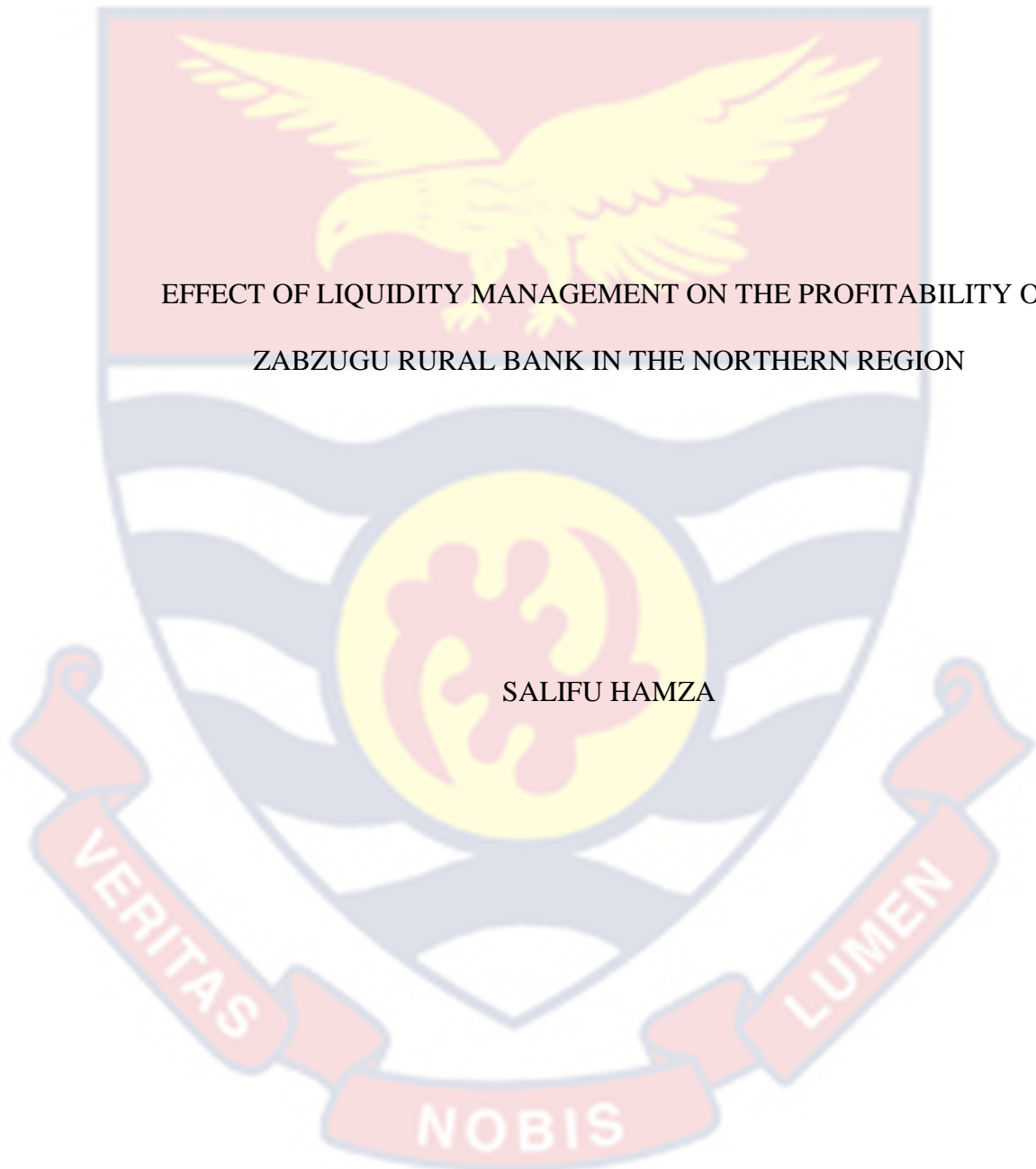


UNIVERSITY OF CAPE COAST



EFFECT OF LIQUIDITY MANAGEMENT ON THE PROFITABILITY OF  
ZABZUGU RURAL BANK IN THE NORTHERN REGION

SALIFU HAMZA

2023

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BY  
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Dissertation submitted to the Department of Business Programmes, College of  
Distance Education, University of Cape Coast, in partial fulfilment of the  
requirements for the award of Master of Business Administration in  
Accounting.

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## DECLARATION

### Candidates' Declaration

I hereby declare that this dissertation is the result of my own original research and that no part of it has been presented for another degree in this university or elsewhere.

Candidate's Signature..... Date.....

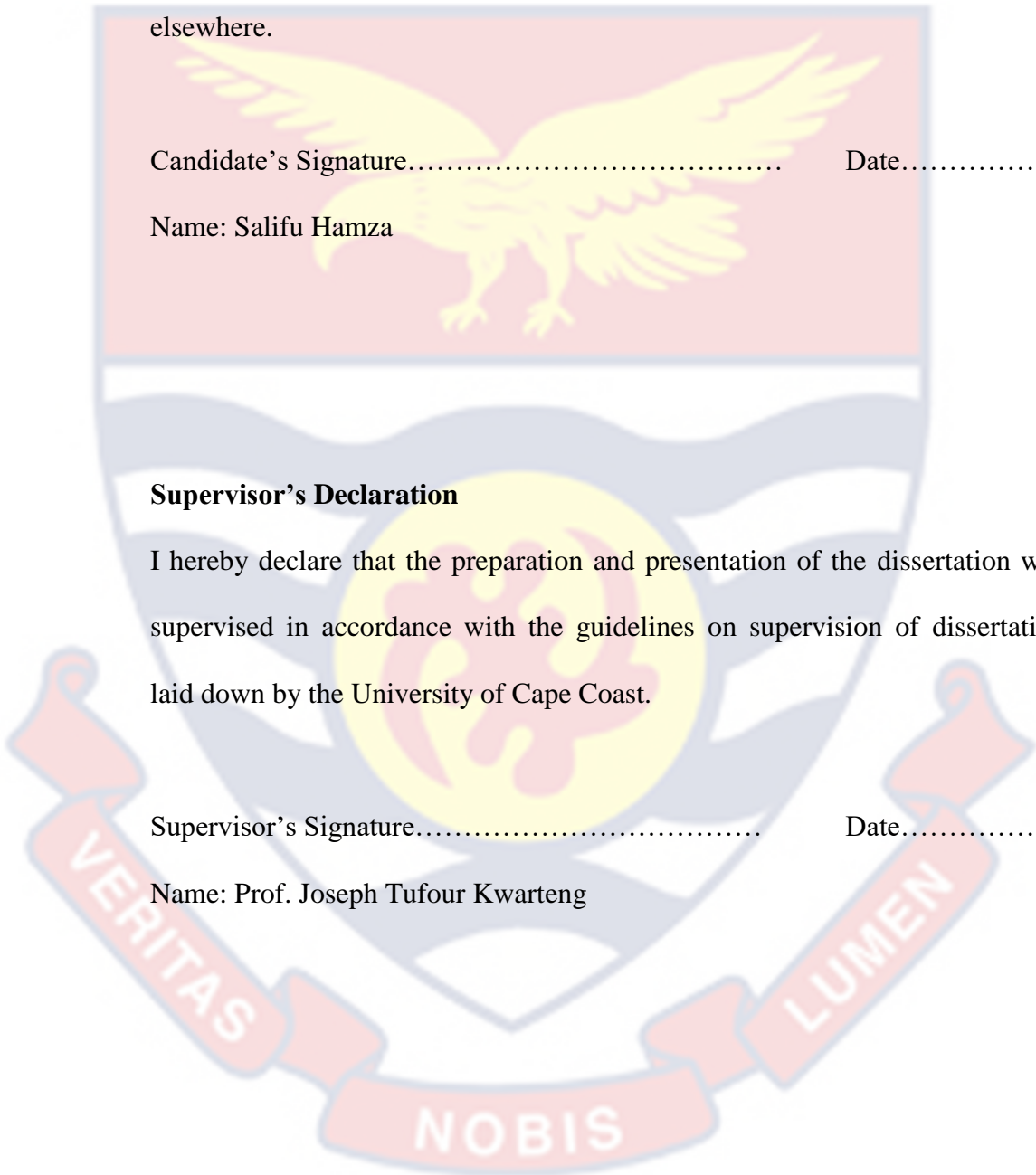
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### Supervisor's Declaration

I hereby declare that the preparation and presentation of the dissertation was supervised in accordance with the guidelines on supervision of dissertation laid down by the University of Cape Coast.

Supervisor's Signature..... Date.....

