UNIVERSITY OF LUSAKA

SCHOOL OF POSTGRADUATE STUDIES

The Impact of Loan Defaults on Bank Profitability. A case of First Capital Bank Zambia (FCB) (2013-2023)

A DISSERTATION SUBMITTED TO THE SCHOOL OF POSTGRADUATE STUDIES, UNIVERSITY OF LUSAKA IN PARTIAL FULFILLMENT OF THE AWARD OF THE MASTER OF SCIENCE IN ECONOMICS AND FINANCE.

BY

ALEX MOOBOLA MULEYA

MSCECF19217978

DECLARATION

I, Alex Muleya, declare that I am the sole author of this dissertation, that during the period of registered study I have not been registered for another academic award or qualification, nor has any of the material been submitted wholly or partly for any other award. This dissertation is a result of my own research work, and where other people's research was used, they have been dully acknowledged.

Date: 24/03/2024

Signature Student: A. Muleya

Date:24/03/2024

Signature Supervisor: 

DEDICATION

I dedicate this research project to my grandmother Judith Phiri who is battling stroke, my mother Martha Soko, the rest of my family and friends for the love, time, support and motivation. I will forever remain thankful to them.

ACKNOWLEDGEMENT

Firstly, Jehovah God is the greatest and thank him for the opportunity of this academic journey. Secondly, great appreciation to my esteemed project supervisor Dr Mubanga Mpundu, who was present in shaping of this project. This research was not going to see the day of light without his expertise and guidance. Dr Mpundu truly believed in me and guided me throughout the research and responded to my drafts of chapters quicker than I could blink. Therefore, it has been a wonderful privilege to work with such an inspiring and selfless supervisor who never gives up and believes in the realm of possibility. He will forever be in my book of good graces under the chapter “THE MAN OF SHINNING AMOR”.

Table of Contents

LIST OF TABLES

LIST OF FIGURES

LIST OF ACRONYMS

BOZ	Bank of Zambia
CAR	Capital adequacy ratio
FCB	First Capital Bank Zambia
LAR	Liquidity asset ratio
NPL	Non-Performing Loan
NPLR	Non-performing loan ratio
ROA	Return on assets
ROE	Return on equity

ABSTRACT

Commercial banks in Zambia, First Capital Bank Zambia included have a rising concern over their profitability due to the impact of loan defaults. This paper analyses the impact of loan defaults on banks' profitability in a case study of First Capital Bank Zambia from 2013Q1, a period when the full acquisition was made from international commercial bank Zambia to 2023Q2. This timeframe was chosen to identify the impact of loan default on profit before the 2007-2009 financial crisis, during, as well as after the recession, and just before the COVID-19 pandemic spread globally from China. The variables used in the study comprised of the dependent which was the return on assets (ROA) and independent variables were non-performing loans, total bank assets, capital adequacy, and liquidity. The VECM model and various diagnostic tests were employed to explain the variables. There was a positive insignificant relationship between return on assets and bank total assets, a negative insignificant relationship between the dependent variable and non-performing loans, and a positive significant relationship between return on assets and capital adequacy. There was a further negative relationship in the long run and a positive one in the short run between liquidity and return on assets. From the findings, it was concluded that loan defaults have had a negative impact on the bank's profitability over the past 10 years. Furthermore, the researcher recommended that similar studies be done with different banks and microfinance institutions so that numerical data can exist on a comparative basis. The researcher also recommended other studies to be conducted to enhance the process of loan monitoring and supervision to ensure that the loan customer uses the loan funds for the purposes that were agreed upon in the loan contract. This can be done through continuous interaction with the loan customer.

Keywords: Return on assets, Non-performing loans, Capital adequacy, Bank assets, Liquidity.

CHAPTER ONE:

INTRODUCTION

1.0 Introduction

The study's primary goal was to investigate the factors that affect first capital bank. This chapter therefore outlined the contextual study background, problem statement, research objectives, research questions, significance of the study, limitations of the study as well as the scope of the study.

1.1 Background of the study

Zambia's banking sector has 17 registered and licensed commercial banks providing banking and financial services. Commercial banks in Zambia play an important role in mobilizing financial resources for investment by extending credit to various businesses and investors. Like any other business, success of banking is assessed based on profit and quality of asset it possesses. Since loans account for the majority of operating income, they are the primary asset and symbolize the beating heart of the banking sector. But the biggest danger that banks face is from loans. The risk to the bank can be reduced by prudent credit risk assessment and the establishment of sufficient reserves for bad and dubious debts. Nevertheless, the measures are insufficient protection when the amount of non-performing loans (NPLs) is quite significant.

Commercial banks primarily hold loans since they account for the majority of their operational income. Nevertheless, loans also include the risk of borrower default, which can result in nonperforming loans and lower profitability. By writing down bad debts resulting from non-performing loans and making provisions for losses on non-performing loans, commercial banks lower their profit reserves. Commercial banks that have nonperforming loans bear opportunity costs since the money that would have been earned had been invested elsewhere, potentially yielding higher returns and greater profitability. Attempts to recover nonperforming loans come with expenses as well, which have an impact on commercial banks' profitability.

Commercial banks' success is determined by their profitability and the caliber of the assets they own. Commercial banks' non-performing loans have an impact on asset quality, which has an impact on profitability. Private credit reference bureaus have been authorized and operationalized in Zambia in an attempt to slow the increase of nonperforming loans;

nevertheless, this has not resulted in the anticipated decline in nonperforming loans. BOZ (2023)

Because the banking industry is one of the sectors that contributes to Zambia's economy in many different ways, the country's industrial growth and its steady expansion are closely related. Zambia's banks have contributed to economic growth by creating jobs and paying taxes. In addition, banks act as anchors for the growth of various economic and industrial sectors by providing loans (Warue, 2012).

PROBLEM STATEMENT

The main source of income for the majority of bank organizations is their loan portfolio. However, loans might occasionally be inactive or default, which has a detrimental impact on banks' profitability (Abaidoo & Oppong, 2021). It is recognized that one of the main factors influencing a bank's capacity to survive and make money is default. Because of their high default rates, most banks are unable to remain competitive (Amoako, 2016).

Concerns have been made about Zambia's banking sector over an excessive number of non-performing loans (NPL). Once a loan is granted, it comes with a repayment schedule that breaks down principal and interest installments. When a borrower fails to make principal and interest payments on time for more than ninety days, the Bank of Zambia considers the loan to be in default. As NPLs increase, banks' ability to approve new loans, reimburse depositors, and make a profit decreases. Continued large-scale loan defaults cause a liquidity crisis in the banking industry overall and can even result in bank collapse. As a result, banks must set aside money for non-performing loans while maintaining provisions following the directives of the Bank of Zambia, which has a significant negative impact on the profitability of banks. Consequently, the purpose of this study is to investigate the impact and effects of loan defaults on First Capital Banks's profitability and identify realistic methods of minimizing loan defaults.

RESEARCH OBJECTIVES

Overall Objective

The primary goal of this study was to investigate the factors that affects the profitability of first capital bank Zambia.

Specific Research Objectives

To achieve the above research goal, the following specific objectives will be pursued in the study.

- To determine the effects of loan defaults on Capital adequacy and its impact on First Capital Bank profitability.
- To determine the effects of loan defaults on non-performing loans and its impacts on First Capital Banks profitability.
- To determine the effects of loan defaults on bank assets and liquidity and how they impact First Capital Banks profitability.

RESEARCH QUESTIONS

To be able to attain the research objective outlined above, below are the proposed research questions;

- What are the effects of loan defaults on Capital adequacy and its impact on First Capital Bank profitability?
- What are the effects of loan defaults on non-performing loans and its impacts on First Capital Banks profitability?
- What are the effects of loan defaults on bank assets and liquidity and how do they impact First Capital Banks profitability?

SIGNIFICANCE OF THE STUDY

Bank executives will find value in the research findings as they may utilize this data to create and execute the most effective policies for collecting and monitoring. Leaders of commercial banks will also greatly benefit from the data as they assess how the loan default affects bank productivity.

In addition, organizations in charge of enforcing regulations and formulating policies, like the Bank of Zambia, are accountable for developing efficient policies that boost bank profitability. The given research recommendations will be implemented by policymakers to create tactical plans for debt collection strategies that will work for commercial banks and financial institutions.

The existing knowledge on default and bank profitability, as well as the conceptual underpinnings of information asymmetry theory, adverse selection theory and agency theory, portfolio theory will all be enhanced and supplemented by this research. This research will further make recommendations for areas that could need more investigation

Definition of key terms and concepts

The definition of terms explains how the following terms will be used in a study:

Collateral : is an asset that a lender accepts as security for a Loan.

Credit Risk : is the hazard of a money related misfortune for a monetary institution (bank) from the disappointment of a counterparty (customer) to fulfill its legally binding commitments, or from the expanded chance of default amid the term of the exchange.

Financial Performance : is a subjective degree of how well a firm can utilize resources from its essential mode of trade and create incomes.

Loan Repayment : is the act of paying back the borrowed cash to the bank.

Loan Default : is the failure of a borrower to pay the principal or interest on a loan obtained.

Non-Performing loan : a loan in which the borrower is in default and has not made any scheduled payments or principal or interest for a certain period of time.

Profitability : is a measure of an organizations profit relative to its expenses.

CHAPTER TWO

LITERATURE REVIEW

INTRODUCTION

This section presents the concept of loans and loan default, the theory of the studies reviewed, the various predictors of bank profitability, and a review of previous studies. It further discusses studies on credit risk and how it affects profitability. The three key ideas that will be reviewed in this segment are the portfolio theory, agency theory, adverse selection, and information asymmetry theory.

THEORETICAL FRAMEWORK

Information Asymmetric Theory

Akerlof (1970) developed this model, which explains situations in which one agent has ownership of specific information while another does not (Agarwal & Hauswald, 2016). According to this idea, if someone learns about a specific transaction that is traded in the market, they (the debtor) may propose believable possibilities for the transaction involving the other party (the creditor) (Merrill, 2017). Consequently, a party with less knowledge of the subject may decide to proceed with the transactions properly or incorrectly (Bos, De Haas & Millone, 2016). According to Gadzo, Kportorgbi, and Gatsi (2019), information asymmetry is a significant constraint on project financing when one party to a financing contract has more accurate information than the other.

The lending industry is characterized by information asymmetry, as borrowers possess more knowledge of the potential returns and hazards associated with capital-allocated projects, but lending institutions may lack adequate debtor data (Appiah-Konadu et al, 2016). Proponents of this idea point out that it supports commercial banks' ability to lower payback rates by exchanging information about their clients' creditworthiness (Bos, De Haas, and Millone, 2016). The primary objections to this theory are that it predicated on assumptions regarding tax exemption, market efficiency, and zero transaction costs—some of which are debatable in the evidence found in the financial literature (Mitai, 2017).

According to this idea, lending to the incorrect clients would result in issues, operational issues, and eventually have an impact on the bank's performance. It also suggests that knowledge

asymmetry may lead to unfavorable customer and bank management selection (Agarwal and Hauswald, 2016). This idea states that to get comprehensive and trustworthy data on their clients, microfinance banks should conduct a full credit assessment (Ivashina, 2009). The present study postulates that commercial banks have to utilize both qualitative and quantitative methodologies in their evaluation of borrowers. However, it is possible to ignore some obstacles, especially when utilizing qualitative approaches to lower the probability of default.

Adverse Selection Theory

This model was established by Stiglitz and Weiss (1981) to explain why interest rate fluctuations might influence borrowers' risk appetite, and why lenders do not only utilize interest rates as a categorization tool (Cressy and Toivanen, 2011). According to the notion, a bank's interest rate should maximize the expected return on a loan, and that there is a loan allocation because the demand for loans at this interest rate exceeds the amount the bank is prepared to offer (Crook, 2012). Accordingly, the issue of adverse selection implies that ordinary interest will apply and all borrowers will be charged interest if funders are unable to discern between dishonest borrowers and deserving borrowers (Gadzo, Kportorgbi & Gatsi, 2019).

