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The Impact of liquidity on Bank profitability – Evidence from Zimbabwe and South Africa Commercial Banks

A thesis presented to:

University of Witwatersrand

In partial fulfilment of the requirements for the Master of Management in Finance and Investments degree

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28 May 2025

DECLARATION

I, Erasmus Bhunu hereby declare that this research report titled: The impact of liquidity on Bank profitability – Evidence from Zimbabwe and South African commercial Banks is my own work, except where stated otherwise. It is submitted in partial fulfilment of the requirements for the degree of Master of Management in Finance & Investments with the University of Witwatersrand, South Africa.

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I would also like to extend my special thanks to the MMFI academic staff, for the valuable teachings and willingness to share their knowledge and time, which significantly enriched this study.

Finally, I would like to acknowledge the encouragement and understanding of my wife, Victoria and my children Alison, Milan & Marley. Their support was vital throughout this journey.

Thank you all for your contributions and encouragement.

DEDICATION

This report is dedicated to my late father, whose passion for learning and unrelenting pursuit of knowledge has always been an inspiration to me. Although he is no longer with us, his values, wisdom, and belief in the transformative power of education continue to guide me every day. This work is a testament to the lessons he imparted and the legacy of curiosity he left behind.

ABSTRACT

This study examines the impact of liquidity and macroeconomic factors on bank profitability in South Africa and Zimbabwe, focusing on the distinct economic and regulatory environments in these countries. Liquidity is a vital component of banking, ensuring banks meet short-term obligations while maintaining financial stability. The study examines the relationship between liquidity and profitability, considering both internal bank-specific factors and broader macroeconomic conditions. Global research on this relationship presents mixed findings, with some studies showing a positive correlation, while others suggest an insignificant or negative effect. This research contributes empirical evidence from these two Southern African countries—Zimbabwe, marked by economic instability and hyperinflation, and South Africa, characterized by a more stable banking system.

The study uses secondary data from 12 commercial banks in both countries, covering the period from 2012 to 2022. It applies fixed-effects regression models to analyse data on bank liquidity, size, asset quality, cost management, market structure, economic growth and inflation. The findings indicate that liquidity does not significantly influence profitability in either country, likely due to regulatory requirements ensuring adequate liquidity levels across banks. In contrast, the study reveals a negative relationship between economic growth and profitability, suggesting that during economic expansions, banks lower lending rates to capture market share, reducing profit margins. Inflation was identified as having no significant impact on profitability, possibly due to effective inflation risk management strategies employed by the banks.

The study concludes that banks in both countries should focus on improving operational efficiency, capital adequacy, and cost management rather than prioritizing liquidity levels for profit maximization. It also recommends that banks adjust their business strategies in response to economic growth cycles to mitigate associated risks. Despite inflation's minimal impact, the research advises banks to maintain strong inflation risk management practices. The study provides valuable insights for policymakers, bank managers, and researchers looking to understand the dynamics of bank profitability in emerging markets.

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CHAPTER I

INTRODUCTION

1.1 Context of the study

Commercial banks differ from other financial institutions by their key characteristics: liquidity, profitability, and safety (Davis, Karim & Noel, 2022). They generate profits through lending, diversified investments, and liquidity provision to meet depositor withdrawals. Roy et al. (2019) state that commercial banks serve as liquidity providers within the financial system, making liquidity a critical component of a bank's financial and operational stability. It reflects a bank's capacity to fulfil short-term obligations without difficulty.

Management of liquidity is a fundamental aspect of banking operations, ensuring that banks can fulfil their short-term commitments while maintaining effective cash flow management (Mashamba & Chikutuma, 2023). In today's dynamic financial landscape, sound liquidity management is essential for sustaining trust among depositors and investors, highlighting its significance in the banking sector (Razermera, Brijlal & Jwara, 2024). Adequate liquidity enables banks to absorb financial shocks and strengthen customer confidence, which is essential for the effective operation of the banking system. Consequently, the connection between liquidity and profitability must be carefully balanced (Alali, 2019).

Lalon et al. (2023) state that profitability is a key determinant of a bank's long-term success and is often assessed through financial indicators such as Return on Assets (ROA) and Return on Equity (ROE). Profitability is not only essential for a bank's survival but also for its growth, ability to attract capital, and lending capacity.

The significance of liquidity in bank profitability and survival was reinforced by the 2008 financial crisis, which led regulatory bodies such as the Basel Committee on Banking Supervision to incorporate liquidity measures into banking regulations (Nadia & Rosa, 2014). Littlejohn and Ransome (2014) noted that these regulations were a natural response to the crisis, during which many banks faced liquidity shocks due to poor liquidity management. The crisis resulted in severe liquidity shortages, triggering bank runs, collapses, and substantial government interventions (Ananou et al., 2021).

However, Duan and Niu (2020) argue that while liquidity is essential, excessive liquidity creation can reduce profitability due to the low returns on liquid assets. Veeramoothoo and Hammoudeh (2022) discovered that greater liquidity at first enhances profitability, but beyond a certain threshold, excess liquidity is associated with declining profitability. While inadequate liquidity is a known cause of bank failures, excessive liquidity comes with an opportunity cost, limiting potential earnings (Duan & Niu, 2020).

The relationship between bank liquidity and profitability has been widely examined in empirical studies. Tran et al. (2016) argue that effective liquidity management is crucial for achieving higher profits, as higher liquid assets help reduce illiquidity risks and financing costs. Similarly, Abdilahi and Davis (2022) suggest that banks with well-diversified lending portfolios tend to achieve both higher liquidity and greater profitability.

Multiple studies have revealed a positive correlation between liquidity and bank profitability (Razermera et al., 2024; Adelopo, Vichou & Cheung, 2022; Abdilahi & Davis, 2022). Islam and Nishiyama (2016) also identified a positive relationship; however, they concluded that this effect is statistically insignificant.

Conversely, other scholars suggest that liquidity and profitability share a negative relationship (Malik, Awais & Khursheed, 2016; Dahiyat, 2016). They argue that excessive liquidity can lead to lower returns on assets, as funds held in liquid form typically generate lower yields compared to loans or other investments.

According to Abbas et al. (2023), higher liquidity can safeguard against risks and provide operational flexibility; on the other hand, it may limit the potential returns from more profitable lending or investment activities. Hence, the liquidity-profitability trade-off is a critical concept in banking, reflecting the balance banks must strike between maintaining sufficient liquidity and maximizing profitability. Hamdi and Hakimi (2020) claim that the trade-off has important implications for bank management, as it necessitates careful consideration of liquidity strategies considering profitability goals. Understanding this balance is essential for banks to optimize their financial performance while ensuring resilience in fluctuating economic environments.