Name: Prof. Joseph Tufour Kwarteng



## ABSTRACT

The successful management of liquidity is essential to ensure the survival of the banking industry and to inspire public confidence. In this study, the impact of liquidity management on the financial performance of Zabzugu Rural Bank in the Northern Region was investigated, using data from 2017 to 2021. Specifically, the study analyzed the effects of liquidity and liability management on the bank's financial performance, measured through returns on assets, returns on equity, profit margin, and net interest margin. The study utilized the liquidity preference theory and employed an explanatory design and quantitative approach, analyzing the objectives of the study with a least square regression model. The study discovered that the liability of the bank did not directly affect the bank's financial performance. However, during the sample period, the bank employed reasonable liquidity management, investing more assets and a portion of deposits in risky investments. As a result, the decreasing levels of the bank's liquidity were found to positively affect the returns on assets, returns on equity, and profit margin of Zabzugu Rural Bank in the Northern Region. The study recommended that the bank's management align its liabilities with short-term assets such as short-term loans to creditworthy customers. This will enable the bank to generate sufficient revenue to match its liabilities and mitigate the risk of a mismatch in the timing of the creation of assets and revenue. Additionally, bank is encouraged to adopts a realistic strategy for increasing the amount of liquid cash in its assets through reinvestment. However, the potential impact of this technique on the bank's financial performance should be carefully monitored and managed.

## KEYWORDS

Financial Performance

Liability

Liquidity

Management

Returns



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**DEDICATION**

To my family



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**LIST OF ACRONYMS/ABBREVIATIONS**

LFTD	Total Liquid Funds to Total Deposits
LFTA	Liquid Funds to Total Assets
LFTIBL	Liquid Funds to Total Interest-Bearing Liabilities
ROA	Returns on Assets
ROE	Returns on Equity
PM	Profit Margin
NIM	Net Interest Margin
TL	Total Liabilities
DEP	Deposit



## CHAPTER ONE

### INTRODUCTION

The financial performance of banking firms is a crucial indicator of their viability and success, as it determines how effectively they can increase stockholder wealth. Liquidity management is a critical component of a bank's short-term strategies and has significant implications for achieving this objective. To ensure that the necessary financial performance is achieved, banks adopt various strategies to manage and address their liquidity needs. Liquidity management encompasses cash management, liability management, and other related activities. This study examines the liquidity management strategies of Zabzugu Rural Bank in the Northern Region, exploring the relationship between liquidity management, liability management, and financial performance.

#### **Background to the Study**

A financial institution is an establishment that provides financial services for its clients or customers (Taylor, 2002). The most important financial service provided by financial institutions is acting as financial intermediaries. Financial intermediaries mobilize funds from their customers that have surplus funds and channel it to where there are shortages of funds (Zhang, 2000). The major types of financial intermediaries are deposit-taking institutions, insurance companies, pension funds, brokerage firms and underwriters (Cetorelli et al., 2012). The focus of the study is on rural banking industry. Rural banks were established in Ghana in 1976 to provide financial service to the people living in the rural areas (Danquah et al., 2017). They are locally owned banks which are supervised by the ARB Apex bank under the

regulation of the Bank of Ghana (Ackah et al., 2014). The purpose of introducing the concept was to assist to mobilize rural savings. It was to make loans and other banking products readily available to the persons living in the rural areas and to support their well-being and development generally (Asiedu-Mante, 2011).

Liquidity management among the rural banks has undergone several changes since the inception of the concept of rural banking in Ghana (Nair & Fissaha, 2010). Liquidity is critical to the continuing sustainability of any financial institution; consequently, managing it is among the most significant undertakings steered by the banks (Imbierowicz, & Rauch, 2014). Working capital is highly imperative to maintaining the solvency, liquidity, survival and profitability of an enterprise (Hoque, Mia & Anwar, 2015). Yahaya and Bala, (2015) also stated that ineffective working capital management reduces profitability and may also lead to the financial crises of an organization.

Studies conducted by Hamdi and Hakimi (2019) as well as Partovi and Matousek (2019) have revealed that liquidity is a critical aspect of banks' operations. Insufficient liquidity can lead to instability not only within individual banks but also in the financial sector as a whole. According to Hakimi and Zaghoudi (2017), low liquidity occurs when banks are unable to meet the full or partial demands of depositors for a specified period. The World Bank (2019) has noted that low liquidity presents significant risks to banks, including credit risk, and is a major contributor to financial instability within the banking sector.

Liability management, as described by Heyes (2020), refers to a company's efforts to use liquid assets and other resources to reduce the impact

of losses resulting from the inability to settle debt obligations on time. In the banking industry, liability is incurred when deposits are accepted, and securities like certificates of deposit, commercial papers, and other debt instruments are issued. Effective liability management in banking requires a strategy for granting loans to customers with a high credit rating score and setting maturity periods that will improve the bank's liquidity position. Heyes (2020) notes that banks use the net interest margin, which is the difference between interest received on loans and interest paid on deposits, to manage their liability positions.

Managing liquidity is essential factor in the safe and comprehensive supervision of all financial establishments (Vento & La Ganga, 2009). The survival and success of a business entity especially in the financial sector depends on the entity's ability to manage its liquidity. Corporate accomplishment greatly rests on the capacity of financial managers successfully managing creditors, stocks and debtors (Filbeck and Krueger, 2005). Working capital distinguishes between assets in cash or easily changeable into cash (current assets) and firms' obligations for which cash will soon be required (current liabilities) (Bhattacharya, 2021). It therefore measures company's competence and its short-term financial health. The purpose of liquidity management is to preserve the optimum balance of each liquid item (Owolabi & Obida, 2012). To reach optimal liquidity, firm managers should regulate the interchange between profitability and liquidity perfectly.

Liquidity management and profitability are closely related in the financial industry. Effective liquidity management helps financial institutions



to optimize their profitability, reduce risks, and remain competitive (Yahaya & Bala, 2015). A study conducted by Hoque, Mia, and Anwar (2015) found that effective liquidity management can increase profitability and promote sustainable growth. However, a balance needs to be maintained between liquidity and profitability. Holding too much cash or liquid assets can lead to low returns on investment and reduce profitability. On the other hand, inadequate liquidity can lead to higher borrowing costs, loss of customer confidence, and ultimately, lower profits (Owolabi & Obida, 2012).

One-way financial institutions can balance liquidity and profitability is through effective liability management. Banks use different strategies to manage their liabilities, such as changing the mix of deposits and other funding sources, adjusting interest rates, and managing the maturity of their assets and liabilities (Heyes, 2020). Effective liability management can help financial institutions to reduce costs, optimize their funding mix, and improve profitability. Moreover, the efficient management of working capital is crucial for the profitability of financial institutions. Working capital management involves managing short-term assets and liabilities to ensure that a company has sufficient cash to meet its obligations and fund its operations. Financial institutions need to carefully manage their working capital to ensure that they can meet their funding requirements and optimize their profitability (Filbeck & Krueger, 2005).

Notwithstanding the benefits associated with liquidity management, it comes with huge cost of investments when more funds accumulated in liquid assets. Huge investment in the various components of working capital could hold up capital and consequently lead to reduce profit margin. Another

important cost implication in the management of liquidity is time management. Improving liquidity management is realistically vital for firms to endure the effects of monetary disorder (Olabode, 2011).

### **Statement of the Problem**

Financial entities as rural and community banks lend money to its clients and take deposits from them. It carries out the fundamental economic task of transferring money from families, businesses, and governments that have excess funds for saving to those that lack finances because they want to spend more than their income (Nair & Fissaha, 2021). The most common kind of interaction between rural residents and outsiders is financial intermediation (Mishkin & Earkins, 2012). Profitability in the banking industry will entice investors, bolster economic growth, and increase the banking industry's focus on the worldwide market (Molyneux, 2016).

Rural and community banks play a crucial role in transferring funds from families, businesses, and governments with excess savings to those in need of financing. However, despite numerous modifications since their establishment in 1976, rural and community banks continue to operate inefficiently and perform poorly in various aspects of financial intermediation (Danquah et al., 2017). This is evident in low asset quality, insufficient capitalization, significant credit risk for individuals and businesses, a rise in non-performing loans, operational inefficiencies, and increasing liquidity. Previous studies by Alabi et al. (2022), Awadzi (2021), Boamah and Akwaa-Mensah (2021), Danso, Ntim, and Andoh, (2021) and Oluwadare, Ogunbiyi and Adetula (2022) have highlighted these issues, calling for further research in this area.

Therefore, the purpose of this study is to examine the relationship between liquidity and profitability in rural banks. Specifically, the study aims to investigate how liquidity and liability affects rural banks' profitability, and identify the liquidity management strategies and make recommendations to improve liquidity management in rural banks. This study will contribute to the understanding of how rural banks can improve their financial performance, attract investors, and foster economic growth.

### **Purpose of the Study**

The main purpose of study is to assess the effect of liquidity management on the profitability of Zabzugu Rural Bank in the Northern Region.

### **Objective of the Study**

The researcher intended to achieve the following specific objectives:

1. to determine the liquidity management strategies of Zabzugu Rural Bank in the Northern Region;
2. to determine the liability management strategies of Zabzugu Rural Bank in the Northern Region;
3. to assess the effect of liability management and liquidity management on the financial performance of Zabzugu Rural Bank in the Northern Region.