According to the concept, when the bank's return is determined by the likelihood of repayment, adverse selection takes place. For this reason, lenders want to know which mortgage provider will be able to repay their loan. (Yoshida and Conklin, 2014). Ivashina (2009) states that a loan agreement is meant to enlighten the borrower since the bank is unable to control every decision made by the borrowed party because of costly and insufficient information. The primary critique directed towards this theory is its failure to offer suggestions for differentiating between poor and good debtors (Agarwal and Hauswald, 2006).

According to theory, safer borrowers may have a lower return and a greater return on investment, but riskier borrowers would have access to riskier, less successful, and more profitable projects if they succeed (Gadzo, Kportorgbi & Gatsi, 2019). Interest rates are therefore utilized to calculate the level of investment risk for a project type that has the same average gross return but varies in terms of hazards (Mehrteab, 2015). According to the study's hypothesis, one of the primary factors contributing to increased financial risk and, thus, a larger number of loan defaults is the identification of ineligible borrowers.

Portfolio Theory

Markowitz (1952) is the author of this model, which assumes that the ideal combination of investments for the investor will guarantee the highest potential return for a particular or low-risk level for a particular level of profit. With the use of various loan product combinations that offer a particular level of return for a given level of risk, this theory's mathematical formulae explain the degree of diversification that may be achieved (Atahau & Cronje, 2015). According to Siritek and Kien (2017), portfolio theory describes an investment return as a normally distributed portfolio, risk as the standard deviation of return, and a portfolio as a collection of different assets that are weighted differently and together produce the expected returns from the portfolio.

Portfolio theory holds that because investors are essentially logical, they take risks, desire more for less, overlook the possibility of bankruptcy when asking for an investment loan, and believe that markets are ideal (Kazan and Uludag, 2014) According to hypothetical portfolio theory, financial institutions may lower supervision efforts and subsequently, transaction costs, which raises returns, by eliminating obvious (particular) risks through diversification and risk-specificity. (Cronje and Atahau, 2015). Due to its reliance on the mean-variance rule and use of standard deviation to gauge total risk, this theory has drawn a lot of criticism. Nonetheless, the efficient frontier is held by some hazards that cannot be mitigated by diversification (Acharya, Hasan & Saunders, 2006).

The risk of the various credit components assigned to each loan and the type of linkage between the bank's yields are theoretically what determines the degree of risk and default in a bank's loan portfolio (Stefanelli & Cotugno, 2012). Loan products are the primary asset class in commercial banks. Because it illustrates the value of trade in building a portfolio that encompasses all industries and businesses, this model is crucial. This portfolio ought to be organized according to industry, time horizons, and aims instead. Therefore, to reduce the likelihood of default, commercial banks must diversify the kinds of loans they give to their clients.

Agency Theory

Ross (1973) and Mitnick (1973), working independently and almost simultaneously, were the first academics to both suggest and initiate the development of a theory of agency. Though the fundamental ideas that underpin both theories are identical, the economic theory of agency originated with Ross (1973) and the institutional theory of agency with Mitnick (1973). The ways that the techniques employ comparable ideas under various assumptions can be considered complementary.

The agency theory is becoming more and more common as a means of understanding an organization's financial performance. The idea aims to explain the interaction that typically exists between an organization's owners—those who own its stock—and the management of the business. According to the notion, there is an agency conflict. Generally speaking, an organization's management is viewed as an agent hired by the investors to increase stockholder value through sound financial performance. Therefore, it is required of the management to work in the owners' best interests and improve the company's financial success.

However, according to the notion, managers who function as agents might take part in actions meant to further their interests at the expense of the company's owners. According to the argument, this might easily negatively impact the organization's financial performance. Therefore, investors have a variety of options for ensuring that management acts in the best interests of the company. According to the principle, management may receive financial compensation to encourage them to act in the best interests of the business. To compel management to carry out its obligations, the owners may also be threatened with a hostile takeover.

The Loan Concept and Loan Default

According to Adedapo (2007), loan default is defined as the borrower's inability to fulfill their loan obligations by the due date. In other words, a loan default occurs when the debtor is unable to fulfill their legal obligation to return the amount within the agreed-upon timeframe (Murray, 2011). Moreover, default is defined by Pearson and Greeff (2006) as a risk threshold that explains the length of time or point in the borrower's repayment history at which consumers are unable to make at least three installment payments during 24 months. This definition was significant since the study modified it and it is consistent with worldwide norms. This does not imply that the borrower does not make loan payments; rather the amount repaid by the borrower is consistently, less than the entire amount borrowed.

If the borrower stops making principal and interest payments as specified in the loan repayment arrangement, the loan will be considered non-performing (Rose and Hudgins, 2010). These loans and advances that have a markup or principal balance that is 90 days or more past due are known as non-performing loans (NPLs). The issue of non-performing loans (NPLs) is very important to the banking sector, and minimizing NPLs is essential to the sector's growth and, by extension, to the nation's economic development (Rose and Hudgins, 2010).

The need for caution in the management of risks arising from the core lending activity of banking has been reemphasized globally as a result of the painful lessons learned from the global financial crisis of 2008/09, as well as other crises prior, and the costly taxpayer-funded bailouts of some of the largest banks in the world that followed (Hou, 2007). One estimate is that during the global financial crisis, the rate of non-performing loans (NPLs) in Europe has been rising at an average annual pace of 50 billion euros. According to Balgova and Plekhanov (2016), between 2009 and 2014, the region's NPL volume as a percentage of GDP more than quadrupled.

Loan Default /Non-Performing Loans

Non-performing credit is debt that is unpaid for or about to miss the agreed scheduled time. Numerous loans turn insolvent after 90 days of default, but this can depend on the terms of the contract. The IMF defines NPL as "a loan amount for which a debtor has missed at least ninety days' worth of agreed-upon payments. A bad debt is considered to be in default or near default. Once the loan becomes insolvent, the agency's full reimbursement is considered to be significantly lower (Investopedia, ND). According to the classifications and provision of loans directives (2020), a loan shall be past due when any portion of principal or interest that is contractually due remains unpaid for a period of thirty days or more.

Conditions for placing a loan in non-accrual status;

A loan shall be placed in non-accrual status when:

(a) it is non-performing: or

(b) deposits are insufficient to cover the interest that was capitalized for ninety consecutive days: or

(c) the credit line has expired, or has been inactive for ninety days (90) or more.

Elements that cause a loan to default

Numerous studies have centered on causes and therefore state that there are very few reasons that can be underestimated however, for the reasons listed below.

Loan Monitoring: Current studies of loan defaults have highlighted that most defaults are caused by inadequate supervision by credit officers and supervisors when lending to customers. This component has led to a significant increase in default trends over the past decades.

Grace period: Some lending practices have shown grace periods to be too short to achieve their intended objectives. This can especially be left in the start-up phase of the business. The grace period has an impact on loan repayment even if the lending institution is supposed to be protected.

Monitoring and Control: Occasionally, when clients receive loans, they are not kept an eye on to make sure that the money is being used as intended and thus no supervision from credit officers leads to increase in default rates of the institutions.

Insider Loaning: According to Brown Bridge (1998), bad debt included the majority of banks difficult and the main causes of these bad debts are internal loans, macroeconomic instability and loans granted to small businesses and high-risk borrowers. Internal lending was identified as one of the causes of large bad debts leading to the collapse of local banks.

BOZ (2022) stated that corporate defaults increase as real gross domestic product falls, and that a fall in the exchange rate directly affects borrowers' ability to repay.

Effects of Loan Defaults

Non-performing loans are costly to the bank as it grows. This is true because

Diminishes Asset Quality: Non-repayment of loans will reduce the quality of the bank's assets. Loans are the property of the bank. An asset loses value and turns into a liability when a loan is in default. This reduces the total assets of the bank.

Reduces the profitability of the bank: If the bank fails to collect unpaid loans, it will become bad debt. The bank is still required to reimburse depositors when they request a withdrawal from the accounts. In this instance, the bank's overall profit is decreased since it must deduct the deposit amount from its earnings.

Increases the cost of funds: For non-performing loans, the bank must maintain certain terms to secure future payment from depositors. This increases the bank's cost of raising capital.

Lowers the bank's total credit rating: If a bank cannot recover the loan amounts, it will face severe challenges as its ability to pay depositors on time is questionable and profits are consistently declining. It will be challenging to conduct business with foreign banks. All of these will cause the bank's credit rating to drop.

Decreases the capacity of Loan approval: When a loan is in doubt, provisions are made against that loan. As a result, the ability to continue to sanction the loan is hindered because the provision has to be kept with a portion of the profits that can be further invested by withholding retained earnings.

Methods for reducing Loan defaults

Collateral or security: The collateral requirement as a requirement for granting a loan is necessary as it has a tendency to act as a buffer for the bank in the event of default. Because of the dubious financial statements are occasionally presented in order to obtain credit, many banks today require collateral before giving out credit. As a result, the executives of these financial institutions must make every effort on the legitimacy of each installation to help reduce the bad debt ratio. Borrowers who are unable to secure collateral often do not have the opportunity to apply for a loan to reduce default. As a legal and regulatory requirement for lending in commercial transactions, banks should be careful when considering such guarantees to help reduce default rates.

Proper Management: Many financial institutions' management does not consider the need for a suitable repayment mechanism, even though it is a possible way to avoid incurring a loss of value (Opa and Tabe-Ebob, 2019) determined as the most effective approach to avoid these threats. He recognized these measures as regular visits and interviews as well as accounts that are audited and effectively managed, can be applied as a type of monitoring and control system. An effective mechanism that may also be used to minimize bad debt ratio is to ensure that the loan is used for the intended purpose.

Evaluation of the Profitability of Commercial Banks

To ascertain the banks' profitability, just looking at earnings per share is not enough. It's also critical to understand how profitably the bank uses its equity and assets. A bank's financial statements show certain ratios and some can be calculated on request if necessary. Koch and MacDonald argue that two key performance indicators used to gauge bank profitability are return on equity (ROE) and return on assets (ROA) (Opa and Tabe-Ebob, 2019)

Determinants of Banks Profitability

There exist two distinct groups of characteristics that impact the profitability of commercial banks: internal and external factors. Factors impacted by management choices at a bank are known as internal drivers of bank performance or profitability.

The operational outcomes of banks will undoubtedly be impacted by these managerial consequences. The following are examples of internal factors: capital adequacy, credit risk, liquidity risk, and management efficiency.

The elements outside a bank's management's control are known as external determinants of bank profitability. They represent events that are not under the bank's control. Nonetheless, management can foresee shifts in the external environment and work to set up the organization to benefit from these developments. According to Krakah and Ameyaw (2010), macroeconomic and financial structure elements make up the two main parts of the external determinants. CAMEL has been successfully employed by Elyor (2009) and Uzhegova (2010) to investigate the factors influencing bank profitability. The acronym CAMEL represents the following: capital adequacy, asset quality, effective management, earnings performance, and liquidity. The US Federal Deposit Insurance Corporation (FDIC) created the system with the goal of "early identification of problems in banks' operations" (Uzhegova, 2010). Though some alternative bank performance evaluation models have been proposed, the CAMEL framework is the most widely used model and it is recommended by the Basle Committee on Bank Supervision and IMF (Baral, 2005). The following are key determinants of the profitability of commercial banks;

Capital Adequacy

The term "capital adequacy" describes the level of equity that is adequate to cushion the bank against possible losses (Kosmidou, 2008). Governments monitor banks' capital requirements closely. This is because well-capitalized companies are less likely to take on excessive risk to enhance shareholder value at the expense of lenders, so capital adequacy is critical in lowering

the frequency of bank failures and losses to depositors when a bank fails (Kamau, 2009). The amount of capital required by a financial regulator for a bank or other financial institution to be held is known as capital adequacy. This is expressed as a capital adequacy ratio of equity that must be held as a percentage of risk-weighted assets.

One way to measure the adequacy of bank capital is to look at the ratio of equity to total assets. This indicates what proportion of the entire asset is financed by equity capital. Therefore, capital adequacy refers to how much equity is sufficient to cushion potential shocks to banks. The expectation is that a larger equity-to-asset ratio will result in less of a need for outside funding and, consequently, higher commercial bank profitability. Higher capital-to-asset ratio banks are thought to be safer overall and typically have better cushion margins, meaning they can continue to turn a profit even in times of economic difficulty.

On the other hand, banks with inadequate capital are viewed as being riskier than those with substantial capital. Therefore, it is thought that capital adequacy affects how profitable commercial banks are.