The banking environments in Zimbabwe and South Africa present distinct challenges and opportunities, shaped by differing regulatory frameworks, market structures and economic

conditions. In Zimbabwe, the banking sector has faced significant turbulence, characterized by periods of hyperinflation (Mahonye & Zengeni, 2019), economic instability (Mashamba & Chikutuma, 2023), and competition from mobile financial services (Maumbe & Chikoko, 2022). This has led to stringent liquidity regulations aimed at safeguarding the financial system, but it has also presented challenges for banks in terms of asset management and profitability. Unexpectedly, despite the general economic downturn, the profitability of commercial banks in the country has steadily increased (Mashamba & Chikutuma, 2023). In contrast, South Africa boasts a more developed and stable banking sector, with a well-established regulatory framework and diverse market structures. The South African Reserve Bank imposes liquidity requirements which compel banks to maintain adequate liquid assets, fostering resilience (Razermera et al., 2024). However, the sector also faces its own challenges, such as economic fluctuations and changing consumer behaviour, which influence liquidity management practices (Hasan & Saputri, 2024).

Between 2012 and 2022, the banking sectors of Zimbabwe and South Africa exhibited contrasting trends in liquidity and performance, shaped by divergent economic environments, regulatory frameworks and institutional responses. Below is a comparative of some performance indicators:

Table 1 Bank Liquidity Performance Indicators (South Africa and Zimbabwe)

Indicator	**Zimbabwe (2012-2022)**	**South Africa (2012-2022)**
Liquidity Ratios	High, averaging 59.5% in 2022	Stable, with LCR around 142% in 2020
ROE	Decline from 36.2% in 2019 to 4.52% in 2022	Stable averaging 16.4%
Capital Adequacy	Fluctuated with periods below regulatory minimum	Consistently above 15%
Operational Efficiency	Improved cost to income ratios to average of 57.21% in 2022	Maintained interest margin to gross income ratio of around 49%

(**Source**: Own construction from the information extracted from the Reserve Bank of Zimbabwe & South Africa websites)

Over the past decade, Zimbabwe's banking sector faced significant challenges and declining performance indicators influenced by macroeconomic instability, currency volatility and inflationary pressures. In contrast, South Africa's banking sector demonstrated resilience, characterised by strong liquidity buffers, stable profitability and effective risk management practices.

By examining the unique banking environments of Zimbabwe and South Africa, this study aims to offer a thorough understanding of how liquidity impacts bank profitability in these contexts. The insights gained will add to the broader discussion on efficient liquidity management strategies in emerging markets, highlighting best practices that can enhance financial stability and performance.

1.2 Research Problem

Despite the important role of liquidity in banking operations and its potential impact on profitability, existing research on this topic, particularly in relation to Zimbabwe and South Africa, remains limited and fragmented. While numerous studies have explored the liquidity-profitability relationship globally (Abdilahi & Davis, 2022; Abbas et al., 2024; Davis et al., 2022; Adelopo et al., 2022), there is a notable gap in empirical evidence specifically addressing how these dynamics play out in the unique economic environments of these two Southern African nations (Razermera, Brijlal & Jwara, 2024). Moreover, prior findings on the impact of liquidity on bank profitability have been inconsistent. Some studies suggest a positive correlation (Razermera et al., 2024; Abdilahi & Davis, 2022), while other reporting a negative relationship (Malik et al., 2016; Dahiyat, 2016), and some scholars found no link (Marozva, 2015; Olarewaju & Adeyemi, 2015). This demonstrates that a persistent debate exists on the issue, and a conclusive connection has not been established by the global community due to discrepancies in outcomes. Consequently, there is a liquidity management quandary regarding whether to invest in profit-generating ventures or maintain liquid assets, which poses a significant challenge for liquid asset management.

Akin to other organizations, the primary objective of commercial banks in Zimbabwe and South Africa is the maximization of profits to ensure their continued existence. However, a significant challenge emerges as they are simultaneously required to uphold specific liquidity levels to meet their short-term obligations and comply with regulatory mandates. An evaluation of the characteristics and magnitude of the trade-off between the two financial indicators is essential, as liquidity challenges may lead to detrimental effects on the overall financial system and economy (Mashamba & Chikutuma, 2023). Given the evolving economic landscape in both Zimbabwe and

South Africa, there is a pressing need for an empirical study that delves into the intricacies of this relationship. Such research would not only add to the academic discourse but also provide important perspectives for banking practitioners and policymakers.

1.3 Research Objectives

1.3.1 General Objective

To examine the impact of liquidity on bank profitability in Zimbabwe and South Africa.

1.3.2 Specific Objectives

- To analyse the relationship between liquidity and bank profitability
- To assess the role of internal factors in determining bank profitability.
- To examine the influence of macroeconomic factors on liquidity and profitability.
- To explore the impact of market structure on bank profitability

1.4 Research Hypotheses

- H_{01}: Liquidity has no significant impact on bank profitability.
- H_{02}: Internal factors do not significantly influence bank profitability.
- H_{03}: Macroeconomic factors do not significantly affect liquidity and profitability.
- H_{04}: There is no significant relationship between market structure and bank profitability.

1.5 Significance of the study

The research on the impact of liquidity on bank profitability is significant for several reasons encompassing practical, theoretical and policy-oriented implications.

1.5.1 Managerial practice

Bank managers can utilise the findings to enhance their liquidity management practices, ensuring a balanced approach that maximises profitability while maintaining adequate liquidity. In addition, bank managers may use the findings to make informed decisions regarding asset and liability management, optimizing the balance between liquid assets and interest-earning assets to enhance profitability. Furthermore, it aids in better risk management by allowing managers to assess liquidity risks and develop strategies to mitigate them, such as maintaining certain levels of liquid assets to ensure stability during economic fluctuations. Insights from the study can also guide resource

allocation, ensuring that funds are available for profitable investments while maintaining adequate liquidity to meet withdrawal demands, and help establish benchmarks for evaluating bank performance through liquidity ratios alongside profitability metrics.

1.5.2 Theoretical significance

Theoretically, the research enhances the current body of literature on the liquidity-profitability nexus, particularly within the framework of emerging markets like Zimbabwe and South Africa. Thus, aids in the development of theoretical frameworks that explain the link between liquidity and profitability in emerging economic contexts. Additionally, the findings can refine economic models that describe banking behaviour, enhancing predictions regarding bank performance and liquidity management under varying conditions.