### **Research Questions**

Based on the objectives, the study was guided by the following questions:

1. What are the liquidity management strategies of Zabzugu Rural Bank in the Northern Region?

2. What are the liability management strategies of Zabzugu Rural Bank in the Northern Region?
3. What is the effect of liability management and liquidity management on the financial performance of Zabzugu Rural Bank in the Northern Region?

### **Significance of the Study**

The management of liquidity is crucial for the success or otherwise of every business organization particularly in financial institution. It is in the light of the aforementioned grounds that the study was conducted. The significance of the study can be looked at from three main perspectives. The study, as part of its objectives, is to provide strategic policy recommendations that are anticipated to contribute substantially towards the improvement of the management of the various liquid assets. The empirical results of the study are expected to make management of Zabzugu Rural Bank better placed to make more informed decisions concerning its liquidity management. The expectation is that, an improvement in the liquidity management within the rural banking sector will lead to growth in profits.

### **Delimitations of the Study**

The research is limited to liquidity management practices in Ghana. The study focused on the rural/community banking sector using Zabzugu Rural Bank in the Northern Region as a case study. At the organizational level, only the departments of the bank whose decisions and activities have a direct effect on liquidity management were used. The rural bank was selected due to its features as a typical rural banking entity for the purposes of generalization and ease of access to data. For the purposes of time constraint and fair

representation, the horizontal analysis of the financial statements of the selected bank was limited to 5 (five) years.

### **Limitations of the Study**

The scope of this study is limited by several factors. Firstly, the study is focused on only one rural bank, Zabzugu Rural Bank, which may limit the generalizability of the findings to other firms that are not in the rural banking industry. Additionally, the study may have been further enhanced if more data was available, however, there were limitations in terms of the availability and accessibility of financial data for Zabzugu Rural Bank. The researcher encountered constraints in relation to accessing data, which may have impacted the comprehensiveness of the study. Only the information on liquidity and liability management, the income statement, statement of financial position of the bank was assessable.

### **Organization of the Study**

Chapter One consists of background of the study, statement of the problem, purpose of the study, research questions, significant of the study, scope of the study, delimitation of the study, limitation of the study and organization of the study. Chapter Two was devoted to the review of related literature which covered the theoretical review, conceptual review and framework of the study as well as empirical studies on the questions formulated. Chapter Three pointed out the research methods which included the research design, population, sample and sampling technique, research instruments, validity and reliability of the instrument, data collection procedure and data analysis procedure. The fourth chapter presented and discussed the results which were obtained from analyzing the data. The final

chapter, Chapter Five, was based on the summary, conclusions and recommendations as well as areas suggested for further research.



## CHAPTER TWO

### LITERATURE REVIEW

#### Introduction

This chapter presented the review of literature on the thematic areas of this study. The literature review was in respect of the liquidity management strategies of banks, liquidity and liability management as well as financial performance of banks. The review in this chapter started with the theoretical review, followed by the conceptual review and finally the empirical review.

#### Theoretical Review

The theory that provided the inter-linkages among the thematic areas of this study and which relates liquidity management to financial performance was identified to be the liquidity preference theory.

#### Liquidity Preference Theory

Keynes developed the liquidity preference theory in 1936 when he published the *General Theory of Employment, Interest, and Money* to address the economic crisis that arose during the Great Depression of the 1930s. The notion was based on the idea that, for transactional, speculative, and precautionary reasons, people and businesses prefer to store their money in liquidity or liquid form (Ogiriki, 2014). Keynes noted that in the framework of financial institutions and in relation to transactional incentives, money is needed in liquid form to conduct daily transactions that are capital in nature and recurring in nature. In this way, banks are required to maintain liquid resources or liquidity for the payment of salaries, to satisfy client withdrawal demands, to buy equipment and supplies for the workplace, and to cover marketing and bank promotional costs. In order to provide banks with ways to

protect themselves against future unanticipated expenses and conditions, there is a demand for money in liquid form. For instance, banks may retain sufficient liquidity reserves to cover depositors' unexpected withdrawals in order to preserve customer faith (Ogiriki, 2014). The liquidity preference hypothesis urges banks to maintain liquid resources in order to take advantage of interest-bearing assets and securities that can provide high returns for their business. This theory is based on the idea of speculative purpose (Andabai, 2010).

Keeping money in liquid form for transactional, speculative, and precautionary purposes can have an impact on a bank's financial performance if too much or too little liquidity is retained (Ibenta, 2012). For instance, a bank that increases its loan portfolio and hence its assets are more likely to have liquidity risk and difficulties, such as non-performing loans, which can lower net interest margin and profit margin. Keeping too little liquid means that banks won't have enough cash on hand to cover client withdrawal requests, which might undermine consumer trust and trigger panicked withdrawals that could push the bank into a liquidity crisis and necessitate a costly bailout (Ogbonnaya et al., 2016). On the other hand, banks may suffer losses due to the opportunity cost of retaining money if they maintain an excessive amount of liquid or idle liquidity.

The liquidity preference hypothesis further says that the level of interest rates affects how much liquidity or liquid balance businesses keep. For instance, a lower real rate of interest discourages banks from making loans since they will maintain too much liquidity, which would negatively impact their net interest margin and profit margin (Akhwale, 2014). On the other



hand, a higher real rate of interest will encourage banks to make more loans and to invest more in Treasury bills and bonds, which will reduce their liquidity. This circumstance may have an impact on banks' financial health in both directions (Ibe, 2013). When all else is equal, the first impact benefits banks by increasing the rate of returns on loans and interest-earning assets. The second consequence is detrimental, as banks would struggle to find liquid capital to cover their loan payments and ongoing transactional requirements.

If the aforementioned reasoning is true, banks may choose to raise money from the money market to close the liquidity gap; nevertheless, this directly impacts leverage and raises the chance of insolvency, all other factors being equal. According to the liquidity preference hypothesis, banks are motivated to maintain liquid liquidity for a variety of reasons, and the amount of liquid liquidity they hold has an impact on their financial performance both directly and indirectly. In order to manage their liquidity and liability situations and improve performance, banks need use efficient liquidity management methods.

Liquidity management strategies employed by rural banks may impact the demand for money by their customers (Opoku-Aduse, 2016). For example, if a rural bank increases its reserve requirement, customers may need to hold more cash to meet their transactional needs, leading to a decrease in their demand for loans. The theory's concept of the precautionary motive can inform rural banks' decision-making regarding their liquidity management strategies (Tahir et al., 2016). For example, rural banks may hold higher levels of liquid assets as a precaution against unexpected liquidity shocks or deposit withdrawals. The speculative motive can also influence rural banks' liquidity

management decisions (Issha & Alufar-Bokpin, 2009). For instance, if a rural bank expects interest rates to rise in the future, it may choose to hold more liquid assets to take advantage of higher returns on those assets. In summary, the Liquidity Preference Theory can provide insights into the factors that influence the demand for money and the decision-making processes of rural banks regarding their liquidity management strategies.

### **Liquidity Management Models**

Among the models used to manage liquidity are the Baumol model and the Miller–Orr model. These models help in determining the optimal level of liquidity that will meet the liquidity requirement of firms.

#### **Baumol Model**

This methodology helps businesses to determine the ideal amount of liquidity needed for operations. This model makes use of the idea of inventory management to determine how much liquidity should be bought in order to reduce the transaction cost and the opportunity cost of capital (Banafa, Muturi & Ngugi, 2015). Awad and Jayyar (2013) assert that retaining more liquidity than necessarily has an opportunity cost. The opportunity cost is the difference between the time value of money lost by not investing the liquidity and the interest income lost if idle cash were invested (Banafa, Muturi & Ngugi, 2015). The Baumol model's shortcomings are a result of its too simplified underlying assumptions. The model implies that enterprises should be able to create the same amount of liquidity at regular intervals, with constant opportunity cost of capital, and that the transaction cost associated with converting non-liquid securities into liquidity is the same at all times (Ayako, Githui, & Kungu, 2015). Despite its flaws, the model is nevertheless a

valuable tool for helping businesses determine the right degree of liquidity requirements.

### **Miller–Orr Model**

This model allows businesses to predict the upper and lower boundaries of their liquidity requirements to avoid retaining too much or too little liquidity (Cagle, Campbell & Jones, 2013). This model's applicability may be observed in the effects that excess or insufficient liquidity has on businesses. The Miller-Orr model's use is predicated on a number of assumptions, including the following: firms' stochastic inflow and outflow of liquidity balances; liquidity balances' symmetrical distribution; the possibility of investing idle liquidity in short-term securities; the sale or purchase of marketable securities at transaction costs; and firms' constant maintenance of lower levels of liquidity balances (Dabiri, Yusof, & Wahab, 2017). The Miller-Orr model is helpful for managing liquidity because it enables businesses to predict the amount of liquidity at which they must place orders for liquidity as well as set lower and upper limits on liquidity balances.