Assets Quality

One of the CAMEL variables that affects how profitable commercial banks are is asset quality.

The health and profitability of bank borrowers, trends in non-performing loan activity, and exposure to certain risks all affect the quality of assets that a bank holds (Baral, 2005). According to Aburime (2008), a bank's profitability is contingent upon its capacity to anticipate, mitigate, and oversee risks—possibly even compensating for losses resulting from such risks. The ability of a commercial bank to manage credit risk is measured by asset quality. The productivity and makeup of the assets are reflected in the asset quality. Therefore, a bank's profitability is directly impacted by the quality of its assets. One of the main reasons for banks' low profitability can be attributed to their poor asset quality. It is assessed by comprehending the category-wise performance of the assets and projecting future performance while accounting for the probable future distribution of the assets.

Growing numbers of non-performing loans have a detrimental impact on commercial banks due to provisioning made, interest in suspense, and opportunity costs of nonperforming as money or sets. One of the main sources of revenue for commercial banks is loans.

Bank profitability is determined by the caliber of their loan portfolio. Bank profitability is directly impacted by the quality of the loan portfolio. Profitability is impacted by nonperforming loan ratios, which are the best indicators of asset quality. The fact that the immediate result of Non-Performing Assets (NPAs) building up in the banking system is bank failure has drawn increased attention to this issue over the past few decades. Since loans are a

component of the assets of commercial banks, nonperforming assets and loans reduce overall returns on assets (ROA). A measure of commercial banks' profitability is their return on assets. A failed banking organization will always have a high percentage of non-performing loans before bankruptcy. A negative loan portfolio quality is a predictor of insolvency and the cause of bank failures. The issue of non-performing assets (NPAs) has come to be synonymous with the operational effectiveness of commercial banks, and it is widely accepted as one of the primary drivers of poor financial results. Profitability increases with the quality of assets. Commercial banks need to monitor their asset quality because it affects profitability and can help them become more profitable.

Liquidity

Another element that affects return on assets, an indicator of profitability, is liquidity. Commercial banks need to have liquid funds on hand to lend to clients. From a different angle, liquid funds should be advanced to generate returns because they would not generate any returns if they were left in liquid form. The ability of banks to pay short-term obligations or commitments when they become due is measured by liquidity. In the past, banks would receive deposits from clients and then make loans. Because of this, the ratio of bank advances to client deposits serves as a stand-in for liquidity. Banks' top priority is liquidity since a lack of it can lead to bank failure. Liquidity is a key concern for banking authorities as well.

According to (2023) in Zambia, the statutory minimum liquidity requirement is 14.5%. Commercial banks run the risk of going bankrupt if they don't have enough liquidity to meet the demands of their depositors. Because highly liquid assets have lower rates of return, holding them in this manner tends to diminish income. For instance, cash which is the most liquid of all assets is a non-earning asset. Therefore, it stands to reason that there would be a negative correlation between profitability and increased liquidity. There is a contention that banks that maintain high levels of liquidity do so at the potential cost of making investments that can provide large profits (Kamau, 2009). The observation that a bank's return increases as it transfers from short-term securities to long-term securities or loans, but that the opposite is also true, illustrates the trade-offs that typically exist between return and liquidity risk. Accordingly, a bank that has a high liquidity ratio is less profitable and hazardous (Hempel et al, 1994). As a result, liquidity influences profitability, and management must decide how to balance liquidity and profitability.

Operational Cost Efficiency

According to Sufian and Chong (2008), poor profitability is primarily caused by management. Management can commit illegal conduct as well, such as using provisions for losses on

nonperforming assets (loans) to balance profits. It is important to remember that income smoothing is regarded as a breach of IAS.39, the international accounting standards, which prohibit mined provisioning based only on proof of actual losses or impairment (IASB, 2005). Information asymmetry is the main force behind the smoothing since insiders are reluctant to take acts that might unreasonably enhance outsiders' expectations for future revenue. According to Pérez et al. (2008), there is still substantial evidence that earnings smoothing through provisions exist, at least in industrialized nations.

The two economic goals of profit maximization and cost minimization are matched by cost efficiency and profit efficiency, respectively. The ratio of the realized cost to the lowest cost at which a specific volume of output may be achieved is known as cost efficiency. The expense-to-income ratio is a measure of operating efficiency and how efficiency affects bank profitability. It is anticipated that operating costs and profitability will negatively correlate, meaning that higher operating costs will result in lower profit and vice versa. For commercial banks, the goal of maximizing profits necessitates producing goods and services at the lowest possible cost and optimizing revenues.

Diversification of Income

The concept of portfolio theory, which holds that people can lower firm-specific risk by diversifying their portfolios, is related to the idea of revenue diversification. Advocates of activity diversification or product mix contend that these strategies offer several benefits, including economies of scope and scale, the capacity to leverage managerial efficacy across products, and a steady and less volatile income (Choi and Kotrozo, 2006). According to Chiorazzo et al. (2008), activity diversification increases the efficiency of banking organizations and, as a result, boosts profitability. This is because the combined production of financial activities creates economies of scale and scope. They added that diversification should stabilize operating income and produce a steadier stream of profits since income from non-interest activities is not correlated, or at least not perfectly correlated, with income from fee-based activities, which lowers overall risks (Uzhegova, 2010).

According to Albertazzi and Gambacorta (2006), who was cited by Uzhegova (2010), banks have been forced to diversify into non-traditional financial operations, other services, and trading activities as a result of the decline in interest margins which leads to low profitability. Activity diversification's counterargument holds that it raises agency costs, organizational complexity, and the possibility of riskier behavior on the part of bank managers. Activity diversification leads to more complex organizations, which, according to Choi and Kotrozo (2006), "makes it more difficult for top management to monitor the behavior of the other

divisions/branches." They added that the advantages of economies of scale and scope are only temporary, and the expenses incurred by a company as its complexity rises may outweigh the advantages of diversity. Because of this, the relationship between diversification and performance advantages would resemble an inverted U, with an optimal amount of diversification and a point beyond which benefits start to diminish and may even turn negative. Olweny & Shipho (2011) examined how banking sectorial factors affected Kenyan commercial banks' profitability and found that banks become more profitable the more revenue they bring from various sources, establishing a link between income diversification and commercial bank profitability.

Ownership

Agency Theory is the source of the connection between ownership identity and the profitability of commercial banks. This theory addresses the interaction between owners and managers, which is related to ownership and profitability in one way or another. Two schools of thought can be used to describe ownership, according to Ongore (2011): ownership concentration and ownership mix. Concentration is the percentage of a company's shares held by a small number of shareholders (largest shareholding), and it defines the identity of those shareholders.

The ability and motivation of the dominant shareholders to keep a careful eye on management performances can improve productivity and profitability. The profitability of commercial banks can be increased and agency costs can be decreased by closely observing management. However, concentrated ownership can lead to issues with minority rights being disregarded and can also hinder management's ability to be innovative, which has a detrimental effect on profitability. According to agency theoretic perspectives, the primary causes of information asymmetry and the conflicting interests of owners and managers are distinct ownership structures and roles that individuals play inside organizations. Foreign banks typically bring with them greater know-how and technological capacity, which trickles down to the financial system and increases efficiency and profitability (Claessens and Jansen, 2000, as referenced by Kamau, 2009).

Foreign-owned banks, according to Beck and Fuchs (2004), are less profitable than domestic banks in industrialized countries and more profitable than their counterparts in developing nations. This difference in profitability may be attributable to advantages such as tax breaks, technological advancements, and other preferential treatment. Thus, ownership is one of the elements that influences the profitability of commercial banks; yet, the degree and direction of this effect have remained debatable.

Market Concentration

A key element influencing profitability is market concentration. The structure-conduct-performance theory (SCP theory), which maintains that market concentration encourages corporate collaboration and generates monopolistic profits, is where the term "concentration" originated. On the contrary, a high level of concentration among domestic banks may make it difficult for new players to enter the market, which would hurt earnings. However, in a market where foreign banks predominate and have been proven to be more efficient than domestic banks, like in less developed nations, concentration may be positively correlated with the profitability of foreign banks.

High levels of market share concentration, according to Atemnkeng and Nzongang (2006), are inescapably linked to high profits at the expense of the financial system's efficacy and efficiency because of diminished competition. Due to their propensity for collusion, banks that are profitable in highly concentrated markets are said to obtain monopoly rents (Gilbert, 1984). A stronger bank concentration has a beneficial effect on profitability since collusion may lead to higher loan rates and lower deposit interest rates. Conversely, heightened competition within the banking sector may lead to a higher concentration of banks, implying a negative correlation between market concentration and profitability, as noted by Boone and Weigand (2000).

Market growth and concentration both had an impact on profitability. As a result, banks were able to take advantage of more possibilities and generate higher profits as a result of gaining market share.

EMPIRICAL REVIEW

Studies done in developed nations

A study was conducted by Li (2009) where in, the impact of bank specific factors and macroeconomic factors on bank profitability were studied. The difference between this study and most others is that rather than use return on assets (ROA) as a measure of profitability, the researchers opted to use return on average assets (ROAA) instead. The study was conducted on the United Kingdom (UK) banking industry over the period 1999 to 2006. The findings were that macro-economic factors such as gross domestic product and inflation had an insignificant effect on banking profitability.

A similar study was conducted on the profitability of banks in the United States (US). It Was conducted by Hoffman (2011). It examined the effect of both internal and external factors and comprised a panel of 11,777 US banks. The independent variables in the study were capital

ratio, bank size, market concentration, interest expenses, investment in securities, and demand for deposits, loan capacity and bank risk. The dependent variable was efficiency in the return on equity (EFCROE). Bank size was measured as the natural logarithm of total assets. Market concentration was measured using the Herfindahl index of market concentration as well as the bank's share of market deposit per year and per state. Loan capacity was measured by dividing total gross loans and leases by total assets. Demand for deposits was measured by dividing total deposits by total assets. Investment in securities was measured as the investment in security at market value over total assets. As for bank's risk, the study used the standard deviation of return on equity over the time span.

The results of the study were that according to both measures of market concentration, it had a statistically significant and positive effect on banking profitability. Bank size had a significant and negative effect on banking profitability. There is also a negative effect of interest expenses on banking profitability. The demand for deposits had a statistically significant and negative effect on banking profitability. According to Hoffman (2011), this is due to the ex-post asset substitution problems that arise from the deposits leading to an increase in agency cost which in turn leads to a reduction in profit.

In his study, Halil Emre (2012) looked at the relationship between macroeconomic, industry-specific, and bank-specific variables and the profitability of 26 Turkish commercial banks between 2005 and 2010. He found that the Herfindahl–Hirschman Index (HHI) for deposits, the ratio of total costs to total income, the ratio of loan loss provisions to gross loans, and inflation all had a statistically significant and negative relationship with ROA. The study used return on equity (ROE) and return on assets (ROA) as the profitability measures of banks.

According to Ozili's (2021) comparison of the factors influencing bank profitability in the USA, Nigeria, and South Africa, the NPL is a major factor influencing the profitability of the banking sector in both the USA and South Africa, while the cost to total asset ratio is a significant factor in both countries. The study also finds that the CAR significantly influences the profitability of the banking industry in Nigeria and the United States. According to Towhid, Havidz, and Alnawah's (2019) analysis of the primary factors influencing non-performing loans (NPLs) in 16 commercial banks in Bangladesh between 2011 and 2016, NPLs have a detrimental impact on return on assets (ROA). Using a balanced panel data set of 13 banks over the years 2005–2014, Alshatti (2016) examined the factors influencing profitability for Jordanian banks, focusing on ROA and ROE as profitability metrics. Alshatti (2016) came to

the conclusion that while profitability is inversely connected with asset quality, capital adequacy, capital, and leverage all had a favorable impact on bank profitability.

For the years 1995–2012, Saona (2016) and other research reveal significant correlations between bank profitability and a wide range of other indicators in Argentina, Brazil, Chile, Mexico, and three other Latin American nations. The study discovers a negative correlation between revenue diversification and enhancements to the legal and regulatory framework, a positive correlation between asset diversification and market concentration, and an inverse, U-shaped association between capital ratios and profitability. Petria, Capraru, and Ihnatov (2015) evaluate the primary factors that influenced bank profitability in the EU27 between 2004 and 2011. They came to the conclusion that other variables affect profitability. These include the risk associated with credit and liquidity, managerial effectiveness, diversity of the company, market concentration and competition, and economic development. It was also observed that increased competition has a favorable impact on profitability.