1.5.3 Policy significance

From a policy perspective, policymakers can utilize the findings to refine regulations governing liquidity requirements for banks, such as setting minimum liquidity ratios to ensure banks maintain sufficient liquid assets. Secondly, understanding the dynamics of liquidity and profitability can also inform the development of policies that enhance the robustness of the banking sector during economic downturns, including the creation of liquidity support mechanisms or emergency funding options. Lastly, the use of the study findings may help foster a stable banking environment by striking a balance between the need for liquidity and the pursuit of profitability.

Overall, this research transcends mere academic interest, influencing managerial practices, shaping policies, and advancing theoretical understanding of banking operations in diverse economic landscapes.

1.6 Scope of the research

The scope of this study encompasses several key dimensions to ensure a detailed understanding of the effect of liquidity on bank profitability. The delimitations of the study are discussed in the following sections.

1.6.1 Geographical Scope

The study covered commercial banks in Zimbabwe and South Africa. The geographical scope of this study, focusing on commercial banks in Zimbabwe and South Africa, is crucial as both

countries represent distinct yet comparable financial environments within the Southern African region, allowing for a valuable comparative analysis. Commercial banks in these two countries serve a key function in the financial system, their liquidity management directly impacts overall economic stability and growth.

1.6.2 Time Scope

The study period is 2012-2022. The study period from 2012 to 2022 is significant for several reasons. Firstly, this timeframe encompasses a crucial phase of economic recovery and transformation in both Zimbabwe and South Africa following the 2008 global financial crisis. In Zimbabwe, this decade marks a transition from hyperinflation and economic instability to relative stabilization and policy reform while in South Africa, the same timeframe includes periods of fluctuating economic growth, changes in monetary policy, and shifts in consumer behaviour.

1.6.3 Variable Scope

The study focused on liquidity, profitability, bank-level factors, and macroeconomic conditions. The use of these variables allowed the researcher to provide a holistic view of the interactions between liquidity and profitability, while also considering the broader economic and institutional frameworks that govern banking operations in the selected countries.

1.7 Limitations of the study

This study focuses on Zimbabwe and South Africa commercial banks and may not apply universally to banks in other jurisdictions. The study's accuracy depends on the availability and reliability of financial data from various banks within this block. Data quality and availability can vary across these two countries, potentially limiting the scope and depth of analysis. One country may have less comprehensive financial data, which could affect the reliability of findings. Missing or incomplete data can lead to biased results. Both countries experiences varying degrees of economic and political instability across different countries. This instability can impact banking operations, liquidity management practices and overall bank profitability complicating interpretation of research findings. Given that the study focuses on Zimbabwe and South Africa, it may not apply to other areas with different banking systems, regulatory environments and economic conditions. Therefore, the results presented must be interpreted with this in mind as the research examines only these two countries' commercial banks.

1.8 Outline of the research

- Chapter one of this research outlines the problem statement, objectives, significance, scope of the research, hypothesis, overview of research methodology and limitations.
- Chapter two provides an in-depth literature review within the context of banking, liquidity and profitability, especially in the case of Zimbabwe and South Africa. The chapter provides a discussion of the theoretical perspectives and empirical evidence on liquidity and profitability.
- Chapter three highlight the research methodology, design, and process used to achieve the research objectives. The chapter also covers data sources, variables, and estimation techniques.
- Chapter four highlights the findings from the data analysis, along with the interpretation of the results obtained from secondary data sources.
- Chapter five summarises the conclusion of the research study, and makes recommendations drawing from the research findings. Specifically, the chapter summarizes key insights from the empirical study. The policy implications, and areas for further studies are discussed.

1.9 Chapter Summary

Chapter one set the tone of the study. The chapter presented the context to the study, research problem, research objectives, research questions, and hypotheses. Additionally, the chapter discussed the importance of the study, limitations, and scope of the study. Lastly, the chapter provided the outline of the project and the chapter summary. The following chapter, Chapter two covers the theoretical and empirical evidence on liquidity and profitability.

CHAPTER II

LITERATURE REVIEW

2.1 Introduction

This chapter reviews literature concerning bank liquidity and profitability in commercial banks. The first section discusses the theoretical frameworks that guide the study. After this, it is followed by an exploration of the study's key conceptual variables, namely liquidity and profitability. The chapter also provides an overview of factors influencing bank profitability, followed by a review of empirical findings from previous studies and existing gaps in the literature. Lastly, a summary of the chapter is provided.

2.2 Theoretical Framework

2.2.1 Liquidity Preference Theory

Liquidity Preference Theory, primarily developed by John Maynard Keynes, posits that individuals and institutions prefer to hold liquid assets rather than illiquid ones, especially in times of economic uncertainty (Bibow, 2021). This theory identifies three main motives driving the demand for liquidity: the transaction motive, which emphasizes the need for cash to meet everyday transactions; the precautionary motive, which underscores the importance of having liquid assets available for unforeseen circumstances and the speculative motive, where investors maintain liquidity to capitalize on future investment opportunities (Bibow, 2021; Park, 2021). By highlighting these motives, the theory illustrates how preferences for liquidity can influence interest rates, investment decisions, and overall economic activity (Cesaratto & Pariboni, 2022).

In relation to this study, the theory serves as a foundational structure for comprehending how banks manage liquidity while balancing regulatory requirements and profitability goals. The study explores how banks in Zimbabwe and South Africa prioritize their liquidity needs based on the motives pointed out in the Liquidity Preference Theory. Hence, the rationale for utilising this theory lies in its relevance to the operational and decision making processes within the banking sector (Park, 2021).

Given the unique economic conditions in Zimbabwe and South Africa, this theory provides a pertinent lens for analysing how banks navigate liquidity challenges while striving for profitability. Its comprehensive framework encompasses multiple dimensions of liquidity management,

including transaction needs, precautionary measures, and speculative opportunities (Cesaratto & Pariboni, 2022), aligning well with the study's aim to investigate various factors influencing liquidity and profitability. Furthermore, grounding the study in this theory helps in yielding valuable empirical insights into practical liquidity management strategies employed by banks, ultimately informing best practices and policy recommendations to strengthen stability and performance in the banking sector.

2.2.2 Trade-off Theory

The Trade-Off Theory of capital structure posits that firms balance the benefits of debt financing against the costs associated with it (Hoang et al., 2021). Based on this theory, banks aim to attain an ideal capital structure by weighing the tax advantages of debt (such as interest deductibility) against the potential costs of financial strain that may occur due to excessive leverage (Brusov et al., 2023). The theory indicates that banks will raise their debt levels up to a certain point, where the incremental benefit of debt matches the incremental cost, thus maximizing their overall value (Bajaj et al., 2021).