### **Conceptual Review**

#### **Liquidity Management**

The capacity of businesses to transform assets into liquidity without suffering a value loss is referred to as liquidity. Liquidity management consequently includes the management of liquidity. Liquidity management, according to Durrah, Rahman, Jamil, and Ghafeer (2016), has to do with a company's capacity to pay off short-term loans using its present assets and liquidity. Liquidity management has a wider reach in that it demands businesses to produce adequate liquidity to pay for all types of operational

expenditures as well as to buy fixed assets for the business. Due to poor liquidity management, some businesses experience financial strain and turn to borrowing, which ultimately raises their leverage and bankruptcy risk. Quick ratio, current ratio, and liquidity ratio, among others, are examples of excessively bad liquidity ratios that signal a firm's worsening liquidity status (Sinha, 2012).

### **Factors that affect Liquidity of Banks**

The study of Nyabate (2013) outlined three key factors that affect the liquidity position of firms: asset quality, macroeconomic factors, and banks' capital structure.

#### **Asset Quality**

The liquidity situation of banks is primarily based on the asset quality of the banks, expressed as credit risk. By transforming deposits into loan portfolios, banks produce assets. Therefore, a high proportion of non-performing loans puts banks at credit risk, which causes the assets of the banks to depreciate. Banks that have a high percentage of loan clients who do not pay back their loans are considered to have low asset quality and are vulnerable to a high credit risk. Low asset quality also implies that banks have fewer liquid assets available to cover the withdrawal requirements of depositors, which puts them in a liquidity bind and forces them to borrow from the money market at higher interest rates to make up for their liquidity deficiencies. In support of the aforementioned contention, Mohammad (2013) found that banks with poor asset quality have liquidity issues, which have a detrimental impact on their profitability.

### **Macroeconomic Factors**

Banks and businesses generally had revenue deficits in the 1930s as a result of the Great Depression, which was brought on by a decline in individual income levels. This indicates that in an economy with low-income levels, saving is discouraged and the need for borrowing is increased (Sibikov, 2019). Therefore, if an economy experiences a downturn with declining income levels, banks are unable to grow the amount of revenue they mobilize via deposits, which has an impact on their capacity to generate new assets through the issuance of loans.

Rauch (2018) has further argued that raising the central bank's risk-free rate has a detrimental impact on banks' liquidity. This happens when investors choose to lend money to the government at a tempting risk-free rate rather than to private banks. Commercial banks won't be able to draw in enough deposits from the investing public as a direct result, which will cause liquidity issues.

### **Capital Structure**

The combination of stock and debt in a company's capital composition is referred to as capital structure. Businesses with high debt levels are more prone to have liquidity issues due to frequent and expensive loan interest payments, according to Ehiedu (2014). Credit investors utilize restrictive covenants with highly geared companies that have a big loan book to keep those companies from drawing new loans until the present loan debt is paid off (Vieira, 2010). This implies that in such a situation, businesses who are subject to such covenants are prohibited from using further borrowing to make up for their liquidity deficiencies.

## Strategies Banks used in Managing Liquidity

There are tools used by banks in managing their liquidity position. These include the liquidity gap analysis and the Basel Accord on liquidity and liquidity management.

### Liquidity Gap Analysis

According to Barnes (2010), a bank's liquidity gap is the space between its current assets and liabilities and its expected obligations in the future. The liquidity gap of a company is positive when its assets exceed its obligations as an entity, and it is negative when its assets during the analysis period are less than its liabilities. The amount of deposits and withdrawals made by bank clients, as well as the number of loans made by banks over the course of a specific time period, can have a significant impact on the liquidity gap for banking organizations. Liquidity gap analysis provides crucial information by informing bank management about the company's financial situation and how it is expected to develop over the long run. In order to fulfil the liability requirements, banks with negative liquidity gaps must pay close attention to their liquidity balances and look for measures to increase it.

### Basel Accord

One important rule that banks in the G10 nations follow as a guide to maintaining improved liquidity position is the Basel Accord. Banks in the G10 countries are regulated by a number of regulations and directives. The Basel Accord is a package of financial reforms created by the Basel Committee on Banking Supervision with the aim of enhancing bank supervision, rules, and risk management (Andreas, Hess & Wanzenried, 2014). There have been three Basel Accords so far, and each one builds upon the one before it. There are

three important standards that banks in the G10 nations must adhere to, namely with regard to the Basel III Accord. Banks in other economies can rely on the Basel principles and criteria to manage their liquidity and liquidity situations even if the restrictions only apply to the G10 nations. The guiding principles cover minimum capital needs, leverage ratios, and liquidity needs (Schmitt, 2015).

Regarding the minimum capital requirement, the Basel III accord increased it from 2% (Basel II accord) to 4.5% (Basel III accord) of common stock, expressed as a percentage of the bank's risk weighted index. The entire minimum capital requirement was increased by 2.5% to serve as a buffer, bringing the total to 7%. This allowed banks experiencing liquidity issues to rely on the 2.5% as a buffer (Schmitt, 2015). Cooke, Koch, and Murphy (2015) claim that while this requirement improves the liquidity position of banks, it reduces bank profitability. To supplement the risk-based capital requirements, Basel III also added a non-risk-based leverage ratio. Banks must maintain a leverage ratio that is higher than 3%.

Finally, the Basel III agreement added the liquidity coverage ratio, which mandates banks to keep enough liquid assets to withstand a 30-day stressed financing scenario. The level was initially maintained at 60% of institutions declared requirements. The second ratio that was adopted was the net stable funding ratio, which mandates that banks maintain stable financing above the minimum level for a prolonged stress scenario of one year (Krishnamurthy & Weymuller, 2017).

## Liability Management

In order to preserve liquidity, enable lending, and keep sound balance sheets, banks undertake liability management, which involves keeping a balance between the maturities of their assets and obligations. Liabilities in this sense include money from depositors as well as money borrowed from other financial organizations (Jawed & Kotha, 2020). These funds are managed by a bank that employs liability management, which also protects against fluctuations in interest rates. Liability management lessens the chance of a mismatch. Because of illiquidity or fluctuations in interest rates, a bank may have a mismatch between assets and obligations.

A bank is required to charge interest on loans as well as pay interest on deposits. Bankers monitor the net interest margin, or the difference between interest received on loans and interest paid on deposits, to control these two factors. In the 1960s, banks started actively managing their assets and obligations by issuing negotiable certificates of deposits (Alper & Anbar, 2011). To raise more money in the money market, they might be sold in the secondary market before coming to maturity. This method, also known as asset/liability management, is crucial to the soundness of a bank's bottom line. Certain banks mishandled obligations in the run-up to the 2007–2008 financial crisis by using short-maturity loans borrowed from other banks to finance long-maturity mortgages. This practice led to the downfall of some financial behemoths like Northern Rock (Asiri, 2017).

## Financial Performance

As indicators of bank performance, return on asset (ROA) and return on equity (ROE) have been widely utilized. A bank's ROA demonstrates how



well it is managing its assets to produce income. It is the revenue generated by each asset unit, typically stated as a percentage. The problem with ROA is that it understates asset value by not include off-balance sheet items in the total assets. Ultimately, this might lead to a positive bias where ROA is exaggerated in the assessment of bank performance. Nevertheless, ROA has been cited as one of the most crucial profitability indicators in contemporary banking research (Golin, 2017; Rose & Hudgins, 2008). All of the studies mentioned (Haron, 2004, Hassan & Bashir, 2003, Naceur, 2003) used ROA as a metric for profitability.

Another way to quantify profitability is return on equity (ROE), which is calculated by dividing net income by equity. It calculates the profit made on each share of shareholders' money. This measurement has a flaw in that banks with significant levels of financial leverage typically provide a greater ratio. However, banks with large financial leverage tend to be more financially risky, which increases the likelihood of bankruptcy. Net interest margin, which is calculated by dividing net interest income by average operating assets, and profit margin, which is calculated by dividing profit after taxes by total operating income, can also be used to quantify financial performance. Therefore, this study used metrics like profit margin, returns on assets, returns on equity, and net interest margin to assess financial performance.

### **Empirical Review**

#### **Relationship between Liability Management and Performance**

Numerous recent studies have looked at the relationship between liability management and a company's financial performance, including Anjili's (2014) research, which used data from 2004 to 2013 to analyze the

impact of liability management on the financial performance of Kenyan commercial banks. The components of the CAMEL framework were used to measure liability management (capital adequacy, asset quality, management efficiency, liquidity and operational efficiency). According to the descriptive statistics used in the study, the financial performance of enterprises is considerably and favorably influenced by liquidity, operational efficiency, capital sufficiency, managerial efficiency, and asset quality.

Gyekyi (2011) investigated the connection between National Investment Bank's profitability and liability management in Ghana. The study's findings demonstrated a positive association between liability management and profitability, with the rationale that a bank's profitability decreased as its liability grew, but profitability rose as liability was reduced. The study by Belete (2013), which advanced the theory that the rate of cost on liabilities is negative and varies among liabilities, offered opposing evidence to the relationship between liability management and financial success. The study tested the hypothesis using an ordinary least square regression model, and the results showed that bank liabilities, mostly from deposits, client savings, and other credit-created balances, have a negative impact on financial performance.