Căpraru and Ihnatov (2014) used return on equity, return on assets, and net interest margin as stand-ins for bank profitability to assess the key factors influencing profitability in five chosen Central and Eastern European nations between 2004 and 2011. Key findings from their research show that, whereas credit risk and inflation affect only return on assets and return on equity, managerial effectiveness and capital adequacy growth affect bank profitability for all performance metrics. Studies indicate that banks often make more money when capital adequacy regulations are followed. As demonstrated by Ozili (2015), who looks at how capital adequacy affects the profitability of deposits in Nigeria. 518 bank employees were given surveys to complete in order to gather primary research for the report, which also evaluates local and international banks. The results show that a key factor in determining profitability is capital sufficiency. Additionally, research done in Ethiopia between 2000 and 2013 using a sample of 8 banks by Alemu (2015) supports the notion that capital sufficiency and profitability have a positive connection. The return on assets is used as an independent variable in a modified least squares regression model.

Swandewi and Purnawati (2021) study the impact of non-performing loans (NPL) on ROA with capital adequacy ratio (CAR) of 24 banks listed on the Indonesia Stock Exchange, compared to Brastama and Yadnya (2020), just focus on four companies listed on the Indonesia Stock Exchange in the period 2011-2018. For the years 2010–2018, Anggriani and Muniarty (2020) examine a comparable collection of factors. The conclusion reached by Swandewi and

Purnawati (2021) and Brastama and Yadnya (2020) is that the NPL has a negative impact on stock prices and ROA, while the CAR has a good impact on both. Anggriani and Muniarty (2020), on the other hand, contend that nonperforming loans have no impact on ROA.

Nicolae et al. (2015) carried out a study to determine the factors that affect profitability in the 27 member countries of the European Union. It used Return on Average Assets (ROAA) and Return on Average Equity (ROAE) as proxies to estimate bank profitability. The study divided the determining factors in two groups. Internal or bank specific factors and external or macro-economic factors. The internal factors used were bank size, credit risk, liquidity risk, capital adequacy, management efficiency and business mix indicator. The macro-economic factors were market concentration, market competition, inflation and economic growth measured using GDP.

The most interesting result of the study was that competition has a positive effect on bank profitability. This provided validation for the European integration to improve competition in markets. Bank size had no effect on ROAE but had a weak effect on ROAA. Credit risk was found to have a negative impact on bank profitability. The effect of Capital adequacy was statistically insignificant. External factors such as GDP growth and competition had a positive effect on bank profitability. Market concentration was found to have a negative impact on bank profitability.

Awan, Nadeem and Malghani (2015) carried out a research on whether loan default affects the profitability of Pakistani banks. Data was collected from 100 participants using a questionnaire. According to research, ignorance of business management is one of the main reasons why customers fail to make payments, ineffective audits, slow loan approvals, low credit scores, and customer rejections to pay. Research also explores that default has a negative effect on interest income and profitability of banks. But the primary source of information required for the study was the questionnaires.

Li and Zou (2014) investigated that default affects the profitability of European banks. Data was gathered between 2007 and 2012 from 47 European banking institutions. The regression equation was used to test the reciprocal relationship. According to research findings, default had a negative impact on the entity's profit. This study, which involved banks in several states, was multinational in scope. As a result, the conclusions cannot be applied to a particular country.

Trujillo (2013) investigated the determinants of profitability of Spanish banks from 1999 to 2009. The author analysed earnings information gathered from Spanish banks using a systematic estimator (GMM) According to research conclusions, banks' great profitability is correlated with their high rates of default, high interest rates on customer deposits, effective operations, and minimal credit risk. In addition, research shows that increasing capital ratios will improve bank performance. The study focuses more on the determinants of bank profitability than on the direct connection between default and bank's profitability.

Kadioglu *et al* (2021) studied how non-performing loans affect Turkish banks. The study, which used the panel regression method to analyze quarterly data from the first quarter of 2005 to the third quarter of 2016, found a significant negative relationship between non-performing loans and bank profitability as determined by return on asset. The data set included 1809 observations from 55 banks in Turkey. Return on equity and return on asset were found to be negatively correlated with greater non-performing loan levels; conversely, higher non-performing loan levels are positively correlated with poorer asset quality and higher return on equity and return on asset.

Studies done in Developing Countries

Nsambu (2014) conducted a study of the factors affecting the performance of domestic commercial banks in Uganda. The study was conducted in order to recommend which policies should be put in place to help the financial sector in Uganda. The study was for the period 2000 to 2011 and it included all 4 licensed commercial banks in Uganda. The methodology of the study included the use of linear multiple regression analysis. Results of the study were that asset quality, capital adequacy, interest income and inflation significantly affect performance. As a result of the study, policies emerged concerning investment levels, capital adequacy levels and diversification.

Abdus (2015) carried out a study to determine factors that affect banking profitability in Bangladesh. The study measured the effect of both internal or bank specific factors and external or macroeconomic factors on banking profitability. It was for the period 2009 to 2011 and included panel data consisting of 42 Bangladesh commercial banks. The dependent variable was profit measured using both ROA and ROE. The independent variables were operational efficiency, credit quality, liquidity risk, capital efficiency, bank size as well as macroeconomic factors. The results of the study were that all the internal factors were statically significant and had a strong relationship with banking profitability. On the other hand, the macroeconomic

factors were found to not have an effect on profitability. Credit quality had a negative effect on profitability while the rest of the bank specific variables were found to have a positive effect on profitability.

Gutu (2015) showed that liquidity, loans to assets ratio and bank's size have a significant impact on banking performance in Romania. The factors with a positive influence were found to be deposits to assets ratio, number of employees and net result. Meanwhile, financial leverage was found to have a negative impact on financial performance.

Asikhia and Sokefun (2013) also set out to examine the effect of capital adequacy on profitability of deposit- taking banks in Nigeria. Their paper seeks to assess the effect of capital adequacy of both foreign and domestic banks in Nigeria and their profitability. They paper present primary data collected by questionnaires involving a sample of 518 distributed to staff of banks with a response rate of 76%. Also published financial statement of banks were used from 2006 - 2010. The findings for the primary data analysis revealed a non-significant relationship but the secondary data analysis showed a positive and significant relationship between capital adequacy and profitability of bank.

Trang and Ngoc (2020) investigated the impact of liquidity on bank profitability. Particularly, in their study, bank profitability was measured by return on assets (ROA). A panel data of 26 Vietnamese commercial banks was obtained over the period 2013-2018. The GMM estimation was adopted to test the significant effect of liquidity on profitability of Vietnamese commercial banks. The results revealed that profitability (ROA) was negatively influenced by liquid asset ratio (LAR).

Furthermore, Dsouza and Rabbani (2022) conducted a study to determine the impact of banking efficiency on the profitability of the Indian banking division. Particularly, the study decided to evaluate the impact of efficiency (cost to income ratio and staff expenses to total expenses ratio) on the profitability (return on assets and net interest margin ratio) of the banks from the Indian banking division. The results revealed that the cost to income ratio had a significant negative impact on the bank return on assets and net interest margin ratio.

Meanwhile, Cekrezi (2015) in his study found that Capital adequacy and liquidity have negative impacts on bank performance. As for bank size, it was found to have a negative but statistically insignificant impact on banking performance. His study consisted of 16 commercial banks Li and Zou (2014) also wrote a paper on The Impact of Credit Risk Management on Profitability of Commercial Banks in Europe. Their findings reveal that credit

risk management does have positive effects on profitability of commercial banks. Between the two proxies of credit risk management employed, NPLR has a significant effect on the both ROE and ROA while CAR has an insignificant effect on both ROE and ROA. However, from 2007 to 2012, the relationships between all the proxies are not stable but fluctuating.

A study on the factors explaining Tunisian bank performance was carried out by Mhiri & Ameur (2013). The study period was from 1998 to 2011 and the sample size was 10 commercial banks in Tunisia. They examined whether one can make judgments concerning success of competitive strategies and other managerial procedures for banks operating in similar macroeconomic and financial development environments by using different probability measures. The GMM estimator technique was employed to carry out this empirical study.

This study is particularly important because it has a special focus on the effect of macroeconomic factors on bank performance. For the most part, it was found that most macroeconomic factors do not have a significant impact. However, inflation was found to have a negative impact on the net interest margin of banks.

A study was done by Khizer (2011) on the banking sector in Pakistan. Profit was measured using both ROA and ROE. The study was for the period 2006 to 2009. When ROA was used, it was found that profitability was negatively affected by credit risk and capital whereas it was positively affected by GDP, operating efficiency, bank size, portfolio composition and asset management. When ROE was used as a measure, profit had a positive relationship with GDP, capital, asset management and portfolio composition while it had a negative relationship with bank size, operating efficiency and credit risk.

Another study done in Pakistan during the same period was one by Bukhari & Qudous (2012). The study involved 11 banks and was done using panel data for the period 2005-2009 taken on a quarterly basis. Profit was measured using ROA only unlike the study by Khizer which used both ROA and ROE. The independent variables were bank size, advances (loans), deposits (liability), non-interest income, credit risk, interest income, expense management, discounted rate, imports, exports and CPI. However, 2 variables (deposits and imports) were dropped from the model as multicollinearity was found between bank size and deposits (0.916046) as well as between imports and exports (0.890318). It was found that interest had a negative relationship with banking profitability while advances and credit risk had a positive relationship with banking profitability. Bank size was found to have no effect on profitability unlike the findings of the Khizer study. Similarly, non-interest income, expenses, exports, CPI and discount rates

have an insignificant relationship with banking profitability. Advances, interests and credit risk however, had a significant relationship with profitability.

After the 2008 financial crisis, a study was carried out in Malaysia. The purpose of the study was to determine the profitability determinants of the commercial banks in Malaysia. The study was carried out by Jasmine (2011) for the period 2004 to 2010 and 8 banks were selected to make up the sample. The dependent variable was return on equity and was used to measure profitability. The independent variables were bank's size, inflation, base lending rate, total income, total deposits, interest coverage, total loans, gross domestic product, expenses management and capital adequacy ratio. The results of the study indicated that base lending rate was an insignificant variable n the study while inflation significantly affected profitability.

Flamini et al. (2009) conducted a study on the determinants of commercial bank profitability in Sub-Saharan Africa. Results of the study were that macro-economic factors do significantly impact profitability. In particular, inflation a positive impact on bank profits. Output growth had a positive impact on bank profitability as well.

Abaidoo and Oppong (2021) studied the impact of payment default on the performance of Ghanaian banking institutions. Questionnaires were used to collect data from 120 participants. According to research, the primary cause of default is a decrease in the rate at which services are demanded and products sold by customers. The regression results determine that the defect has an impact adversely affect performance. Nonetheless, the study made use of primary data that was gathered by questionnaires.

Ugoani (2019) examined the bad debt portfolio as well as its impact on the profitability of Nigerian banks. The poll adopted an exploratory research design while the linear regression equation helped with the necessary data analysis. According to the findings of the study, an inefficient loan portfolio has a detrimental impact on the bank's performance. This study, however, is conducted in a different setting and focuses on loan portfolio defaults.

Zawadi (2014) conducted a study on bank profitability for Tanzanian banks. It was for the period 2009-2013 and consisted of panel data for 23 banks. It examined the effect of both internal and external variables on banking profitability. The independent variables were GDP, inflation rate and real interest rate as external factors while capital adequacy, bank size, asset quality, expenses management and liquidity management were the bank specific factors. The study found that external factors had no significant relationship with banking profitability. On the other hand, factors such as bank size, capital adequacy, asset quality, efficient management

of bank expenses and liquidity management had a significant and positive effect on profitability.