In the context of the current study, the Trade-Off Theory helps to analyse how banks manage their capital structures in relation to their liquidity positions. The theory can help explore how banks assess their optimal levels of liquid assets versus debt (Hoang et al., 2021). For instance, banks may opt to keep higher levels of liquid assets to maintain stability and meet regulatory requirements, but this decision must be balanced against the potential profitability that could be generated through leveraging debt for lending purposes.

The justification for utilizing this theory lies in its relevance to understanding the financial decisions made by banks in response to liquidity and profitability dynamics. Given the complexities of the banking environments in Zimbabwe and South Africa, this theory provides a valuable framework for examining how banks strategically manage their liquidity and capital structures. The theory's emphasis on balancing the costs and benefits of debt aligns with the study's aim to investigate how liquidity influences bank profitability, as the decisions banks make regarding their liquidity levels and capital structure directly influence their financial performance.

2.3 Liquidity in Banks

Liquidity management is pivotal for ensuring the stability and operational efficiency of commercial banks globally with Southern Africa not an exception. Though liquidity has long been discussed in finance literature, a universally accepted definition still eludes scholars, reflecting its multifaceted nature and the varying contexts in which it is applied, from market liquidity to asset liquidity (Marozva, 2015; Morris et al., 2018). Roy et al. (2019) referred liquidity in banks as the capability to settle short term obligations and demands for cash to maintain operational stability and customer confidence. Culham (2020) argued that the concept of liquidity encompasses various ideas, all centered on the speed at which an asset can be swiftly and efficiently converted into cash. These ideas include market liquidity, transaction costs, trading volume and the speed at which assets can be liquidated without greatly affecting their price. Another perspective on liquidity comes from practitioners, who view it in terms of managing a pool of funds, making strategic asset allocations, and overseeing funding management (Moch Doddy et al., 2022). This approach emphasizes the practical aspects of ensuring sufficient liquidity for operational needs and investment opportunities while minimising risks. These concepts relate to the mobilisation of funds in the form of deposits and try to match the duration of the mobilised deposits to asset creation with a view of making a profit. From this perspective, we can derive that bank's liquidity management should be aligned with the movement on deposits and loans.

Marozva (2017) stated that factors influencing liquidity are a subject of debate, despite broad agreement on some aspects of liquidity. An asset is deemed liquid if it can be quickly sold, carries low risk and has a short maturity period. For banks, liquid assets typically include cash, reserves held for contingencies beyond legal requirements, short term securities and interbank loans with maturities from one day to a year. In capturing Basel III's measurement of liquidity, Sharma and Chauhan (2023) observed that the framework assesses bank liquidity using Liquidity Cover Ratio (LCR), the Net Stable Funding Ratio (NSFR) and capital adequacy. Basel III requires banks to maintain a sufficient level of high quality and ample liquid assets. Compliance with these regulatory requirements is essential for banks, as failure to maintain adequate liquidity levels can result in penalties and reputational damage.

From Sharma and Chauhan (2023) studies, the objective of the NSFR is to ensure that banks hold higher quality, unrestricted liquid assets and depend on reliable stable funding sources like equity,

long-term debt and deposits. The LCR measures the amount of high quality, liquid assets without restrictions held by banks needed to cover their cash flows for a month without resorting to wholesale funding. Regulatory bodies across Southern Africa impose liquidity requirements to safeguard the financial system and protect depositors. These requirements often include minimum liquidity ratios that banks must maintain to ensure they can honour withdrawals and other obligations promptly.

2.4 Overview of the Banking Industry

2.4.1 South African Banking Industry

The banking industry in South Africa is a well-established and crucial part of the nation's economy, characterized by a mix of local and international banks. It is predominantly dominated by a few large banks, often referred to as the "Big Four": Standard Bank, Absa Group, FirstRand (including FNB), and Nedbank. In addition to these major players, several smaller banks and mutual institutions serve specific markets or regions, while development finance entities such as the Development Bank of Southern Africa (DBSA) focus on financing infrastructure and development projects.

The South African Reserve Bank (SARB) regulates the sector, which oversees monetary policy and financial stability, complemented by the Financial Sector Conduct Authority (FSCA), which ensures market conduct and consumer protection. Moosa and Kashiramka (2022), one of the key features of the industry is its efforts toward financial inclusion; South Africa has made strides in increasing access to banking services, especially through mobile banking and fintech solutions, although challenges remain, particularly in rural areas. The emergence of fintech has notably reshaped the banking landscape, with digital banking, mobile payment solutions, and online services becoming increasingly popular.

However, the sector encounters challenges like economic slowdowns, high unemployment rates, and regulatory pressures, all of which influence lending practices and overall profitability (Makudza, 2021). South African banks are known for their robust risk management frameworks, developed in response to global financial crises. The industry is also influenced by global economic trends, including interest rates, exchange rates, and international trade dynamics. The COVID-19

pandemic expedited digital transformation, leading to evolving consumer preferences for banking services.

The general performance of South African commercial banks reflects a complex interplay of economic conditions, regulatory frameworks, and market dynamics. In recent years, the sector has shown resilience despite facing numerous challenges, including economic slowdowns, high unemployment rates, and the impacts of the COVID-19 pandemic. Commercial banks in South Africa typically report stable profitability, with key financial metrics such as return on equity (ROE) and net interest margins remaining relatively healthy. However, profitability has been under pressure due to increased competition, rising costs, and tighter interest rate margins. Many banks have adopted cost-cutting measures and streamlined operations to enhance efficiency.

2.4.2 Zimbabwean Banking Industry

Banks in Zimbabwe have gone through substantial changes over the past few decades, shaped by economic challenges, regulatory reforms, and technological advancements (Maumbe & Chikoko, 2022). The banking sector comprises several commercial and merchant banks, building societies, and microfinance institutions. Major commercial banks include CBZ Bank, Stanbic Bank, FCB Zimbabwe, and Ecobank, among others. The sector also features a mix of local and international banks, with some foreign banks operating through branches or subsidiaries. The Reserve Bank of Zimbabwe (RBZ) is the primary regulator of the banking industry, responsible for monetary policy, financial stability, and consumer protection. The RBZ has implemented various reforms to strengthen the banking sector, particularly following periods of economic instability and hyperinflation.