The least square regression model was used in the study by Tee (2017) to analyse the association between asset and liability management and the profitability of listed banks in Ghana. The total amount of liabilities held by banks was utilized in the study to quantify liability management, while returns on assets were used as a stand-in for bank profitability. The study's findings showed that the returns on assets of Ghana's listed banks are adversely

impacted by savings, deposits, and other bank liabilities. The study anticipated a strong association between liability management and financial success based on the aforementioned data.

### **Relationship between Liquidity Management and Performance**

There has been research on the connection between liquidity management and financial performance that have shown a strong connection. Li, Musah, Kong, Mensah, Antwi, Bawuah, Donkor, Coffie, and Osei (2020), for instance, looked at the relationship in Ghana between liquidity and the financial performance of non-financial enterprises listed on the Ghana stock market. Data from 2008 to 2017 were utilized in the study by Li, et al. (2020), which used the generalized least square regression model to analyze the data. The study's conclusions demonstrated that liquidity had an indirect, negative, and substantial impact on financial performance metrics like returns on equity, but that the link between liquidity and returns on assets, while positive, was not statistically significant.

There is further research that have provided evidence of contradictory findings about the connection between corporate financial performance and liquidity management. The study by Kanga and Achoki (2017), which used an ordinary least square regression model to look at the connection between liquidity and financial performance of non-financial enterprises in Kenya, is an example of such research. According to Kanga and Achoki's study from 2017, liquidity directly affects financial performance measures like returns on assets and returns on equity. Studies like those of Ali and Bilal (2018), whose investigation in the context of Jordan demonstrated a substantial positive association between liquidity and returns on assets, have validated this

conclusion. Schulz (2017) used correlation analysis to investigate more than 3000 unlisted financial enterprises from the perspective of the Dutch economy. According to the study, a firm's liquidity position has a detrimental impact on financial performance metrics including returns on invested capital and returns on assets.

The study by Opoku (2015) used data from the years 2005 to 2009 on 33 enterprises in Ghana to explore the relationship between liquidity management and trading firm performance. The study used the liquidity cycle, average collection days, and average payment days to define and quantify liquidity. The study's findings showed that the financial performance of trading enterprises in Ghana is unaffected by liquidity. The study by Batchimeg (2017) in the context of Mongolia supported the conclusions made in the study by Opoku (2015) by noting that liquidity is not a significant factor in determining a firm's profitability. The results on the link between liquidity and financial performance are not conclusive, but the weight of the data and theory support the idea that good liquidity management should affect a firm's performance. Therefore, a favorable correlation between effective liquidity management and the financial performance of Ghana's listed banks was anticipated in this study.

### **Conceptual Framework**

The framework in Figure 1 provided the pictorial representation of the variables of the study and how the variables used in the study link up to the various objectives of the study. From Figure 1, financial performance was the dependent variable measured by returns on assets, returns on equity, profit

margin and net interest margin. The independent variables were liquidity management and liability management.

Based on Figure 1, liquidity management was measured by three ratios: Liquidity Fund to Total Deposit (LFTD), Liquid Fund to Total Interest-bearing Liabilities (LFTIBL), and Liquid Fund to Total Assets (LFTA). Liability management was measured by two ratios: Total Liabilities (TL) and Share of Industry Deposit (DEP). Financial performance was measured by four indicators: Returns on Assets (ROA), Returns on Equity (ROE), Profit Margin (PM), and Net Interest Margin (NIM).

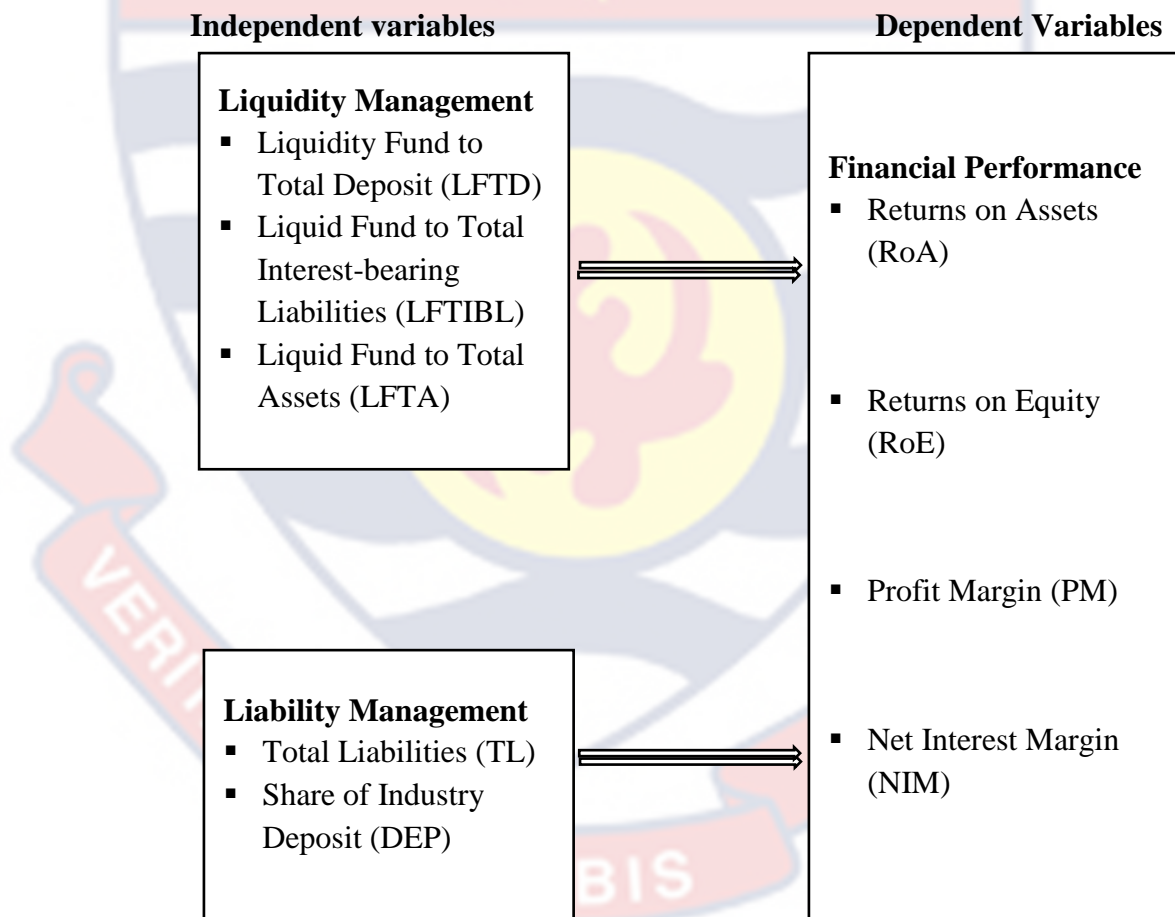


Figure 1: Conceptual Framework

Source: Researcher's Construct (2022)

### Chapter Summary

The literature research on the study's goals was the focus of this chapter. The conceptual review of bank financial performance, liquidity and liability management, as well as theoretical and empirical reviews as well as a conceptual framework that puts the study's goals into proper context have all been covered in this chapter.



## CHAPTER THREE

### RESEARCH METHODS

#### Introduction

The purpose of the research was to assess the effect of liquidity management on the profitability of Zabzugu Rural Bank in the Northern Region. The study covered the period of five (5) years from 2017 to 2021. The chapter discussed the research design and approach, source of data, brief background of the study bank, variables' measurement, model specification and data.

#### Research Design

In this study, explanatory research design was utilized to examine the relationship between liquidity management and the financial performance of Zabzugu Rural Bank located in the Northern Region. The research design serves as the general framework that outlines the methods used to achieve the study's objectives. The explanatory research design is a type of causal research that aims to determine the extent to which one or more variables affect another variable (Zikmund, Babin, Carr, & Griffin, 2012). This type of research design seeks to analyze a particular situation or problem in order to elucidate the patterns of relationships between variables.

The use of explanatory design offers some advantages in researching relationships between variables. One benefit is that it enables the identification of reasons for various processes and the evaluation of the effects of changes in one variable on another. However, there are also drawbacks to using an explanatory study design. Coincidences may be wrongly perceived as causal relationships, and reaching accurate conclusions based on causal research

findings can be challenging due to the impact of various factors and variables in social and economic environments. In some cases, although a correlation between two variables can be established, it can be difficult to determine which variable is the cause and which is the effect. Therefore, while causality may be inferred, it cannot be definitively proven (Finkel, 1995).

Explanatory research design is suitable for this study because it enabled the researcher to explore the relationship between two or more variables while controlling for other factors that may affect the outcome. This design allowed the researcher rule out alternative explanations for the relationship between liquidity management and financial performance. By doing so, the researcher can provide a more accurate assessment of the relationship between the two variables. By identifying the causes of financial performance, the researcher can develop effective strategies to improve the bank's financial performance

### **Research Approach**

Research strategy often takes into account whether to use only quantitative research, only qualitative studies, or a combination of both. According to Aliaga and Gunderson (2005), qualitative research approaches answer questions about why and how people behave in the way that they do and provide in-depth information about human behavior, whereas quantitative research approaches deal with explaining phenomena by collecting numerical data that are analysed using mathematically based methods. In general, quantitative research employs secondary data sources, surveys, and other methods of data collecting that might yield numerical data. It was sufficient to



use the quantitative research technique given the goals of this study, which make use of quantitative variables.