Studies done in Zambia

Simpasa (2013) conducted a study on competition and market structure in the Zambian banking sector. As part of his study, he collected data on profits made in 19 banks in Zambia from the period 1998 to 2011. The profit measure used was the ROA and NIM. He noted that banks main source of profits is earnings on loans, treasury securities, fee incomes and gains from foreign exchange transactions. It was noted that both ROA and NIM measures gave similar figures in terms of the average level of profitability for subsidiaries of foreign banks and domestic private banks and these figures are in line with the industry standard. Subsidiaries of foreign banks experienced a slump in profitability in 2009 due to entry level subsidization as well as the global financial crisis that was taking place at the time as is reflected by the NIM level dropping to 6.3% from 8.2%. The domestic banks experienced the effects of the crisis a bit later in 2010 when their ROA fell from 6.1% to 0.5%. As for ZANACO, the only public sector bank, it had the lowest level of interest and profit margins which was mostly attributed to non-performing loans and lack of frugality in the use of bank resources by management.

Overall, it was noted that profitability of commercial banks in Zambia has been buoyant mostly due to capital adequacy as most banks in Zambia hold capital balances that are higher than the regulatory threshold. The minimum capital requirement for all banks used to be ZMW12 billion (about US$2 million) in 2011. However, in an effort to boost capital adequacy, the authorities raised the minimum capital requirement for banks in a new tiered structure (GRZ, 2012). The minimum capital requirement for foreign subsidiaries was raised to ZMW 520 billion (US$ 100 million) while that of the domestic banks was raised to ZMW104 billion (US$20 million). Therefore, from this analysis it can be inferred that capital adequacy has a positive relationship with bank profitability and credit risk has a negative effect on banking profitability. BOZ (2023)

Sandi (2009) conducted a study on the price-concentration relationship of commercial bank deposits in Zambia. It was found that market share, per capita income, concentration ratio and growth of deposits play a significant role in determining changes in deposit interest rates in Zambia. It was noted that Zambian commercial banks tend to offer low interest rates for holding deposit accounts while charging higher interest rates on the loans they offer. This is likely due to the low per capita income in Zambia compared to other Sub-Saharan countries and the banks

aim is to maximize their profit since so few people hold accounts with them. Hence, commercial banks concentration ratio is the reason for the low interest rates on deposit accounts. This study was not mainly focused on determinants of banking profitability but it does provide some insight in some of the factors that affect profitability such as concentration ratio.

Mulenga (2017) conducted a study on the in determinants of bank profitability Zambia in which he employed panel data from six commercial banks in Zambia. In particular, his thesis applied a fixed effects regression model to analyze internal and external factors that affect bank profitability using quarterly panel data on six commercial banks over the period 2010 to 2015 in Zambia. The empirical results indicated that liquidity risk, bank size and inflation positively affect bank profitability. For example, a 1% increase in liquidity risk increased bank profitability by 2.5%, while a 10% increase in total assets (bank size) raises bank profits by about 3.4%. A percentage point increase in the inflation rate increased profitability by about 1%. These results imply that the banks under study give out more loans as compared to keeping large amounts of deposits. This gives banks more interest income, which translates into higher profits. In addition, larger banks are able to earn more profits as compared to smaller banks because of economies of scale and from offering a wider range of products. Inflation rate contributes to the profitability of commercial banks in Zambia in that when there is high inflation; interest rates also rise, consequently increasing bank profitability.

Momba (2019) did a study to determine the factors that determine bank profitability. The paper employed data from banks in Zambia during the period January 2010 to December 2016. The empirical analysis used bank specific variables and employed a fixed effect model after carrying out a Hausman test. The study employed panel data of 17 commercial banks obtained from the Bank of Zambia. The measures of profitability used in the study were return on assets (ROA), return on equity (ROE) and net interest margin (NIM). In estimating the models, these measures of profitability were regressed on bank size as measured by the log of asset and on credit and liquidity risk measures and bank efficiency. Empirical findings showed that bank size, the ratio of loan loss provision to total assets and total loans to assets significantly affect bank profitability regardless of the profitability measures employed. Results indicate that banks pay more to depositors than they receive from loans and that most of their profit is relatively derived from operational income rather than interest-based income. Bank efficiency is observed to have a positive significant impact on NIM only.

You have not provided critiques and identified gaps in this literature review. What you have provided is literature survey and not a review.

CONCEPTUAL FRAMEWORK

According to the conceptual model of the survey, profitability is the response variable and loan default is the explanatory variable. The following are controlled predictors: bank size, liquidity, and capital sufficiency. As seen here, the conceptual model is constructed.

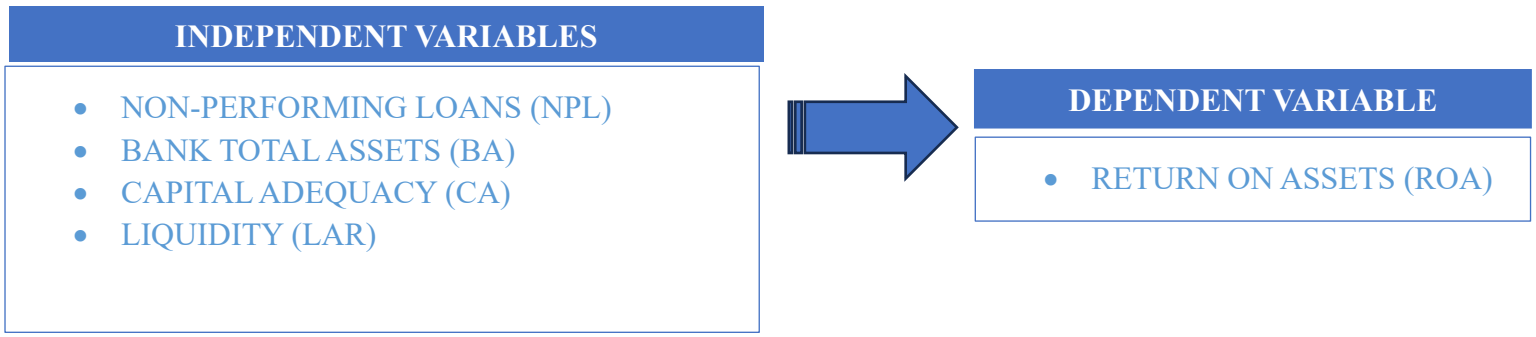

Figure 1: Conceptual Framework
Source Author (2023)

The conceptual framework shows the variables that affect and impact the bank's profitability as shown in Figure 1 above and it indicates that profitability is measured by the ratio of total assets to net income (ROA). It shows the bank's net income and establishes how the bank will use its assets to turn a profit over time. The capacity and ability of banks to turn their assets into profits is also indicated. Therefore, to improve the operational efficiency of banks, they always strive to achieve higher ROA. The ranking of banks is generally based on the highest ROA ratio and total assets. Because the equity multiplier has no bearing on ROA, it is often seen as a favorable return multiplier, particularly in the banking industry.

The conceptual framework in Figure 1 also shows that another factor that determines an organization's profitability is it's the bank's total assets. Overall, the increasing total assets of a bank affects profitability to a certain extent. In contrast, organizational size through its total assets can also affect the profitability of organizations that become particularly large due to the lack of bureaucratic incentives (Garoui, Sessi, and Jarboui, 2013). Because of economies

of scale, large banks can provide their goods and services more cheaply and effectively than smaller ones, which frequently results in larger profits (Teshome, Debela & Sultan, 2018).

When a bank requires cash or cash equivalents to cover its financial obligations, particularly in the short term, it is said to be liquid (Batchimeg, 2017). Generally speaking, institutions make more money when they raise low-interest short-term deposits and invest them in long-term investments, or when they lend money at higher interest rates and make investments in effective asset/liability creation management. Liquidity-related issues have an impact on profitability and can result in solvency issues. Because the banking subsector is interrelated, a shortage of liquidity in an institution can result in systemic issues for the whole industry (Mehta & Bhavani, 2017). Liquidity is one of the primary measures of financial stability. It becomes important for the pursuit to exist for all companies, especially financial institutions whose main task is to receive deposits. When uncertainty leads to the dissolution of funding sources, many organizations find themselves short of cash to cover debts as they come due (Batchimeg, 2017).

Capital adequacy shows how well the bank's current funding can accommodate resource expansion. It is the amount of capital required for businesses to be able to absorb potential losses, endure credit, financial, market, and operational risks, and ground their expansion in profitable but risky ventures (Mehta & Bhavani, 2017). The ability of banks to endure disruptions in their balance sheets is determined by the availability of enough capital (Batchimeg, 2017). A high capital level lowers the likelihood of bank collapse (Garoui, Sessi & Jarboui, 2013). Banks that have low levels of capital are viewed as high risk, which makes it harder for them to acquire capital at lower costs and raises the cost of capital overall, which has an impact on their performance. Better operational performance is the result of well-capitalized businesses reduced predicted failure costs (Teshome, Debela & Sultan, 2018). According to Garoui, Sessi, and Jarboui (2013), a high ratio denotes lower risk. The CAR ratio is a measure of capital adequacy.

Stuti & Bansal (2013), stated that the best indicator of the health of the banking industry in a country is its level of Nonperforming loans (NPLs). Nonperforming loans reflect the performance of banks. The decline in the ratio of Nonperforming loans indicates improvement in the asset quality of public sector banks and private sector banks. An increase in the ratio of nonperforming loans to total loans on the other hand should worry commercial banks. The decline in gross NPLs to gross advances indicates the improvement in the credit

portfolios of both the sector banks. Gross NPLs to total assets have a direct bearing on the return on assets as well as liquidity-risk management of the bank. Non-performing Assets threaten the stability and demolish the bank's profitability through a loss of interest income, and write-off of the principal loan amount itself.

CHAPTER THREE:

RESEARCH METHODOLOGY

INTRODUCTION

This chapter contains eight sections. Section 3.1 deals with the research design employed for the study under discussion. Furthermore, section 3.2 analyzes this model with mathematical tools and tries to explain the model from a mathematical perspective. Section 3.4 deals with the issue of choice of estimation techniques and tools to be employed. Section 3.5 through 3.6 deals with the data collection and analysis issue.

RESEARCH DESIGN

In Broad terms, the research followed a quantitative Research Design in which the dependent variable, in this case Return on assets was regressed on a number of explanatory variables. Here various explanatory and dependent variables were examined, including numbers as well as statistics in a project to quantitatively explain and analyze findings from the secondary data.

Multivariate Regression Model

The multivariate regression model is constructed in the manner described below

$$ROA_t = \beta_0 + \beta_1 NPLR_t + \beta_2 BA_t + \beta_3 CA_t + \beta_4 LAR_t + \varepsilon_t \qquad (1)$$

Where;

ROA_t = Profitability measured using ROA ratio

$NPLR_t$ = Loan default measured using the nonperforming loans (NPLR) ratio

BA_t = Bank total Assets

CA_t = Capital adequacy measured using the capital adequacy ratio

LAR_t = Liquidity measured using liquidity ratio

β_0 = Constant

$\beta 1$- $\beta 4$ = Regression coefficients

ε_t= Error term

PRE-ESTIMATION TESTS

The unit root test for stationarity

There are several ways of testing for a unit root. In this study, we employed the Augmented Dickey-Fuller (ADF). The decision rule is that if the model Augmented Dicky-Fuller test statistic is greater than the critical value statistic, then we reject the null hypothesis of the presence of a unit root and conclude that the series is stationary. Non-stationary variables might lead to spurious regressions. The results may suggest statistically significant relationships between the variables in the model, when in fact this is just evidence of contemporaneous correlation. The ADF test assumes that the data generating process is autoregressive to the first order. This is done so that the autocorrelation in the error term does not bias the test. The ADF includes first-difference lags in such a way that the error term is distributed as a white noise (Herranz, 2019).

OPTIMAL LAG SELECTION CRITERIA

Likelihood Ratio (LR)

In statistics, the likelihood-ratio test assesses the goodness of fit of two competing statistical models, specifically one found by maximization over the entire parameter space and another found after imposing some constraint, based on the ratio of their likelihoods. If the constraint (i.e., the null hypothesis) is supported by the observed data, the two likelihoods should not differ by more than sampling error Koch, Karl-Rudolf (1988). Thus the likelihood-ratio test tests whether this ratio is significantly different from one, or equivalently whether its natural logarithm is significantly different from zero. Suppose that we have a statistical model with parameter $\boldsymbol{\Omega}$. A null hypothesis is often stated by saying that the parameter θ lies in a specified subset of Ω_0. The alternative hypothesis thus lies in the complement of Ω_0, which is denoted by Ω_0^c. The likelihood ratio test statistic for the null hypothesis $H_0: \theta \in \Omega_0$ is given by:

$$\lambda_{LR} = -2 \ln \left[\frac{\sup_{\theta \in \Omega_0} L(\theta)}{\sup_{\theta \in \Omega} L(\theta)} \right]$$

JOHANSEN TEST FOR COINTEGRATION

The Johansen test is used to test for co-integrating relationships between several non-stationary time series data. Compared to the Engle-Granger test, the Johansen test allows for more than

one co-integrating relationship. However, it is subject to asymptotic properties (large sample size) since a small sample size would produce unreliable results. Using the test to find co-integration of several time series avoids the issues created when errors are carried forward to the next step (Sørensen, 2019).