The banking industry in Zimbabwe faces numerous challenges, including economic volatility, high inflation, and currency instability (Mashamba & Chikutuma, 2023). These factors have led to significant fluctuations in asset values and lending practices, affecting the overall health of financial institutions. Credit risk remains a critical concern as banks navigate the complexities of a challenging economic environment. There has been a strong push towards enhancing financial inclusion, particularly through mobile banking and digital financial services. The rise of fintech has facilitated access to banking services for previously underserved populations, enabling more individuals to participate in the formal financial system.

Over the past few years, the banking sector has seen a shift towards embracing technology, with many banks investing in digital platforms to enhance customer experience and improve operational efficiency. The COVID-19 pandemic further sped up this digital transformation, prompting banks to adapt their services to meet changing consumer behaviours. Although there are challenges, opportunities exist for growth within the sector, particularly in expanding financial services to rural areas and leveraging technology for innovation. The increasing use of digital payments and mobile banking presents avenues for banks to reach a broader customer base and improve service delivery.

2.5 Profitability Measures in Banks

The academic literature on bank profitability provides a thorough perspective on the myriad factors influencing bank performance. It highlights the importance of internal management practices, external economic conditions, regulatory environment and technological advancements in shaping bank profitability (Al-Matari, 2023; Athari, 2021). Mostak Ahamed (2017) brought in the dimension of exploiting managerial skills, economies of scope, continuous adaptation and strategic planning as essential tools for banks to sustain and improve their profitability in a dynamic financial landscape. Bank profitability is associated with bank stability (Le, 2020), helping banks to meet regulatory requirements such as Basel III, enhances customer trust and loyalty and are better to contribute to economic growth through extending credit to businesses and consumers. Isayas (2022) emphasised the importance of assessing bank profitability considering importance of banks as intermediaries, not only facilitating savings but also playing a crucial role in directing funds from economic units with surpluses to those with deficits, thereby supporting investment activities in the economy.

Despite significant variations in results due to inconsistent data availability across countries, there are commonalities, especially in the selection of metrics used to assess bank profitability. Batten and Vo (2019) argued that bank profitability is normally measured by net interest margin (NIM), ROA and ROE. Whilst examining the impact of unconventional monetary policy measures introduced by the Euro system on the Spanish banking sector profitability Tercero-Lucas (2023) adopted ROE, ROA and PBT as key measurers for bank profitability. Various authors seem to adopt similar metrics (Bikker & Vervliet, 2018; Djalilov & Piesse, 2016; Grubišić et al., 2022; Saleh

& Abu Afifa, 2020). The use of these similar metrics indicate that these measures are broadly accepted as relevant indicators of bank profitability within academic and professional community.

The above studies highlight that bank profitability is a cornerstone of financial stability. It ensures that banks have necessary capital buffers, fosters confidence among stakeholders, supports efficient risk management and contributes to economic stability. Maintaining profitability is thus essential for the resilience of both individual banks and the broader financial ecosystem.

2.6 Determinants of Bank Profitability

2.6.1 Internal factors

2.6.1.1 Bank Size

Big banks often take advantage of economies of scale, which can result in cost advantages in operations, technology, and marketing (O'Connell, 2022; AlFadhli & AlAli, 2021). They are able to allocate fixed costs across a broader asset base, allowing for lower average costs per transaction. This can improve profitability by enhancing operational efficiency and enabling competitive pricing (Regehr & Sengupta, 2016). However, larger banks may also experience lower interest margins due to increased competition and regulatory scrutiny. As they grow, they must provide more competitive rates to attract deposits and maintain market share, which can compress their net interest margins (Coccorese & Girardone, 2021). Additionally, larger banks may face challenges related to complexity in management and operations, which can lead to inefficiencies. Therefore, while size can provide certain advantages, it can also introduce pressures that may negatively impact profitability.

2.6.1.2 Capital Adequacy

Capital adequacy refers to the proportion of capital a bank maintains in relation to its risk-weighted assets (Azwari et al., 2022). Banks with strong capital reserves are generally perceived as more resilient and better positioned to withstand losses, which can enhance customer and investor confidence (Bucevska and Misheva, 2017). This stability can result in a reduced cost of capital and better access to funding, positively influencing profitability. However, maintaining a higher capital ratio often means that banks have a lower return on equity (ROE) since less capital is being used to generate profits. Rasidah et al. (2022) suggested that capital is a more effective model for

internal determinants of bank profitability, as higher profits may lead to an increase in capital. The capital size is determined by the ratio of equity capital to total assets. It reflects the bank's capacity to withstand shocks from potential loan asset losses. According to Samad (2004) the higher the capital ratio, the greater the bank's ability to absorb asset losses. Excessively high capital levels can result in underutilization of resources, leading to lower profitability compared to peers with more optimized capital structures. Therefore, while capital adequacy is essential for stability, it can create a trade-off with profitability.

2.6.1.3 Credit Risk

Fauziah and Fadhilah (2022), credit risk pertains to the potential for loss arising from borrowers failing to repay loans. Banks manage this risk by establishing loan loss reserves, which are funds set aside to address potential defaults. An increased level of loan loss reserves may indicate prudent financial management and a conservative approach to lending, reflecting a bank's commitment to safeguarding its assets (Abdelaziz et al., 2022). However, substantial reserves can also reduce profitability since these funds are not available for lending or investment. When banks allocate a significant portion of their earnings to cover potential loan losses, it can lead to diminished returns (Adelopo et al., 2017; Sondakh et al., 2021). Thus, while managing credit risk is crucial for long-term stability, it can create short-term pressures on profitability.

2.6.1.4 Cost Efficiency

Cost efficiency is a key factor in determining bank profitability, reflecting how well a bank utilizes its resources to generate income (Khalifaturofi'ah, 2023). Efficient banks can lower operational costs through streamlined processes, technology adoption, and effective management practices. High-cost efficiency allows banks to maintain or increase their profitability even in competitive environments (Badunenko et al., 2021). Conversely, inefficiencies can erode profit margins and limit a bank's capacity to invest in growth opportunities. Factors affecting cost efficiency include labor costs, technology infrastructure, and overhead expenses. By improving cost efficiency, banks can enhance their profitability, making it a vital focus area for management.