Quantitative research focuses on collecting numerical data and using it to understand a specific event or generalize it across groups of individuals (Babbie, 2010). The basic goals of quantitative research are to evaluate the relationships between variables and to look at the causes and effects of those relationships. It also emphasizes how a modified variable affects another variable in a predetermined scenario (Mujis, 2010). In addition to dealing with numbers, logic, and an objective viewpoint, quantitative research also emphasizes thorough, convergent thinking as opposed to divergent reasoning as well as numerical and unchanging data (Babbie, 2010). The fundamental benefit of using a quantitative method is that it enables the reproduction of the same occurrence and, as a result, has a high level of dependability. The quantitative technique was used for this study because it enables the assessment of the effects of one or more variables (liquidity management) on other sets of variables (financial performance).

### **Study Organization**

The study focused on the banking industry, using Zabzugu Rural Bank in the Northern Region, as a case study. In order to obtain data relevant to achieving the objectives of the study, data on the variables used for this study were ascertainable from the financial statements.

### **Measurements of Variables**

The study analyzed the objectives by using three key variables: liquidity management, liability management and financial performance. Liquidity management was measured by three ratios: Liquidity Fund to Total

Deposit (LFTD), Liquid Fund to Total Interest-bearing Liabilities (LFTIBL), and Liquid Fund to Total Assets (LFTA). Liability management was measured by two ratios: Total Liabilities (TL) and Deposit (DEP). Financial performance was measured by four indicators: Returns on Assets (ROA), Returns on Equity (ROE), Profit Margin (PM), and Net Interest Margin (NIM).

### **Source of Data Collection**

The data collected for this study was from secondary sources – from the financial statements of Zabzugu Rural Bank in the Northern Region. Data was collected for five-year period from 2017 to 2021 and this period was selected to assess the most current performance of the bank. Data on total liability was obtained from the financial statements of the bank while data on liquidity flow management, liquidity management, liability management, and financial performance were obtained from the ARB Apex Bank Efficiency and Monitoring Unit Report and Bank of Ghana On-Site examination reports (2017 – 2021) reports.

### **Data Processing and Analysis**

Data collected for this study was processed Statistical Product for Social Science (SPSS, version 22). However, the analysis of the third objective was done using panel multiple regression (pooled ordinary least square regression). The reasons which accounted for the use of the pooled ordinary least square regression were due to the advantages it possesses. According to Gujarati (2011), the variability in panel data values may be absorbed by the pooled ordinary least square regression estimate approach. Second, the pooled ordinary least square regression increases efficiency and

offers a more illuminating analysis of data values with reduced inter-variable collinearity.

In analyzing the secondary data, liquidity was represented by the ratio of Total Liquid Funds to Total Deposits (LFTD), the ratio of Liquid Funds to Total Assets (LFTA) and the ratio of Liquid Funds to Total Interest-Bearing Liabilities (LFTIBL). Financial performance was represented by Returns on Assets (ROA) and Returns on Equity (ROE), Profit Margin (PM) and Net Interest Margin (NIM). Liability management was measured by Total Liabilities (TL) and Deposit (DEP). All the ratios as well as return on assets, return on equity, profit margin, net interest margin, total liabilities and total deposits were computed using Microsoft Excel 2019 and then entered into Statistical Product for Social Science (SPSS, version 22) for processing.

### **Model Specification**

The model specification from the pooled ordinary least square regression analysis for the third objective of the study is presented by equations (1) and (2). From the equations, liquidity was represented by the ratio of Total Liquid Funds to Total Deposits (LFTD), the ratio of Liquid Funds to Total Assets (LFTA) and the ratio of Liquid Funds to Total Interest-Bearing Liabilities (LFTIBL). Financial performance was represented by Returns on Assets (ROA) and Returns on Equity (ROE), Profit Margin (PM) and Net Interest Margin (NIM). Liability management was measured by Total Liabilities (TL) and Deposit (DEP). Objectives 1 and 2 which analyzed the liquidity management and liability management strategies of Zabzugu Rural Bank was analyzed descriptively.

Model Specification for objective 3:

$$\text{Financial Performance} = f(\text{Liability Management}) \quad (1)$$

$$\text{ROA}_{it} = \alpha + \beta_1 \text{TL}_{it} + \beta_2 \text{Dep}_{it} + \mu_{it} \quad (a)$$

$$\text{ROE}_{it} = \alpha + \beta_1 \text{TL}_{it} + \beta_2 \text{Dep}_{it} + \mu_{it} \quad (b)$$

$$\text{PM}_{it} = \alpha + \beta_1 \text{TL}_{it} + \beta_2 \text{Dep}_{it} + \mu_{it} \quad (c)$$

$$\text{NIM}_{it} = \alpha + \beta_1 \text{TL}_{it} + \beta_2 \text{Dep}_{it} + \mu_{it} \quad (d)$$

Where TL is Total Liabilities and Dep is Deposit.

$$\text{Financial Performance} = f(\text{Liability Management}) \quad (2)$$

$$\text{ROA}_{it} = \alpha + \beta_1 \text{LFTD}_{it} + \beta_2 \text{LFTA} + \beta_3 \text{LFTIBL}_{it} + \mu_{it} \quad (a)$$

$$\text{ROE}_{it} = \alpha + \beta_1 \text{LFTD}_{it} + \beta_2 \text{LFTA} + \beta_3 \text{LFTIBL}_{it} + \mu_{it} \quad (b)$$

$$\text{PM}_{it} = \alpha + \beta_1 \text{LFTD}_{it} + \beta_2 \text{LFTA} + \beta_3 \text{LFTIBL}_{it} + \mu_{it} \quad (c)$$

$$\text{NIM}_{it} = \alpha + \beta_1 \text{LFTD}_{it} + \beta_2 \text{LFTA} + \beta_3 \text{LFTIBL}_{it} + \mu_{it} \quad (d)$$

Where LFTD is Liquid Fund to Total Deposit ratio, LFTA is ratio of Liquid Fund to Total Assets, and LFTIBL is the ratio of Liquid Funds to Interest Bearing Liabilities.

### Model Diagnostics

The study also checked for the goodness of fit of the estimated regression model by checking the size of the R<sup>2</sup> and the adjusted R<sup>2</sup> and the probability value of the F-statistic. The study also checked the status of serial correlation in the residual of the model by checking the size of the Durbin-Watson statistic. If the Durbin-Watson statistic was approximately 2 then the model had no autocorrelation.

### Chapter Summary

The study employed explanatory design (the quantitative approach) in analysing the relationship between credit risk management and financial

performance of Zabzugu Rural Bank in the Northern Region, and the study covered the period of five (5) years from 2017 to 2021. Secondary data was collected from the bank and was processed using Statistical Product for Social Science (SPSS, version 22).



## CHAPTER FOUR

### RESULTS AND DISCUSSION

#### Introduction

This present chapter deals with the presentation, interpretation and discussion of the data collected based on the research questions. The chapter first of all presented the strategies used by Zabzugu Rural Bank in the Northern Region in managing liquidity and liability, followed by the relationship between liability management and financial performance, and the relationship between liquidity management and financial performance.

#### **Liquidity Management Strategies of Zabzugu Rural Bank in the Northern Region**

The first objective of this study which dealt with the analysis of the liquidity management strategies of Zabzugu Rural Bank in the Northern Region were presented and discussed. These strategies were obtained from the financial statement report presented by the bank on annual basis. Presented below were found to be the key liquidity management strategies.

##### 1. Statement of cash flows.

The statement of cash flows is a crucial financial statement for the bank as it allows for the monitoring of the cash flows brought on by various operations such as paying off debt, deposits, and cash flows from investing and financing activities. This statement enables the bank to assess and prepare for incoming and outgoing cash flows, including those from the issuance of debt and equity, cash interest payments, and other sources of cash. By using a statement of cash flows, the bank can identify the changes in cash and cash equivalents over a given period, which can aid in decision-making processes

such as determining the bank's liquidity position and future investment strategies. According to Jickling and Murphy (2017), the statement of cash flows provides crucial information on cash flows brought on by various operations, enabling banks to prepare for incoming and outgoing cash flows and determine the growth or reduction in cash and cash equivalents.

## 2. Credit and liquidity risk management

The bank's activities are primarily financial in nature, and there is inherent financial risk in such activities. The bank takes steps to reduce credit and liquidity risks as part of its effort to manage its liquidity requirements. Credit and liquidity risk management are both used by the bank to manage its liquidity resources. Risk limits, controls, monitoring, and ongoing identification of financial hazards through the use of liquidity resources are used to manage these activities. Agyapong et al. (2019) indicated that banks look at indicators like the capital adequacy ratio, non-performing loans, and liquidity ratio among others to manage the bank's liquidity flows effectively and reduce the risk connected with banks' liquidity and liquidity credit.

