0.928764		0.3530

Source: Author's construct

4.6.2 Autocorrelation

To ensure the robustness of the results, the study conducted a partial autocorrelation and autocorrelation test through the correlogram test. The test is measured with a threshold of less than 0.05 to conclude the presence of partial autocorrelation and autocorrelation in the data under consideration. From the test result, as presented in Table 4.5, the study recorded p-values of less than 0.05, based on this the study rejects the null hypothesis and concludes that there is autocorrelation and partial autocorrelation. This means that errors in the data in the previous years are not carried on to the subsequent years and have the possibility to limit robust results however due to the controlling power of the Robust Least Square estimation technique which controls for autocorrelation the estimated results are robust and reliable.

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Table 4.5: Autocorrelation test

Autocorrelation	Partial Correlation		AC	PAC	Q-Stat	Prob*
		1	0.247	0.247	8.7409	0.003
		2	0.119	0.062	10.780	0.005
		3	0.092	0.053	12.013	0.007
		4	0.061	0.022	12.548	0.014
		5	-0.015	-0.047	12.581	0.028
		6	-0.033	-0.031	12.740	0.047
		7	0.054	0.073	13.172	0.068
		8	0.052	0.035	13.587	0.093
		9	0.016	-0.007	13.625	0.136

Source: Author's construct

4.6.3 Redundant Variable Test

A redundant variable test is a diagnostic estimation check that is conducted to assess the significance of individual variables and joint independent variables. The inquiry employed the Wald test which tests the null hypothesis that the regressors are jointly insignificant which is rejected if the p-value is less than the 5% level. From the test result presented in Table 4.6 which shows a p-value of 0.0081, the study rejects the $\mathbf{H_0}$ and concludes that the variables are jointly relevant in the model.

Table 4.6: Redundant Variable Test

	Value	df	Probability
F-statistic	-15.70613	(8, 111)	0.0081
F-test summary:			
	Sum of Sq.	df	Mean Squares
Test SSR	-7534600.	8	-941825.
Restricted SSR	72444.81	119	608.7799
Unrestricted SSR	608045.	111	54771.88

Source: Author's Construct

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4.7 Theoretical Implications of Study Findings

4.7.1 Non-Performing Loans and Financial Performance

Asymmetric Information Theory: This theory is relevant in the context of non-performing loans (NPLs) as it suggests that borrowers have more information about their ability to repay loans than lenders, leading to potential adverse selection and moral hazard problems. The finding that NPLs significantly and negatively impact return on assets (ROA) reinforces the asymmetric information theory. It highlights the challenges rural banks face in accurately assessing borrower risk and the subsequent impact on their financial performance. This supports the theory by demonstrating that information asymmetry leads to higher NPLs, which in turn deteriorates profitability. The finding suggests a need for better information systems and credit assessment tools in rural banks to mitigate these risks.

4.7.2 Liquidity Risk and Financial Performance

Liquidity Preference Theory: This theory, proposed by John Maynard Keynes, suggests that investors demand a premium for less liquid securities. It posits that individuals prefer holding liquid assets for transaction and precautionary purposes. The finding of an insignificant relationship between liquidity risk and profitability suggests that, for rural banks in Ghana, maintaining liquidity does not have a strong impact on profitability. This could imply that the banks either have adequate liquidity management practices or that the market conditions and the nature of rural banking in Ghana mitigate the expected negative impacts of liquidity risk. This extends the liquidity preference theory by highlighting that the relationship between liquidity and profitability may not be as pronounced in certain banking environments, particularly in rural settings where liquidity demands and challenges might differ from more urbanized contexts.

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4.7.3 Policy Rate and Financial Performance

Asymmetric Information Theory: This theory deals with situations where one party in a transaction has more or better information than the other, leading to issues like adverse selection and moral hazard. A significant positive effect of the policy rate on profitability could indicate that rural banks are effectively using interest rate signals from the central bank to make informed lending and investment decisions. This might suggest that despite the information asymmetry prevalent in rural areas, these banks can mitigate its effects through responsive interest rate policies. This finding supports the asymmetric information theory by demonstrating that central bank policy rates can help bridge information gaps and enhance the decision-making process, thereby improving profitability. It also suggests that rural banks might be adapting their operations efficiently in response to macroeconomic signals.

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CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This chapter of the study presents the summary of the findings made in the study and the conclusions drawn based on the ascertained results. The chapter also presents the recommendations to the various stakeholders of the study and points out the limitations associated with the study.

5.2 Summary of the Study

The long-term survival of rural banks that were created to finance and support rural businesses has come under serious scrutiny as the regulator of Ghana's financial sector raises concerns about the solvency and performance of these institutions. The long-term survival of these minor banks greatly depends on their profitability which is influenced by myriad factors ranging from firm-specific and macroeconomic variables. Previous studies about the influence of firm-specific variables and macroeconomic indicators have predominantly focused on mainstream banks seemingly neglecting the narrative in the rural bank in Ghana leaving a huge gap in the bank performance literature.