2.6.2 External Factors

2.6.2.1 Economic Growth (GDP Growth Rate)

Economic growth, often measured by the Gross Domestic Product (GDP) growth rate, plays a critical role in shaping bank profitability (Klein & Weill, 2022). When the economy is expanding, businesses and consumers are inclined to seek loans for investment and consumption, increasing loan demand. This surge in lending activity can enhance banks' interest income, contributing positively to profitability (Bucevska & Misheva, 2017). Conversely, during periods of economic contraction, loan demand typically decreases as businesses reduce investments and consumers scale down their spending. This may result in lower interest income and reduced bank profitability (Isayas, 2022). Moreover, economic downturns may increase the likelihood of bad loans, prompting banks to raise their loan loss provisions, further impacting profitability. Additionally, economic growth influences liquidity levels within banks. A thriving economy generally improves cash flow for businesses and individuals, leading to higher deposit levels. Increased deposits enhance banks' liquidity, allowing them to lend more and potentially increase their profitability (Derbali, 2021). However, if growth is uneven or accompanied by volatility, it can create uncertainty for banks, complicating their financial strategies and impacting overall performance.

2.6.2.2 Inflation Rate

The inflation rate significantly affects banks' ability to maintain liquidity, set interest rates, and preserve profitability. Inflation diminishes the value of money’s purchasing power, which can influence consumer behaviour and economic conditions (Farooq et al., 2021). When inflation is elevated, central banks often raise interest rates to reduce spending and maintain price stability. Rising interest rates can result in higher borrowing costs for consumers and businesses, which may reduce loan demand. For banks, the ability to set interest rates is crucial. They typically react to increasing inflation by changing their lending rates to maintain profit margins between the rates they give depositors and the rates they charge on loans (Horobet et al., 2021). However, if banks fail to adjust their rates adequately, they may experience squeezed margins, negatively impacting profitability. Inflation also affects the liquidity of banks. In an inflationary environment, the real value of cash and fixed-income assets diminishes, which can impact banks' balance sheets (Azwari, 2021). If banks hold significant amounts of cash or low-yielding assets, their profitability could be

adversely affected. Therefore, banks must actively manage their asset portfolios and interest rate strategies in response to inflationary pressures to safeguard profitability.

2.6.2.3 Market Concentration

Market concentration describes the extent to which a few firms control a market. In the banking sector, market concentration can have varying effects on profitability, based on the competitive dynamics present in the market (Nguyen, 2024a). In a highly concentrated banking market, fewer banks typically compete for customers. This may result in increased pricing power for banks, allowing them to impose higher interest rates on loans while offering lower rates to depositors (Ferrouhi, 2018). Consequently, concentrated markets may enhance profitability for dominant banks through improved margins. Additionally, reduced competition may lead to lower operational costs due to economies of scale. Conversely, high market concentration can also lead to complacency among banks, resulting in reduced innovation and customer service (Yuan et al., 2022). If banks become too comfortable in their market positions, they may neglect to improve efficiency or adapt to changing consumer needs, ultimately harming their long-term profitability. On the other hand, in a highly competitive market with many players, banks might engage in aggressive pricing strategies to attract customers, which can compress profit margins. However, competitive pressures can also drive banks to enhance service quality, innovate, and adopt new technologies, potentially leading to greater profitability in the long run.

2.7 Empirical Evidence

2.7.1 Determinants of Bank Profitability

Numerous researchers have identified various factors that influence bank profitability, including non-interest income (Nguyen, 2012), credit loss provisions (Bouvatier & Lepetit, 2008), and non-performing loans (Nguyen, 2024a). Batten and Vo (2019) demonstrate that bank risk, as measured by credit risk provisions relative to total loans, impacts profitability. Additionally, increasing credit guarantees can enhance bank profitability by reducing expected losses from non-performing loans and improving lending profits (Liang et al., 2017). Loan assurances and capital adequacy also mitigate issues related to negative selection and ethical risk, thus enhancing asset quality and operational efficiency (Liang et al., 2017). However, a higher liquidity ratio is often negatively correlated with net interest margins (Were & Wambua, 2014).

Recent studies indicate that a variety of factors affect bank profits. For instance, Gazi et al. (2022) analyse the profitability of banks listed in Bangladesh, finding that non-performing loans, liquid assets, capital coverage, and bank size significantly influence efficiency. Yuan et al. (2022) examine banks in Bangladesh and India, concluding that bank size and leverage directly impact profitability. In Morocco, Belcaid and Al-Faryan (2023) find that concentration and foreign ownership negatively affect bank efficiency, while domestic ownership has a positive effect. In Kosovo and Albania, Qehaja-Keka et al. (2023) reveal a positive relationship between total loans and interest rates, whereas non-performing loans inversely relate to bank efficiency. Mashamba and Chikutuma (2023) focus on Zimbabwe, showing that non-interest revenue, liquidity, cost-effectiveness, capital adequacy, and bank stability positively correlate with profits, while industry factors and bank concentration have adverse effects. Gazi et al. (2024) indicate that asset quality, liquidity, and loan risk are positively associated, while capital adequacy, operational efficiency, and bank size correlate negatively with efficiency.

External influences, like macroeconomic variables including inflation, interest rates, and economic growth, can also affect bank profitability. Interest rates are particularly significant, as banks borrow to lend, profiting from the difference between deposit and loan rates. Fluctuations in interest rates can narrow the interest spread, affecting net interest margins (Levine, 1996). Interest rates are seen as a crucial macroeconomic determinant of bank profitability (Hanson & Racha, 1986), with adjustments potentially impacting bank income (Ogunleye, 2001). Higher interest rates can lead to increased income from new assets (Demirgüç-Kunt & Huizinga, 1999), and Gazi et al. (2024) find that both inflation and interest rate spreads positively affect bank profits. In contrast, Naceur (2003) notes a negative influence of interest rates on bank efficiency, while Beckmann (2007) and Yap and Kader (2008) observe ambiguous relationships between interest rates and bank profitability. Additionally, researchers have pointed out that factors such as inflation, GDP, and central bank interest rates are primary determinants of bank efficiency (Bolt et al., 2012). Other studies suggest that bank profitability can also be influenced by the seasonality of businesses, short-term interest rates, expected price changes, and exchange rates (Bekhet et al., 2021). Mirović et al. (2024) find a positive correlation between GDP and bank profitability, while inflation, unemployment rates, and government debt negatively affect it. However, Mashamba and Chikutuma (2023) argue that there is no significant link between GDP, inflation, and bank performance.

Previous research has also highlighted that bank profitability is impacted by crises, including financial and health crises (Almonifi et al., 2021). The financial crisis particularly harmed the profitability and efficiency of commercial banks in Europe (Andries & Ursu, 2016). During pandemics, bank failures can increase, as evidenced by the global financial crisis in the U.S (Seelye & Ziegler, 2020). Between 2006 and 2009, banks experienced significant losses (Yip & Bocken, 2018), and credit risk escalated during the COVID-19 pandemic (Marcu, 2021).