### **Liability Management Strategies of Zabzugu Rural Bank in the Northern Region**

The investigation of the liability management strategies used by Zabzugu Rural Bank in the Northern Region was the study's second objective. These strategies were acquired from the management, who also provided the annual financial report on a yearly basis, were presented and discussed. The main liability management strategies were discovered to be as follows.

1. The bank borrows short-term loans and invest the loans in short term investment.

The reinvestment of short-term loans in short-term investments provides a means for the bank to manage its liabilities effectively. These short-term investments can include Treasury bills, certificates of deposit, and commercial paper. The interest earned from these investments can help offset the interest paid on the short-term loans, thereby reducing the cost of borrowing for the bank. Moreover, by investing in short-term securities, the bank can easily convert these investments into cash if needed to meet any unexpected liquidity demands. Ross, Westerfield and Jordan (2018) in their study found that this strategy helps the bank to optimize its liquidity and manage its short-term financing needs efficiently.

2. The bank sets a vault limit to meet customers daily withdrawal.

The vault limit set by the bank ensures that there is enough cash to cover unexpected withdrawals, which may occur due to emergencies or other unforeseen circumstances. This helps to maintain customer confidence in the bank's ability to meet their financial needs. In addition, the bank's daily withdrawal limit also serves as a risk management tool, as it helps to mitigate the risk of theft or robbery by limiting the amount of cash available for withdrawal at any given time. The bank's setting of withdrawal limits is in line with standard banking practices aimed at controlling cash flow and ensuring customer security (Mishkin & Eakins, 2012). By imposing daily withdrawal limits and setting a vault limit, the bank can maintain cash reserves and meet customers' needs while mitigating the risk of theft or robbery (Kolb, 2010).

3. The bank does cash forecasting to know cash position.

Cash forecasting is a critical aspect of a bank's liquidity management strategy. By predicting future cash inflows and outflows, the bank can



anticipate any potential cash shortfalls or surpluses and take proactive measures to address them (Moyer, McGuigan, & Rao, 2019). Accurate cash forecasting allows the bank to make informed decisions regarding investments, loans, and other financial activities (Westland & Clark, 2015). It also helps the bank in managing its liquidity requirements effectively and reduces the risk of cash flow mismatches that could negatively impact the bank's financial performance.

### **Relationship between Liability Management and Financial Performance**

The third objective of this study examined the effect of liability management on financial performance of Zabzugu Rural Bank in the Northern Region by using the deposit and the logarithm of liability of the bank as measures of liability management against the profitability indicators of returns on assets, returns on equity, profit margin and net interest margin. According to the Ghana Banking Survey (2019), deposit constitutes the main regular liability and debt obligation of banks and from which they create assets in the form of loans. The findings in respect of the nexus between liability management and financial performance were indicated by Table 1.

**Table 1: Effects of Liability Management on Financial Performance**

Variable		ROA	ROE	PM	NIM
TL:	Coefficient	-1.079	-0.956	-0.609	-1.086
	Std. Error	.000	.000	.000	.000
	T-Statistic	-5.407	-2.232	-1.739	-3.236
	P-value	.033	.155	.224	.084
DEP:	Coefficient	.240	.817	.422	.525
	Std. Error	.000	.000	.000	.000
	T-Statistic	1.204	1.908	-1.206	1.564
	P-value	.352	.197	.351	.258
Constant:	Coefficient	.215	.147	2.210	.077
	Std. Error	.054	.521	.327	.055
	T-Statistic	3.980	.283	6.762	1.409
	P-value	.058	.804	.021	.294
R-square		.943	.740	.826	.840
F-statistic		16.678	2.842	4.745	5.260
P-value		.057	.260	.174	.160
Durbin Watson		2.332	2.339	2.322	2.422

Source: Field Data, 2022

From Table 1, it is evident that total liabilities (TL) significantly affect return on assets (ROA). However, total liabilities (TL) insignificantly affect return equities (ROE), profit margin (PM) and net interest margin (NIM).

Total liabilities and returns on assets, returns on equities, profit margin and net interest margin were found to be negatively related. Regarding the model for returns on assets, the coefficient for total liabilities = -1.079, standard error = .000, t-statistic = -5.407, and p-value = 0.033 < 5%. This mean that a unit increase in total liabilities reduce the returns on assets by 1.079 units. For the regression model for returns on equity, the coefficient for total liabilities = -.956, standard error = .000, t-statistic = -2.232, and p-value = 0.155 > 5%. This mean that a unit increase in total liabilities reduce the returns on equity

by .956 units. Furthermore, the regression model for profit margin indicated a coefficient for total liabilities to be  $-.609$ , standard error =  $.000$ , t-statistic =  $-1.739$ , and p-value =  $0.224 > 5\%$ . This mean that a unit increase in total liabilities reduce the profit margin level by  $.609$  units. More so, the model for net interest margin produced a coefficient for total liabilities =  $-1.086$ , standard error =  $.000$ , t-statistic =  $-3.236$ , and p-value =  $.084 > 5\%$ . This mean that a unit increase in total liabilities reduce the profit margin of banks by  $1.086$  units.

The negative relationship found between liability management and financial performance found in this study agrees with the result obtained in the study of Gyekyi (2011) whose result showed that there is a negative relationship between liability management and profitability with the explanation that increased liability of the bank reduced its profitability while the reduction of the banks' liability increased the profitability of the bank. Furthermore, the findings of this study agree with that of Belete (2013) who produced the evidence that the link between liability management and financial performance is negative and varied across liabilities.

The result indicated in Table 1 indicated that deposit insignificantly affect returns on assets, returns on equity, profit margin and net interest margin. The deposit and returns on assets, returns on equity and net interest margin were found to be positively related, but negatively related to profit margin. Regarding the model for returns on assets, the coefficient for deposit =  $.240$ , standard error =  $.000$ , t-statistic =  $1.204$ , and p-value =  $.352 > 5\%$ . This mean that a unit increase in deposit increase the returns on assets by  $.240$  units. For the regression model for returns on equity, the coefficient for

deposit = .817, standard error = .000, t-statistic = 1.908, and p-value = .197 > 5%. This mean that a unit increase in deposit increase the returns on equity by .817 units. Furthermore, the regression model for profit margin indicated the coefficient for deposits to be - .422, standard error = .000, t-statistic = -1.206, and p-value = .351 > 5%. This mean that a unit increase in deposit reduce the profit margin level by .422 units. More so, the model for net interest margin produced a coefficient for deposits = .525, standard error = .000, t-statistic = 1.564, and p-value = .258 > 5%. This mean that a unit increase in deposit increase the profit margin of the bank by .525 units.

According to Tee (2017) liability of banks in the form of loan debt and large deposits coupled with higher rate of non-performing loans negatively influence the financial performance in the short term even though the impact could be positive in the long term. However, the results of this study disagree with part of the findings of Tee (2017) because large deposit rather increased the portability of the bank.

### **Relationship between Liquidity Management and Financial Performance**

The third objective of the study examined the effect of liquidity management on the financial performance of Zabzugu Rural Bank in the Northern Region. This objective was examined by employing the least square regression model where the variables of liquidity were ratio of liquid funds to total deposits (LFTD), liquid fund to total assets (LFTA), and the ratio of liquid fund to interest bearing liabilities (LFTIBL). Financial performance was measured by returns on assets (ROA), returns on equity (ROE), profit margin (PM), and net interest margin (NIM). The measurement of liquidity risk management was based the mode of measurement of liquidity by the Ghana

Banking Survey (2019). This study examined how the trends in the liquidity indicators of Zabzugu Rural Bank in the Northern Region impacted on its returns on assets and equity, profit margins and net interest margins. The result of the findings for objective 3 was produced in Table 2.

**Table 2: Effects of Liquidity Management on Financial Performance**

Variable		ROA	ROE	PM	NIM
LFTD:	Coefficient	10.351	53.021	-16.759	4.330
	Std. Error	2.930	28.379	53.571	2.036
	T-Statistic	1.046	2.482	-0.319	2.127
	P-value	.486	.244	.803	.280
LFTA:	Coefficient	.899	-.926	1.918	.028
	Std. Error	.115	1.116	2.107	.080
	T-Statistic	2.312	-1.103	.929	.344
	P-value	.260	.469	.523	-2.119
LFTIBL	Coefficient	-10.336	-51.536	15.400	-4.180
	Std. Error	2.839	27.495	51.902	1.973
	T-Statistic	-1.073	2.477	.301	.789
	P-value	.478	.244	.814	.281
Constant:	Coefficient	-.128	-2.845	2.149	-.198
	Std. Error	.126	1.224	2.310	.088
	T-Statistic	-1.013	-2.326	.930	-2.260
	P-value	.496	.259	.523	.265
R-square		.986	.933	.598	.981
F-statistic		23.029	4.679	.495	17.185
P-value		.152	.325	.750	.175
Durbin Watson		2.274	2.274	2.274	2.274

Source: Field Data, 2022

From Table 2, the result revealed that the ratio of liquid funds to total deposit (LFTD), the ratio of liquid funds to total assets (LFTA) and the ratio of liquid fund to total interest bearing liabilities (LFIBL) do not significantly affect financial performance in terms of returns on assets (ROA), returns on

equity (ROE), profit margin (PM) and net interest margin (NIM). With respect to the ROA model, the coefficient of liquid fund to total deposit was 10.351, standard error = 2.930, t-statistic = 1.046 and p-value was  $.486 > 5\%$  alpha level. From these figures, it can be said that a unit increase in the ratio of liquid fund to total deposit increases the returns on assets by 10.351 units. Furthermore, with to the ROE model, the coefficient of liquid fund to total deposit was 53.021, standard error = 28.379, t-statistic = 2.482 and p-value was  $.244 > 5\%$  alpha level. From the result, it can be said that a unit increase in the ratio of liquid fund to total deposit increase the returns on equity by 53.021 units.