This study fills the gap by assessing the following objectives. One is to examine the relationship between non-performing loans and the financial performance of rural banks. Two, to examine the effect of liquidity risk on the financial performance of rural banks, and three, to investigate the effect of policy rates on the financial performance of rural banks. To find out the objectives of the study, the research reviewed extant literature to form the background of the study, it reviewed the theory of asymmetric information and liquidity preference theory to guide the discussion. On methodology, the study used the causal research design and the quantitative approach, a sample of 14

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rural banks were chosen through purposive sampling technique. The robust least square estimation technique was employed to analyze 11 years of panel secondary data collected from the understudied rural banks with ascertained findings summarized based on the objective below.

5.2.1 Relationship between non-performing loans and financial performance of rural banks

The first objective of the inquiry aimed to examine the relationship between non-performing loans and the financial performance of rural banks, the non-performing loans registered an inverse significant connection with return on asset. This relationship stood at a magnitude of -0.0377 and at a significance level of 0.000***. Based on this result, the inquiry failed to reject the first null hypothesis (**H_0**).

5.2.2 Effect of liquidity risk on the financial performance of rural banks

In addressing the second objective, which examined the impact of liquidity risk on the financial performance of rural banks, the analysis found a coefficient of -0.0195 with a probability of 0.0620*. Consequently, the study failed to reject the second null hypothesis **(H_0).** This indicates that liquidity risk does not significantly affect financial performance, suggesting that 1% increase in liquidity risk would lead to a 1.95% decrease in return on assets.

5.2.3 Relationship between the policy rate and financial performance of rural banks

Regarding the third objective which examined the relationship between the policy rate and financial performance of rural banks, the test reported a coefficient of 0.2021 alongside a probability of 0.0620*. This result indicates a positive significant relationship between the policy rate and return on assets which stands to reason that an upward review in the policy rate by a percentage will cause a possible increase in rural

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bank profitability by 20.21%. On that note, the inquiry rejects the third null hypothesis (**H_0**).

5.3 Conclusions

According to the various results uncovered by the study, the study draws the following conclusions.

5.3.1 Relationship between non-performing loans and financial performance of rural banks.

According to the negative relationship, the investigation concludes that rising non-performing loans increases the written-off cost of rural banks which adversely impacts the profitability of these financial institutions. Again, non-performing loans compel rural banks to incur extra costs in anticipation of retrieving these loans, this rise in cost reduces the revenue for the accounting period and dampens profitability.

5.3.2 Effect of liquidity risk on the financial performance of rural banks.

Regarding the adverse effect of liquidity risk on financial performance, the inquiry concludes that rising liquidity risk causes total mistrust and loss of confidence in the banking system which leads to excessive withdrawal and closing of accounts, which results in a decline in revenue and profit.

Again, the research concludes that the rising unavailability of adequate funds to meet short-term obligations as and when they fall due compels financial institutions to resort to quick borrowing which comes with neck-cutting interest which reduces interest income and overall profitability.

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5.3.3 Relationship between policy rate and financial performance of rural banks.

Per the positive effect of policy rates on financial performance, the study concludes that financial institutions charge higher interest on loans during times of rising reference rates resulting in higher interest income and profit.

5.4 Recommendations

The following recommendations were made by the study based on the ascertained results.

5.4.1 Relationship between NPL and financial performance of rural banks

Banks need to implement robust credit risk management practices to minimize the occurrence of NPLs. This includes thorough credit assessments, ongoing monitoring of loan performance, and proactive measures to address potential delinquencies. Again, to mitigate the negative impact of NPLs on ROA, banks may need to adjust their lending strategies, diversify their loan portfolios, and focus on high-quality borrowers. Additionally, exploring alternative revenue streams and improving operational efficiencies can help offset the losses from NPLs.

Also, the Bank of Ghana through the Apex Bank should ensure rural banks regularly comply with regulatory standards and maintain adequate capital reserves to manage the risks associated with high NPLs and sustain profitability.

5.4.2 Effect of liquidity risk on financial performance

Rural banks should ensure a balanced mix of liquid and high-yield assets to ensure enough liquidity without excessively compromising returns. Again, developing a diversified and stable funding base, including customer deposits and long-term financing, to reduce reliance on expensive short-term borrowing. Also, implementing

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sophisticated risk management practices, including stress testing, scenario analysis, and liquidity contingency planning, to better prepare for potential liquidity events.

5.4.3 Relationship between policy rate and financial performance

The central bank should adopt a proactive approach in setting policy rates that balance economic growth and financial stability. Regularly reviewing and adjusting policy rates to reflect current economic conditions can help maintain a favorable environment for banks to operate profitably. Regular stress testing and scenario analysis can help banks understand the potential impacts of policy rate changes and adjust their strategies accordingly.

5.5 Limitations of the Study

The study used only secondary data whose reporting could be affected by policy changes over time. Again, the inquiry faced a challenge in retrieving data for all the rural banks in Ghana. Also, the study only focused on rural banks at the expense of other viable financial institutions in Ghana.

5.6 Recommendations for future studies

The inquiry implores future researchers to explore the topic using other non-bank depositing-taking financial institutions such as corporate credit unions. Also, the study should be scaled up to other neighboring countries.

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