2.7.2 Liquidity and Profitability

Authors that found positive impact of liquidity on profitability include Alom (2018), using the Johansen co-integration test revealed that liquidity and profitability share a long term cointegration relationship. This indicates that over the long run, changes in liquidity are closely linked to changes in profitability, suggesting interdependence between these financial metrics. Other authors (Al-Matari, 2023; Lalon et al., 2023); Nworji and Alayemi (2014); (Quoc Thinh et al., 2022), using different datasets, also identified a positive correlation between liquidity and profitability. These studies consistently demonstrate that higher liquidity often correlates with increased profitability, reinforcing the notion of their interconnectedness across various financial contexts and datasets.

Tan and Tuluca (2023) reported mixed results indicating that the liquidity profitability relationship maybe context specific, varying by region, economy, economic sector and company specific conditions. Czerwińska-Kayzer et al. (2021) found the presence of a multidirectional relationship between liquidity and profitability while studying companies in the food industry regarding their financial liquidity and profitability. Jaworski and Czerwonka (2021) could not determine the combined direction and intensity of the relationship between liquidity and profitability in enterprises while using meta-analysis. Tariq Islam and University of Rajshahi (2020) found no causal relationship in liquidity and profitability for private banks in Bangladesh.

Adamu et al. (2022) aimed to study the link between liquidity risk and bank financial performance for deposit taking banks in Sub Saharan Africa (SSA). The proxy for measuring bank liquidity used in the study was a ratio of total loans to total deposits. This metric indicate how effectively a bank can cover its loans with deposits it has received, indicating its liquidity status. They discovered a considerable negative correlation between liquidity and the performance of deposit taking banks in SSA. This result indicates that higher liquidity levels are linked with lower performance outcomes for these banks in the region. Other authors (Ahmed & Ahmed Nauman, 2012; Olofin et al., 2024);

Tran et al. (2016) found similar results. These consistent findings across various studies highlight the complex dynamics of liquidity management in banking.

From the various literature reserves explored, the link between liquidity and profitability is complex and multifaceted, with varying results depending on the context and specific factors involved. While some studies suggest positive relationship, others found negative relationship, mixed or multi – directional relationship and to no relationship. Future studies should further investigate this relationship, considering emerging trends that influence liquidity and profitability.

Adelopo et al. (2021) investigated the effect of higher capital requirements and elevated liquidity levels on the profitability of European banks in the post crisis era. The study analyses the major banks in the European Union across 28 countries utilising data from 2010 to 2018 and using multiple regression models to analyse the association amongst the variables. The findings showed a strong and significant positive association between liquidity levels and profitability performance.

Abbas et al. (2023) investigated the impact of economic growth on the relationship between capital, liquidity and profitability in commercial banks across selected Asian emerging economies. The findings indicate that commercial banks' liquidity have a positive effect on profitability of Asian emerging economies.

Adam and Ayagi (2024) studied the relationship between liquidity on profitability of listed deposit taking banks in Nigeria. The study concluded that a significant relationship exists between liquidity and profitability in listed deposit taking banks in Nigeria. Ofori et al. (2022) explored the connection between liquidity and profitability by employing listed banks on the Ghana Stock Exchange from the dated 2008 - 2018. The results showed a significant link between liquidity and profitability.

2.8 Gaps in Literature and Justification for the Study

The existing literature presents a diverse range of results regarding the link between liquidity and profitability. Although some studies indicate a positive impact (e.g., Alom, 2018; Al-Matari, 2023), others report negative correlations (e.g., Adamu et al., 2022). This inconsistency highlights the need for further study to understand the key factors driving these varying outcomes. Several authors, such as Tan and Tuluca (2023), emphasize that the liquidity-profitability relationship may vary significantly based on context, including regional, economic, and sector-specific conditions. However, there is a gap in comprehensive studies that systematically analyse these contextual

influences across multiple regions and sectors simultaneously. Some studies, like that of Tariq Islam and University of Rajshahi (2020), found no cause-and-effect relationship between liquidity and profitability in Bangladesh's private banks. This raises questions about the methodological approaches used in such studies, suggesting a need for more robust analytical frameworks that can effectively establish causality. While some studies focus on specific regions, such as Sub-Saharan Africa (Adamu et al., 2022) or European banks (Adelopo et al., 2021), there is a gap in studies that examine the liquidity-profitability relationship across a broader range of emerging economies. Comparative studies could offer important insights into regional trends and commonalities. In summary, the literature on the relationship between liquidity and profitability reveals significant gaps that warrant further investigation. Addressing these gaps could result in a deeper understanding of how liquidity impacts profitability across different contexts and economic conditions.

2.9 Chapter Summary

This chapter reviews the literature on bank liquidity and profitability, establishing their interrelationship in commercial banks. It begins with the theoretical frameworks guiding the study, specifically the Liquidity Preference Theory and Trade-Off Theory. Next, it discusses the concepts of liquidity and profitability in banks, examining determinants like non-interest income, credit loss provisions, and non-performing loans. The chapter also analyses empirical evidence on the liquidity-profitability relationship, highlighting diverse findings, including positive, negative, mixed, and context-specific outcomes. Finally, it identifies gaps in the literature, stressing inconsistencies and the need for more robust analytical frameworks. The following chapter presents the research methodology.

CHAPTER III

RESEARCH METHODOLOGY

3.1 Introduction

This section outlines the steps taken to achieve the research objectives. It begins with a discussion of the research design, followed by a comprehensive breakdown of the data collection and sampling methods applied. Next, the chapter examines the instruments used for measurement and the techniques applied for data analysis. Finally, it addresses the ethical considerations of the study, providing a thorough summary of the methodology.

3.2 Research Design

The research adopts a correlation structure to investigate the relationship between liquidity and profitability in Zimbabwean and South African banks. This design was deemed appropriate as it allows for an analysis of the intensity and nature of the relationship between variables of interest (Creswell & Creswell, 2018). Considering that banks operate in a volatile environment, the correlation design enables the study to analyse how liquidity management practices of banks in these economies affect their profitability while considering the market and macroeconomic fundamentals.

3.3 Research Method

The study employed a quantitative research approach to analyse the relationship between liquidity and profitability in Zimbabwean and South African commercial banks. The method is deemed appropriate since it permits the use of numerical data and statistical analysis to assess financial data (Saunders et al., 2012). The data were sourced from Bureau van Dijk hosted by Moody's Analytics, World Bank Economic Indicators for Zimbabwe and South Africa, which ensures objectivity and replicability.