The model with profit margin (PM) model in Table 2 produced coefficient liquid fund to total deposit -16.759, standard error = 53.571, t-statistic =  $-.319$  and p-value was  $.803 > 5\%$  alpha level. From these figures, it can be said that a unit increase in the ratio of liquid fund to total deposit decreases the profit margin of listed banks by 16.759 units. On the contrary, the ratio of liquid funds to net interest margin showed a positive relationship with the coefficient =  $-4.330$ , standard error = 2.036, t-statistic = 2.127, and p-value =  $.280 > 5\%$  alpha level. From these figures, it can be said that a unit increase in the ratio of liquid fund to total deposit increases the net interest margin of the bank by 4.330 units.

Moreover, the results in Table 2 revealed that the ratio of liquid funds to total assets positively affected the financial performance of the bank in the form of returns on assets, profit margin, and net interest margin but negatively related to return on equity. The results revealed that the ratio of liquid funds to total assets with respect to the returns on assets model had coefficient of  $.899$ ,

standard error = .115, t-statistic = 2.312, and p-value of .260 > 5%. This result mean that a unit increase in the ratio of liquid funds to total assets increase the returns on assets by .899 units. The results further revealed that the ratio of liquid funds to total assets with respect to the returns on equity model had coefficient of -.926, standard error = 1.116, t-statistic = - 1.103, and p-value of .469 > 5%. This result mean that a unit increase in the ratio of liquid funds to total assets decrease the returns on equity by .926 units. Moreover, the results in Table 2 showed that the ratio of liquid funds to total assets with respect to the profit margin model had coefficient of 1.918 standard error = 2.107, t-statistic = .929, and p-value of .523 > 5%. This result mean that a unit increase in the ratio of liquid funds to total assets increase the profit margin by 1.918 units.

The implication of the results obtained on the positive relationship between the ratio of liquid funds to returns on assets, returns on equity and profit margins could be as a result of the conservative approach took the by bank. In other words, the bank did not hold a large portion of its assets in liquid form rather, invested them in risky investment. The results of this study disagree with the findings of Opoku (2015) who discovered that banks held a chunk of their assets in liquid form rather than to invest them in risky investment and this move was to ensure that they protect their assets against loses associated with high-risk investments. This reasonable approach diminishing the liquidity position of banks but has positive consequence on the financial performance of the bank since reinvesting them in risky investments earned interest income. This finding of this study disagrees with the results of Musah, Kong, Mensah, Antwi, Bawuah, Donkor, Coffie and

Osei (2020) who believed that banks holding more assets in liquid form in the face of uncertainty produce negative profitability if the real rate of returns on short term investments is insignificant. However, the study of Li, et al (2020) confirmed findings in study that liquidity management where more assets of the company are held in liquid form negatively affects the returns of equity. Based on the finding from this study, the study concludes that a reasonable approach to liquidity management positively affects financial performance of the bank.

The diagnostics on the regression models in Table 2 produced R-squares of .986 for ROA model with F-statistic of 23.029 and p-value of .152 > 5%; .933 for ROE model with F-statistic of 4.679 and p-value of .325 > 5%; .598 for PM model with F-statistic of .495 and p-value of .750 > 5%; and .981 for the NIM model with F-statistic of 17.185 and p-value of .175 > 5%. Based on the probability values of the F-statistic, the study concluded that the R-squares for the ROA, ROE, PM, and NIM models were insignificant and the variables were linearly related. The study therefore concluded that there was goodness of fit achieved for the regression models. Furthermore, the study found that there was no serial correlation in the error term of all the regression model as all the Durbin-Watson values as shown in Table 2 indicated closeness and approximation to 2.

### **Chapter Summary**

Chapter Four of this study presented the results and discussions in respect of the objectives of the study. The chapter also presented the strategies used by Zabzugu Rural Bank in the Northern Region in managing liability and liquidity. The relationship between liability management and financial



performance was also analyzed as well as the relationship between liquidity management and financial performance.



## CHAPTER FIVE

### SUMMARY, CONCLUSIONS AND RECOMMEDATIONS

#### Introduction

This last chapter provides a summary of the study, draws conclusions and proffers recommendations for policy and practice. The summary covers the research process and key findings. Finally, suggestions for further research are provided for future exploration on the effects of liquidity management on financial performance.

#### Summary of the Research Process

The study examined the liquidity management and financial performance of Zabzugu Rural Bank in the Northern Region by employing data from 2017 to 2021. The specific objective of the study was in respect of analysing the effect of liquidity and liability management on financial performance of the bank. Financial performance was mainly measured by using returns on assets, returns on equity, profit margin and net interest margin. The study was based on the liquidity preference theory, the explanatory design and the quantitative approach was also employed. The study processed the data using SPSS ver.22 and the objectives of the study were analysed using least square regression mode.

#### Key Findings

The following findings were discovered after the analysis of the data and discussion of the results:

1. the study found that the bank employs cash flow statements, liquidity and credit management as among the key strategies used in managing cash.

2. the study found that the bank borrows short-term loans and invest the loans in short term investment; sets a vault limit to meet customers daily withdrawal; and do cash forecasting to know cash position to manage its liabilities.
3. the study found that liability of the bank does not directly influence the financial performance of the bank. This result was interpreted that the period of accumulation of liability differs from the period where assets created from liabilities were realized. Hence in the short term, liability negatively affected the financial performance of Zabzugu Rural Bank in the Northern Region. However, the bank within the sample period employed reasonable liquidity management and hence invested more assets and portion of deposits in risky investments; hence the reducing levels of the bank's liquidity was found to positively influence the returns on assets, returns on equity, and the profit margin of Zabzugu Rural Bank in the Northern Region.

### **Conclusions**

The study concluded that the bank creates cash flows statements that details changes brought on by cash flow operations and monitor the growth or reduction in the bank's cash and cash equivalent. Moreover, the bank use indicators like the capital adequacy ratio, non-performing loans and liquidity ratios to manage the bank's liquidity flows effectively and reduce the risk connected with the bank's liquidity and liquidity credit.

Again, the study concluded that the bank borrows short-term loans and reinvest the loans in short term investments so that the interests are used to manage its liabilities; imposes withdrawal limits to control the cash flows, to

maintain cash reserves and provide customer security; and do cash forecasting to identify potential cash surpluses or shortages to manage its liabilities.

Furthermore, the study concluded that the financial performance of the bank is severely impacted by the mismatch in the timing of the creation of assets and revenue out of liabilities (deposits and loans). However, the study concluded that Zabzugu Rural Bank's financial performance in the Northern Region had improved due to appropriate liquidity management, in which a higher percentage of deposits and assets were invested in short-term investments.

### **Recommendations**

Based on the findings and the conclusions drawn, the following recommendations are offered to enhance policy and practice:

1. Management of Zabzugu Rural Bank in the Northern Region should consider diversifying its investment portfolio beyond short-term investments to mitigate the risk associated with investing in a single asset class. This will help the bank to spread its risk and generate a more stable income stream. The bank should continue to impose withdrawal limits to control cash flows, maintain cash reserves and ensure customer security. However, the bank should review and adjust the limits periodically to reflect changing customer needs and market conditions
2. Management of Zabzugu Rural Bank in the Northern Region should regularly monitor and evaluate its liquidity management practices, including the use of liquidity ratios and indicators like capital adequacy ratio and non-performing loans. This will help the bank to identify any potential liquidity risks and take proactive measures to address them.

Additionally, the bank should continue to create cash flow statements that detail changes in cash flow operations and monitor the growth or reduction in cash and cash equivalents.

3. Management of Zabzugu Rural Bank in the Northern Region should align its liabilities with short-term assets such as short-term loans to creditworthy customers. This will enable the bank to generate sufficient revenue to match its liabilities and mitigate the risk of a mismatch in the timing of the creation of assets and revenue.
4. Again, the management of the bank is encouraged to adopt a realistic strategy for increasing the amount of liquid cash in its assets through reinvestment. However, the potential impact of this technique on the bank's financial performance should be carefully monitored and managed.

#### **Suggestions for Further Research**

Future studies may consider collecting data on all the rural banks in Ghana so as to expand the data point and add to the evidence obtained in this study.

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