VECTOR ERROR CORRECTION MODEL (VECM)

In the study we employed a Vector Error Auto-correction model with a continuous dependent variable.

The Econometric model can then be expressed as follows:

$$\Delta Y_{t-1} = B_0 + \sum_{i=1}^{k-1} \gamma_i \Delta Y_{t-i}{}_1 + \sum_{i=1}^{k-1} \eta_i \Delta X_{t-j} + \sum_{m=1}^{k-1} \xi_m \Delta R_{t-m} + \lambda ECT_{t-1} + \mu_t$$

$k-1 = the\ lag\ length\ reduced\ by\ 1$

$\gamma, \eta, \theta, \xi = the\ short-run\ dynamic\ coefficients\ of\ the\ model's\ adjustment\ long-run\ equilibrium$

$\lambda_i = speed\ of\ adjustment\ parameter\ with\ a\ negative\ sign$

$ECT_{t-1} = contains\ long-$
$run\ information\ derived\ from\ the\ long\ run\ cointegration\ equation$

$u_i = residuals$

Because the underlying objective of this study is to determine whether variables such as, Capital Adequacy (CA), Bank Assets (BA), Non-Performing Loan Ratio (NPLR) and Liquidity asset ratio (LAR) are significant determinants of bank profitability (Return on Assets), as such we treat ROA as the dependent variable, while the other variables as independent variables.

$$\boldsymbol{\Delta ROA_t = B_0 + \Sigma\ \Delta CA_{t-j} + \Sigma\ \Delta BA_{t-j} + \Sigma\ \Delta NPLR_{t-j} + \Sigma\ \Delta LAR_{t-j} + ECM\ (-1)} \quad (2)$$

THE JARQUE-BERA TEST OF NORMALITY

The Jarque-Bera Test, a type of Lagrange multiplier test, is a test for normality. Normality is one of the assumptions for many statistical tests, like the t test or F test; the Jarque-Bera test is usually run before one of these tests to confirm normality. It is usually used for large data sets, because other normality tests are not reliable when n is large (Wooldridge, Jeffrey M., 2016).

THE PAIR-WISE CORRELATION MATRIX OF MULTICOLLINEARITY

The correlation coefficient ranges from −1 to 1. An absolute value of exactly 1 implies that a linear equation describes the relationship between X and Y perfectly, with all data points lying on a line. The correlation sign is determined by the regression slope: a value of +1 implies that all data points lie on a line for which Y increases as X increases, and vice versa for −1. A value of 0 implies that there is no linear dependency between the variables. More generally, note that $(X_i - X)(Y_i - Y)$ is positive if and only if X_i and Y_i lie on the same side of their respective means. Thus, the correlation coefficient is positive if X_i and Y_i tend to be simultaneously greater than, or simultaneously less than, their respective means. The correlation coefficient is negative if X_i and Y_i tend to lie on opposite sides of their respective means. Moreover, the stronger either tendency is, the larger is the absolute value of the correlation coefficient (Damodar N. Gujarati, Dawn C. Porter, 2009).

BREUSCH-PEGAN-GODFREY TEST OF HETEROSCEDASTICITY

The breusch-pegan test of heteroscedasticity uses the principle of calculating half of the explained sum of squares from the auxiliary regression. The basis of this test is the chi-square test which has a test statistic with distribution:

$$chi\ square\ test = n\chi^2 \quad df = k$$

If the test statistic has a p-value above the appropriate threshold, then we fail to reject the null of homoscedasticity and assume that the error terms are normally distributed. In a nutshell, this test tests whether the variance of the errors from the regression is dependent on the values of the independent variables (Cameron, A. Colin, 2010).

STUDY SAMPLE

The population is a certain group whose characteristics are relevant to the study (Kumar, 2011). This study population was focused on aggregated data from First Capital Bank Zambia (FCB).

First Capital Bank Zambia has a total of 8 (eight) branches, 1 (one) agency and 7 (seven) ATMs in the country. 6 (six) branches located in the capital city Lusaka and 1 (one) been in Ndola and another in Kitwe. The target audience was the credit department and finance department that is in charge with credit and financial reports.

DATA COLLECTION/INSTRUMENTS

The sources of data were from be the First Capital Bank finance, credit department and website, and the Bank of Zambia website. Information and datasets were gathered from banks annual reports and database covering Quarterly data from 2013(Q1)–2023(Q2) time-frame.

DATA ANALYSIS

To provide information that is useful, data analysis will yield findings and suggestions that will be presented as tables, percentages, and frequencies. Regression techniques and central tendency of measures will be combined to analyze data and display the correlations between variables. With EVIEWS 12, data analysis is completed rapidly since the tool is appropriate for case and variable location. Because EVIEWS 12 offers such a vast array of quantitative statistical data analysis with accurate time series data analysis.

CHAPTER FOUR:

PRESENTATION AND ANALYSIS OF RESULTS

SUMMARY STATISTICS

Sample: 2013Q1 2023Q2					
	BA	CA_	NPLR	LAR_	ROA
Mean	157000000	22.31684	8.754576	49.35411	3.443226
Median	44749427	22.83110	8.738546	48.37260	3.248055
Maximum	901000000	25.60183	13.03202	58.13529	5.480004
Minimum	31323806	17.89362	4.511081	42.33949	2.243470
Std. Dev.	212000000	2.375374	2.401195	4.884759	0.865849
Observations	42	42	42	42	42

Table 1: Summary Statistics

Starting with the mean, it is a measure of central tendency that give an indication of the average value of a distribution of figures. From the above table, the variable with the highest mean was Bank Assets which had a mean of 157000000 Kwacha while Return on Assets which was the study's dependent variable had the lowest mean. Moving on, looking at the standard deviation, a measure of how dispersed the data is in relation to the mean, we can see that the Bank Assets variable, had the highest dispersion of 212000000 with relation to its mean. The Return on Assets had the lowest standard deviation value of 3.443226.

The Maximum and Minimum values above together give us the range of the values in the variables. The greater the range of each variable given a fixed number of observations (42), the greater the level of spread and possibility of outliers in the distribution. Thus, by looking at the table above, we can see that Bank Assets had the largest range from all the variables employed followed by the Liquidity asset ratio. The return on Assets had the lowest range from 0.865849% to 2.243470%, hence the small standard deviation as its observations is clustered closer to each other. Moving on, I also tried to investigate the median which shows how the middle value of the distribution when arranged from Ascending to Descending or vice versa.

From this statistic, we can see that all the variables except for the Bank Assets had their medium values almost equal to their mean value.

STATIONARITY TEST

Variable name	AUGMENTED DICKEY FULLER TEST AT LEVEL				AUGMENTED DICKEY FULLER TESTS AT FIRST DIFFERENCE			
	STATISTIC	CRITICAL 5%	P – VALUE		STATISTIC	CRITICAL 5%	P – VALUE	Ord of stationarity
BA	-2.35	-2.9350	0.1621		-10.322	-2.937	0	I(1)
CA	-2.55	-2.9350	0.1121		-4.6556	-2.937	0.0005	I(1)
NPLR	-1.46	-2.9350	0.5421		-3.7777	-2.937	0.0064	I(1)
LAR	-1.8358	-2.9350	0.3585		-5.4568	-2.937	0	I(1)
ROA	-0.8666	-2.9350	0.7887		-6.2057	-2.937	0	I(1)

Table 2: Stationary test result

From the above table, it was deduced that all variables were non-stationary at level, meaning that the null hypothesis of unit root could not be rejected since the ADF P-values were greater than the significance levels of 5%. Given that all the variables were non-stationary; it was necessary to difference. At first difference, all the variables were stationary at 5% level of significance.

COINTEGRATION TEST

Table 3: Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvaule	Trace Statistic	0.05 Critical Value	Prob **
None *	0.576142	74.57577	69.81889	0.0198
At most 1	0.398472	40.24154	47.85613	0.2140
At most 2	0.286785	19.91024	29.79707	0.4289
At most 3	0.135693	6.391339	15.49471	0.6493
At most 4	0.013859	0.558249	3.841465	0.4550

Hypothesized No. of CE(s)	Eigenvaule	Max-Eigen Statistic	0.05 Critical Value	Prob **
None *	0.576142	34.33423	33.87687	0.0441
At most 1	0.398472	20.33129	27.58434	0.3187

At most 2	0.286785	13.51891	21.13162	0.4057
At most 3	0.135693	5.833090	14.26460	0.6347
At most 4	0.013859	0.558249	3.841465	0.4550

Table 4: Unrestricted Cointegration Rank Test (Maximum Eigenvalue

Since the variables were integrated of first order, a test for co-integration analysis was necessary. The Johansen and Max eigen value test in this paper were conducted and the table above shows the results. The above results show that the variables exhibited a long run co-integration. Specifically, we see that given the null hypothesis of no cointegration equation the trace statistic is greater than the Critical value and thus we reject this null hypothesis. This can also be seen from the eigen value of "no cointegration" of 34 against the critical 33. The table also shows that the null hypothesis of at least 2,3 or 4 Cointegrating equations cannot be rejected as the Trace and eigen statistic here becomes less than the critical value at 95% confidence. Due to the presence of Cointegration and the unit root results of the Augmented Dickey Fuller test, the appropriate model estimated was the Vector error correction model VECM.

VECTOR ERROR CORRECTION MODEL

Table 5: Results of the VECM

Variable	**Coefficient**	**T-Stat**	**Probability**
CointEq (Speed of Adjustment)	-0.014372	-0.136170	0.0289*
DROA(-1)	-0.108407	-0.0554874	0.5827
DBA(-1)	1.11191	0.23227	0.8178
DCA(-1)	0.073465	1.444036	0.1582
DLAR(-1)	-0.0288	-0.80411	0.4271
DNPLR(-1)	-0.1899	-2.068027	0.0465*
Constant	0.026952	0.372862	0.7116
R-squared *= 0.5*		***Prob (F)****= 0.0336*	

**Represents significance at 5% level*

Source: Authors computation fron Eviews Estimation

The error correction term has a negative value(-0.014372) and is significant as it has a p-vaule of 0.0289 that is less than 5%. This means the model meets the required statistical condition for it to adjust towards in the long run equlibrium should it deviate from it. The model also has

a goodness of fit of 0.5 indicating that atleast 50% of changes in the explanatory variables can be explained by the independent variables that are in the model. Further, the model has a probability vaule of 0.0336 entailing that it is statistically significant in explaning profitability.

NORMALITY TEST

Sample: 2013M01 2020M12	BA	CA	NPLR	LAR	ROA
Skewness	1.838414	-0.298786	0.111458	0.305411	0.938358
Kurtosis	5.734005	1.657121	1.876591	1.721446	2.996188
Jarque-Bera	36.73925	3.780730	2.295545	3.513654	6.163636
Probability	0.000000	0.151017	0.317343	0.172592	0.045876
Observations	42	42	42	42	42

Table 6: Normality Results

From the Jarque-Bera probabilities, we conclude that at 5% level of significance, we fail to reject the hypothesis that the variables are normally distributed except for Bank Assets (BAand return on asset as their P-Values were below 0.05.

MULTICOLLINEARITY

Table 7: Multicollinearity results

	BA	CA	NPLR	LAR	ROA
BA	1.000000	-0.408501	0.595221	0.677166	-0.410573
CA	-0.408501	1.000000	-0.284961	-0.086535	0.441693
NPLR	0.595221	-0.284961	1.000000	0.733992	-0.750950
LAR	0.677166	-0.086535	0.733992	1.000000	-0.372515
ROA	-0.410573	0.441693	-0.750950	-0.372515	1.000000

Multicollinearity is a statistical concept where several independent variables in a model are correlated. Two variables are considered perfectly collinear if their correlation coefficient is +/- 1.0. It has to be understood that Multicollinearity is not a problem of presence or absence but rather a problem of degree. Thus, as can be seen from the above table, we can conclude that

there was no presence of excess multicollinearity as the Correlation matrix shows collinearity of less than 0.8 for all the variables.

HOMOSKEDASTICITY

Table 8: Results of Homoskedasticity

VEC Residual Heteroskedasticity Tests (L Squares) Sample: 2013Q1 2023Q2 Included observations: 40		
Joint test:		
Chi-sq	df	Prob.
196.4620	180	0.1901

The study further conducted the VEC Residual test of heteroscedasticity to check if the error terms had a constant variance. The study failed to reject the null hypothesis and concluded that the error terms have a constant variance since the p value is higher than any level of significance.

Stability test

Inverse Roots of AR Characteristic Polynomial

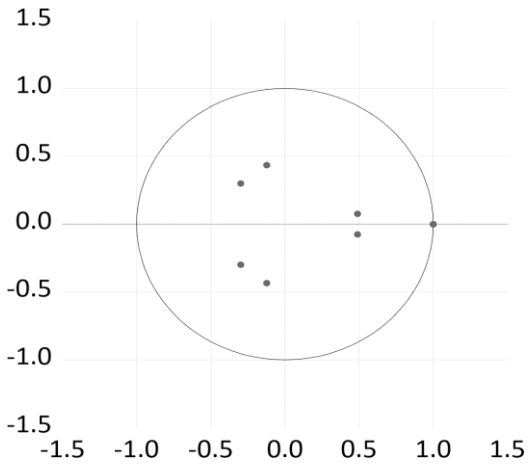

Figure 2: Characteristic Polynomial

Because the points of the inverse root are within the circle, The study concluded that the model was stable over time.

CHAPTER FIVE:

DISCUSSION OF FINDINGS

VECTOR ERROR CORRECTION MODEL

Firstly, the results from the above table showed that there exists a Positive relationship between banks capital adequacy and profitability both in the long and short run and the result of this proposition were statistically significant at 5% level of significance as it had a t-value way higher than any chosen level of significance. This result is partly in line with the findings by Olalekan and Adeyinka (2013) in their empirical study on Nigeria on the relationship between Capital Adequacy and Bank Profitability. Their results reviewed using Secondary data analysis a significant relationship between Capital Adequacy and Bank Profitability. The result is expected as it is in line with the theory by Miller and Modigiano (1961) were they state that in an imperfect market, there is always an expectation of a positive relationship between capital adequacy and Bank Profitability unless a situation of information asymmetry prevailed, in which case the negative relationship may be expected between capital structure and profitability from the information asymmetry. Thus, when management is expectant of future cash flows, they may signal this through their decisions on capital ratio (Myers & Majluf, 1984). Spencer (1973) explains that the signal serves the purpose of giving outsiders an accurate picture of bank's existing challenges so that the outsiders are willing to invest even in times of uncertainty. Hence, according to the signaling hypothesis, there is a positive relationship between capital ratio and banking profitability.

Secondly, the above findings showed that there is a negative and significant impact of Non-Performing Loans ratio on banks profitability in the long run but the effect was non-significant in the short run as expected. These findings were opposite to those by Li and Zou (2014) which revealed that credit risk as measured by the ratio of non-performing loans to all loans does have positive effects on profitability of commercial banks. For this study however, between 2007 to 2012, this relationship was not stable but fluctuating. This implies that an increase in the ratio of non-performing loans to gross loans, certainly would lead to a decrease in profitability of Zambia's commercial banks. The difference in the relationship between the two studies may be attributed to the differences in Credit ratings for the respective samples employed. Because my Study used Zambian data (low Credit Ratings) while Fan used Europe (High Credit Rating), this thus explains the differences in findings.

The study established by Kadioglu *et al* (2021) investigated whether non-performing loans effect the bank's profitability in Turkey. Their results found that there is actually a significant, negative relationship between non-performing loans and bank profitability. According to Kadioglu *et al* (2021), the higher non-performing loans are, the lower asset quality and this leads to lower returns on bank assets.

Lastly, the coefficient of liquidity asset ratio is negative in the long run and positive in short run). This was in line with the results of Trang and Ngoc (2020) which showed that profitability (ROA) was significantly and negatively influenced by liquid asset ratio (LAR) and positively correlated to loan-to-deposit ratio (TLTD). The implication of this finding is that investing in short-term, less risky securities like government bonds leads to increased profitability.

Looking at the effect of the Banks Total Assets, the results were in conformity with those by Emre (2012) the ratio of total costs to total income, Herfindahl–Hirschman Index (HHI) for deposits had a statistically significant and positive relationship with ROA both in the long and short run. When the ROE is taken as the measure of profitability in his study however; it was found that the ratio of equity to total assets, and the logarithm of total assets, are negatively and significantly related to profitability of banks.

CHAPTER SIX

SUMMARY AND RECOMMENDATIONS

6.1 Introduction

This chapter will discuss the policy recommendations of the study and provides a note on areas of further research on the subject matter.

6.2 Core Findings and Policy Implications

Based on the following key findings of the study, we will offer policy implications. As one can observe from this study, internal factors such as liquidity asset ratios determine commercial banks profitability in Zambia. Specifically, the Liquidity Asset Ratio (Significantly) and negatively affect the profitability of Banks in Zambia.

On the implications, these findings about the effect of the liquidity asset ratio will influence banks' liquidity management procedures and, hence, their demand for funds in the interbank market. The Bank of Zambia which conducts monetary policy by setting a target for the interest rate in this market will, therefore, need to take this change into account. This result also points to three basic conclusions. First, the liquidity asset ratio will not impair the ability of the central bank to implement monetary policy, but the process by which they do so may change. Second, correctly anticipating an open market operation's effect on interest rates will require the Bank of Zambia to consider not only the size of the operation, but also the way the operation is structured and how it impacts on bank balance sheets. Finally, the liquidity asset ratio may increase the steepness of the very short end of the yield curve by introducing an additional premium for interbank loans that extend beyond 30 days (Morten Bech, 2012).

On the Recommendations, to curb the impact of non-performing loans, Zambian commercial banks should strive to improve their inspection techniques and loan application methodologies in screening potential borrowers because the existing credit risk trend may bring a series collapse against the sector as well as the nation economy in general. In order to maximize the bank's profitability, bank managers and directors should reduce the operating expenses (Harris, David, 2013).

6.3 Areas of Further Research

Future research could investigate differences in the determinants of Zambia commercial banks' profitability according to their ownership types. Also, a comparison could be made with commercial banks of other countries which have similar economic conditions as Zambia. Further studies can also ensure that commercial banks ascertains the true repayment capabilities of the loan customers at the time of loan application, banks like first capital bank can rigorously screen the information on the borrowers 'credit worthiness. Other studies can also enhance the process of loan monitoring and supervision to ensure that the loan customer uses the loan funds for the purposes that were agreed upon in the loan contract. This can be done through continuous interaction with the loan customer. Additionally, commercial banks need to create a training program for the loan customers to educate the customers on how to make effective and economic decisions when investing their loan funds. First capital bank can also develop attractive incentives for the officers that manage to meet the debt recovery targets.

References

Dewi. S.P. (2014) Pengaruh Capital Adequacy Ratio, Non-Performing Loan, Loan to Deposit Ratio & Efisiensi Operasional Terhadap Profitabilitas Perbankan Yang Terdaftar di Bursa Efek Indonesia. *Jurnal Akuntansi., 18(3)*, 422-437.

Abbas, S. A., & Espinoza, R. (2016) Why do banks in developing countries hold government securities? *London: UCL School of Slavonic and East European Studies*.

Aburime, T. U. (2009). Impact of corruption on bank profitability in Nigeria. *Euro Economica, 2*, 50-57.

Akaike, H. (1974) A new look at the statistical model identification. *IEEE Transactions on Automatic Control*, 19 (6): 716–723,.

Aljbiri, A. (2013) Factors affecting Gumhoria Bank's profitability. Empirical evidence from biggest commercial bank in Libya. *Acta Universitatis Agriculturae et Silviculturae Mendelianae Brunensis, 7*.

Apuke, O. D. (2017) QUANTITATIVE RESEARCH METHODS A SYNOPSIS APPROACH. *An Open Access Journal, 6*(10).

Asikhia Olalekan, S. A. (2013) Capital Adequacy and Banks' Profitability: An Empirical Evidence from Nigeria. *American International Journal of Contemporary Research, 3*(10), 87-93.

Athanasoglou, P. P. (2008) Bank-specific, industry-specific and macroeconomic determinants of bank profitability. *Journal of international financial Markets, Institutions and Money*, 121-136.

Ayanda, D. A. (2013) Determinants of banks profitability in a developing economy: Evidence from Nigerian Banking Industry. *Interdisciplinary Journal of Contemporary Research in Business, 9*, 155-189.

Bank Of Zambia. (2016) *Annua Reports and Accounts.* Lusaka.

Bashir, A. H. (2003). Determinants of profitability in Islamic banks: Some evidence from the Middle East. *Islamic economic studies, 1*, 31-57.

Beck, T., Demirguc-Kunt, A., & Levine, R. (2009) Financial institutions and markets across. *World Bank*.

Beck, T., Demirguc-Kunt, A., & Levine, R. . (2009) Financial institutions and markets across countries and over time: . (World Bank).

Berger, A. N. (May, 1995) The Relationship between Capital and Earnings in Banking. *Journal of Money, Credit and Banking, 27*(2).

BOZ. (2014) Financial Systems Supervision Annual Report. *lusaka*.

Brownbridge, M. (1996) *Financial Policies and the Banking System in Zambia.* United Nations Conference on Trade and Development.

Bukhari, S. & Quodous, R. A. (2012) Internal and external determinants of profitability of banks; Evidence from Pakistan. *Interdisciplinary Journal of Contemporary Research in Business, 3(9)*.

Buzeneca, I., & Maino, M. R. (2007) Monetary policy implementation: Results from a survey. *3*.

Chandra Setiawan, O. I. (2017) *Proceedings of 12th Asia-Pacific Business Research Conference.* Malaysia.

Christos K. Staikouras, G. E. (2003) The Determinants Of European Bank Profitability. *International Business & Economics Research Journal, 3*(6).

Damodar N. Gujarati, Dawn C. Porter (2009). *Basic Econometrics.* New York, USA.: McGraw-Hill Companies.

David M., L. R. (1995) *Estimating the time Varying Risk Premia in the term Structure: The Arch-M Model.*

Davidson, J. (2000) Econometric Theory. *paperback*.

Dietrich, A., & Wanzenried, G. (2009) What determines the profitability of commercial banks? New evidence from Switzerland. *Journal of International Financial Markets Institutions and Money, 3*, 307-327.

Eric Zivot, D. W. (1992) Further Evidence on the great crash, the oil price shock and the unit root hypothesis. *Cowles Foundation of Research in Economics*(06520).

European Investment Bank, E. (2015) Recent Trends in Banking in sub-Saharan Africa; From Financing to Investment. *Luxembourg: European Investment Bank.*

Eyup Kadioglu, niyazi telceken, Nurcan Ocal. (2021) Effect of the Asset Quality on the Bank Profitability. *International Journal of Economics and Finance*, 60-68.

Fan Li, Y. Z. (2014) *The Impact of Credit Risk Management on Profitability of Commercial Banks: A Study of Europe.* Umea.

Francis, M. E. (2013) Determinants of commercial bank profitability in Sub-Saharan. *International Journal of Economics and Finance, 5(9)*.

GATETE, A. (2015) *THE EFFECT OF BANK SIZE ON PROFITABILITY OF COMMERCIAL BANKS IN KENYA.* Nairobi.

Glenn Growe, M. D. (2014) THE PROFITABILITY AND PERFORMANCE MEASUREMENT OF U.S. REGIONAL BANKS USING THE PREDICTIVE FOCUS OF THE “FUNDAMENTAL ANALYSIS RESEARCH”. *Advances in Management Accounting, 24*.

Gyamerah, I. A., & Amoah, B. A. (2015) Determinants of bank profitability in Ghana. *International Journal of Accounting and Financial Reporting, 1*.

Halil Emre AKBAŞ. (2012) DETERMINANTS OF BANK PROFITABILITY: AN INVESTIGATION ON TURKISH BANKING SECTOR. *Yıldız Teknik Üniversitesi*, 103-110.

Hasan Raza, A. S. (2019). Determinants of Profitability in Banking Sector: An Evidence from Pakistan. *European Scientific Journal, 15*.

Herranz, E. (2019). *Unit root tests.*

Hira Waheed, T. M. (2012). Mediating role of knowledge sharing: Organizational performance for competitive advantage and innovation. *African Journal of Business Management , 7*(7), 536-547.

Hirindu, K., & Kushani, P. (2017). The factors effecting on bank profitability. *International Journal of Scientific and Research Publications, 2*.

Hoffman, P. S. (2011). Determinants of the Profitability of the US Banking Industry. *International Journal of Business and Social Science, 2(22)*, 255-269.

Huizinga, D.-K. A. (2001). "Financial Structure and Bank Profitability in Financial Structure and Economic Growth: A Cross-Country Comparison of Banks, Markets, and Development. *Cambridge, MA: MIT Press.*

Iacobelli, A. (2017). Determinants of Profitability; Empirical Evidence from the Largest Global banks.

Isik, O., Kosaroglu, Ş. M., & Demirci, A. (2018). The Impact of size and growth decisions on Turkish banks' profitability. *International Journal of Economics and Financial Issues,, 1*.

J.Kumar, R. T. (2014). Capital Adequacy Determinants and Profitability of Selected Indian Commercial Banks. *Global Journal Fo Research Analysis, 3*(11).

JAMES DAVIDSON, R. M. (2000). *THE FUNCTIONAL CENTRAL LIMIT THEOREM AND WEAK CONVERGENCE TO STOCHASTIC INTEGRALS II* (16 ed.). United States of America.

Jasmine E. (2011). "An Empirical Analysis of Commercial Banks' Profitability Determinants in Malaysia after the 2008 Financial Crisis.". *A Research Project Submitted in Partial Fulfillment of the Requirement for the Degree of Bachelor of Business Administration (Hons) Banking & Finance, University of Tunku Abdul Rahman*.

Javaid, S., & Alalawi, S. (2018). Performance and profitability of Islamic banks in Saudi Arabia: An empirical analysis. *Asian Economic and Financial Review, 1*, 38-51.

John A. Gubner, H. K. (2006). *ESTIMATION OF THE LONG-RANGE DEPENDENCE PARAMETER OF FRACTIONAL ARIMA PROCESSES.*

John F. Geweke, J. L. (2006). *Econometrics: A Bird's Eye View.*

Khizer, A., Muhammad, F. A., & Ahmed, H. Z. (April 2011). Bank-Specific and Macroeconomic Indicators of Profitability - Empirical Evidence from the Commercial Banks of Pakistan. *International Journal of Business and Social Science, 2(6)*.

Koch, Karl-Rudolf. (1988). Parameter Estimation and Hypothesis Testing in Linear Models. In K.-R. Koch, *Parameter Estimation and Hypothesis Testing in Linear Models* (pp. p. 306. ISBN 0-387-18840-1.). New York: Springer. .

M kabir Hassan, A.-H. M. (2003). Determinants of Islamic Banking Profitability.

Maimbo, S. M. (2003). *Financial Sector Reforms and Savings Mobilization* . in Zambia. (Discussion paper No.2003/13, United Nations University/World Institute for Development Economics Research).

Manenga, N., Dale, M., Lutangu, I. & Muchimba, L. (2009). Global Financial Crisis Discussion Series . *Overseas Development Institute, 10*.

Maverick, J. B. (2015). What is more important for a business profitability or growth? .

Memmel, R. B. (2017). *Banks' Net Interest Margin and the Level of Interest Rates.*

Milton Harris, C. O. (2020). THE AGGREGATE DEMAND FOR BANK CAPITAL. *NATIONAL BUREAU OF ECONOMIC RESEARCH*.

Mirzaei, A. &. (2011). Bank-specific and macroeconomic determinants of profitability in Middle Eastern banking . *Iranian Economic Review, 29*, 101-128.

Modigliani, F. & Merton H.M. (1958). The Cost of Capital, Corporation Finance and the Theory of Investment. *American Economic Review, 3*, 261-297.

Morten Bech, T. K. (2012). On the liquidity coverage ratio and monetary policy implementation. *Journal of Economic Literature, 28*.

Myers, S. C. (1984). Corporate financing and nvestment decisions when firms have information that investors do not have. *Journal of financial economics, 2*, 187-221.

Nasution, E. J. (2021). Innovative Banking Challenges in ASEAN-5 Countries and Their Effects on Cost-Income Reduction. *Human Behavior, Development and Society, 22*(3).

Nazish Bibi, S. A. (2017). The Relationship between liquidity and firms profitability: A case of Karachi bStock Exchange. *Asian Journal of Finance and Accounting, 9*(1), 54-67.

Obamuyi, T. M. (2013). Determinants of Banks' Profitability in a Developing Economy: Evidence from Nigeria. *Organizations and Markets in Emerging Economies, 8*, 97-111.

Odhiambo, N. (2009). 'Interest Rate Reforms, Financial Deepening and Economic Growth: Kenya's Experience', Journal of Developing Areas,. *43(1)*, 295–313.

Ommeren, S. (. (2011). *BANKS' PROFITABILITY: AN EXAMINATION OF THE DETERMINANTS OF BANKS' PROFITABILITY IN THE EUROPEAN BANKING SECTOR.*

Ozurumba, A. (2016). Impact of Non-Performing Loans on the Performance of Selected Commercial Banks in Nigeria. *Research Journal of Finance and Accounting, 7*(16).

Pfleiderer, P. (2015). On the relevancy of Modigliani and Miller to Banking: A parable and . *Stanford University working paper*.

Price Waterhouse Coopers, P. (2017). 2016 Zambian Banking Industry Survey; Adapt to Thrive. *Price Waterhouse Coopers*.

Ramsey, J. B. (1969). Tests for Specification Errors in Classical Linear Least Squares Regression Analysis. *Journal of the Royal Statistical Society, Series B*, 31 (2): 350–371. JSTOR 2984219.

Rodgers, J. L., & Nicewander, W. A. (2010). Thirteen Ways to Look at the Correlation Coefficient. *The American Statistician, 42*(1), 59-66.

Sandi, S. (2010). *The Price-Concentration Relationship in the Commercial Bank Deposit Markets in Zambia.* Lusaka: University of Zambia.

shawk. (2008). Retrieved from www.schawk.com

Simpasa, A. M. (2010). *Performance of Zambian Commercial Banks In the Post-Liberalization period.Evidnce on Cost-Efficiency,Competition and Market Power:.* Cape Town.

Sørensen, B. E. (2019). *Cointegration.*

Spence, M. (1973). Job market signaling. *Quarterly Journal of Economics*, 355-374.

Stoica, P.; Selen, Y. (2004). Model-order selection: a review of information criterion rules. *Signal Processing Magazine*, 36–47.

Stoica, P.; Selen, Y. (2004). Model-order selection: a review of information criterion rules. *IEEE Signal Processing Magazine*, 36–47, doi:10.1109/MSP.2004.1311138, S2CID 17338979.

Sunday, A. A. (2019). BANKS' CHARACTERISTICS AND EARNINGS OF DEPOSITS MONEY BANKS IN NIGERIA. *European Journal of Accounting, Auditing and Finance Research, 7*(2), 48-59.

Suzan Dsouza, M. R. (2022). Impact of Bank Efficiency on the Profitability of the Banks in India: An Empirical Analysis Using Panel Data Approach. *International Journal of Financial Studies, 10*(93), 1-18.

Tabi ATEMNKENG J., N. J. (2006). *Market Structure and Profitability Performance in the Banking Industry of CFA Countries: _ The Case Of Commercial Banks In Cameroon* .

Torsten Ehlers, A. V. (2015). The Role of Banks. *Journal Of Economic Literature, BIS paper*(83), 9-38.

Tregenna, F. (2009). The fat years: the structure and pre-crisis period. *Cambridge Journal of Economic, 33*, 609-632.

William H. Greene. (2002). *ECONOMETRIC ANALYSIS* (5 ed.). New York City: Prentice Hall.

World Bank Group. (2016). *World development indicators 2016.* Washington, DC: World Bank.

Yang, K. (2018). Determinants of the Profitability of Commercial Banks: the case of Industrial Bank Co. Ltd . *The Frontiers of Society, Science and Technology, 1*(1).

Zambia, B. o. (1993). *Annual Report and Accounts.* Lusaka.

Zawadi, A. (2014). Determinants of Banks' Profitability in a Developing Economy: Empirical Evidence from Tanzania. *European Journal of Business and Management, 6(31)*, 363-375.

APPENDIX

1. Summary Statistics

Sample: 2013Q1 2023Q2

	BANK_AS...	CAPITAL_...	CREDIT_R...	LIQUIDITY...	RETURN_...
Mean	1.57E+08	22.31684	8.754576	49.35411	3.443226
Median	44749427	22.83110	8.738546	48.37260	3.248055
Maximum	9.01E+08	25.60183	13.03202	58.13529	5.480004
Minimum	31323806	17.89362	4.511081	42.33949	2.243470
Std. Dev.	2.12E+08	2.375374	2.401195	4.884759	0.865849
Skewness	1.838414	-0.298786	0.111458	0.305411	0.938358
Kurtosis	5.734005	1.657121	1.876591	1.721446	2.996188
Jarque-Bera	36.73925	3.780730	2.295545	3.513654	6.163636
Probability	0.000000	0.151017	0.317343	0.172592	0.045876
Sum	6.58E+09	937.3074	367.6922	2072.872	144.6155
Sum Sq. Dev.	1.84E+18	231.3384	236.3952	978.2957	30.73748
Observations	42	42	42	42	42

2. Cointegration test

Sample (adjusted): 2013Q3 2023Q2
Included observations: 40 after adjustments
Trend assumption: Linear deterministic trend
Series: BANK_ASSETS CAPITAL_ADEQUECY CREDIT_RISK LIQUIDITY_ASSET_RATIO ...
Lags interval (in first differences): 1 to 1

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.576142	74.57577	69.81889	0.0198
At most 1	0.398472	40.24154	47.85613	0.2140
At most 2	0.286785	19.91024	29.79707	0.4289
At most 3	0.135693	6.391339	15.49471	0.6493

Trace test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None *	0.576142	34.33423	33.87687	0.0441
At most 1	0.398472	20.33129	27.58434	0.3187
At most 2	0.286785	13.51891	21.13162	0.4057
At most 3	0.135693	5.833090	14.26460	0.6347
At most 4	0.013859	0.558249	3.841465	0.4550

Max-eigenvalue test indicates 1 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level

**MacKinnon-Haug-Michelis (1999) p-values

3. VECM Model

	Coefficient	Std. Error	t-Statistic	Prob.
C(1)	-0.014372	0.105542	-0.136170	0.0289
C(2)	-0.108407	0.195372	-0.554874	0.5827
C(3)	1.11191...	4.79E-10	0.23227...	0.8178
C(4)	0.073465	0.050874	1.444036	0.1582
C(5)	-0.0288...	0.035881	-0.80411...	0.4271
C(6)	-0.189939	0.091846	-2.068027	0.0465
C(7)	0.026952	0.072283	0.372862	0.7116

4. Multicollinearity

	BANK_AS...	CAPITAL_...	CREDIT_R...	LIQUIDITY...	RETURN_...
BANK...	1.000000	-0.408501	0.595221	0.677166	-0.410573
CAPIT...	-0.408501	1.000000	-0.284961	-0.086535	0.441693
CRED...	0.595221	-0.284961	1.000000	0.733992	-0.750950
LIQUID...	0.677166	-0.086535	0.733992	1.000000	-0.372515
RETU...	-0.410573	0.441693	-0.750950	-0.372515	1.000000

5. Constant Variance test

VEC Residual Heteroskedasticity Tests (Levels and Squares)
Date: 01/03/24 Time: 17:27
Sample: 2013Q1 2023Q2
Included observations: 40

Joint test:

Chi-sq	df	Prob.
196.4620	180	0.1901