3.4 Population and Sample

The sample group for this study comprises all commercial banks operating in Zimbabwe and South Africa. For South Africa, the population consists of 14 banks based on a list of locally controlled banks from the Reserve Bank of South Africa while Zimbabwe has 13 commercial banks as per the Reserve Bank of Zimbabwe statistics. The population includes both large and small commercial banks, but large banks dominate, providing a wide range of banks with different liquidity and

profitability profiles. This comprehensive population offers an opportunity for a more generalised insight into the connection between liquidity and profitability across different types of financial institutions.

The sample comprised 12 banks - 7 commercial banks from Zimbabwe and 5 from South Africa, selected based on data availability. Banks included in the sample had no missing data for three consecutive years during the period 2012 to 2022, resulting in 132 bank-year observations, providing an adequate sample for regression analysis. The list of banks used in the study is depicted in Appendix 1.

3.5 Data

The data were sourced from Orbis (formerly Bureau van Dijk), hosted by Moody's Analytics, and the World Bank. Precisely micro-level bank data were sourced from Orbis, while market data – bank concentration – were sourced from the World Bank Global Financial Database and macroeconomic data were sourced from World Bank economic indicators. Thus, the study utilized secondary data, collected from credible financial databases to ensure accuracy and reliability. The data were log-transformed to reduce the influence of outliers in the regressions.

3.6 Variables and their Measurement

This study investigates the effect of liquidity on bank profitability while accounting for internal, market structure, and macroeconomic factors. The expected impact of these variables on profitability was informed by economic theory and empirical literature.

3.6.1 Dependent Variable

3.6.1.1 Profitability (Net Interest Margin - NIM)

Consistent with the literature (O'Connell, 2022; Al-Homaidi et al., 2018; Kohlscheen et al., 2018), this study uses net interest margin (NIM) as an indicator of bank profitability. It is calculated as the ratio of interest income minus interest expenses to interest-bearing assets. This measure is preferred over Return on Assets (ROA) and Return on Equity (ROE) because of its stability, relevance, and regulatory orientation (Alnabulsi et al., 2023). Since NIM indicates the core function of banks' financial intermediation, it provides a more precise indicator of profitability. A higher NIM suggests improved efficiency in managing interest-earning assets and liabilities, whereas a lower NIM may indicate declining profitability due to shrinking interest spreads.

3.6.2 Independent Variable

Similar to Salim and Bilal (2016) and subject to data availability, the study uses the ratio of liquid assets to deposits to assess bank liquidity. This metric evaluates a bank's capacity to fulfil short-term obligations without financial distress. A higher liquidity ratio is expected to enhance financial stability but may reduce profitability due to the trade-off involved in holding surplus liquid assets rather than investing in higher-yielding loans (Cornett et al., 2011). Hence, a negative connection is anticipated between bank profitability and liquidity.

3.6.3 Control variables

3.6.3.1 Bank-Specific Factors

3.6.3.1.1 Asset Quality (Loan Loss Reserve Ratio)

Credit risk is widely used as a determinant of bank profitability. Consistent with the literature (O'Connell, 2022), it is estimated by loan loss reserves to gross loans and advances, indicating the level of provisions set aside for potential loan defaults. Higher credit risk can negatively impact profitability since greater provisions reduce net earnings (Ozili, 2021). A negative relationship is expected, as banks with higher loan loss reserves may experience weaker financial performance (Louzis et al., 2012).

3.6.3.1.2 Bank Size (Log of Total Assets)

Bank size, proxied by the log of total assets, is another control variable widely used in the body of research on the factors influencing bank profitability. Bigger banks might gain advantages from economies of scale, diversification, and market power, potentially leading to higher profitability (Kohlscheen et al., 2018, Kosmidou et al., 2008). However, they may also face diseconomies of scale, regulatory costs, and complexity, which can negatively affect profitability (Borroni & Rossi, 2019). Therefore, the expected connection between bank size and profitability is unclear.

3.6.3.1.3 Cost Management (Cost-to-Income Ratio – cost_inc)

Cost management is also another factor that may influence bank performance. In this study, cost efficiency is evaluated through the cost-to-income ratio (cost_inc). Logically, a lower cost_inc means better operational efficiency and higher profitability, while a higher cost_inc reflects inefficiencies and lower profits (Masindi & Singh, 2021; Pasiouras & Kosmidou, 2007). The study expects a negative connection between cost management and bank profitability.

3.6.3.1.4 Bank Capital (tcar)

The study also controls for the level of capital, proxied by the total capital adequacy ratio. Capital represents financial strength, providing stability to a bank through improving its capacity to withstand losses and protect savings during downturns, thereby ensuring solvency (Ghosh, 2016). However, maintaining high capital levels may limit lending capacity, leading to a mixed or neutral impact on profitability (Athanasoglou et al., 2008).

3.6.3.2 Market Structure Factor

3.6.3.2.1 Market Concentration (Top 3 Banks Concentration - C3)

The study also controls for market factors, specifically market concentration, which is measured using the C3 ratio to capture the impact of market structure on the profitability of banks. The C3 ratio is defined as the proportion of total commercial bank assets held by three largest commercial banks as a share of total commercial banking assets. A higher C3 ratio indicates increased market power, allowing banks to charge higher prices and enhance profitability (Ferrouli, 2018). However, excessive concentration may reduce competition and innovation, potentially harming profitability (O'Connell, 2022). Therefore, the expected impact remains ambiguous.

3.6.3.3 Macroeconomic Factors

3.6.3.3.1 Inflation (Inflation Rate - inf)

Inflation affects banking activities through interest rate adjustments and loan repayment capacity. When inflation expectations are fully anticipated, banks can enhance profitability by raising lending rates faster than the inflationary impact (Athanasoglou et al., 2008; Kosmidou et al., 2008). However, high inflation can erode asset values and reduce loan affordability, ultimately lowering profitability (Boyd et al., 2001). The research anticipates a negative connection between inflation and bank profitability.

3.6.3.3.2 Economic Growth (GDP Growth Rate - gdp)

GDP growth reflects macroeconomic conditions affecting banking performance. A higher GDP growth rate raises the demand for loans and financial services, thereby enhancing profitability (Bucevska & Misheva, 2017; Beck et al., 2013). Economic slowdowns, however, reduce credit demand and may increase default rates, negatively affecting profitability. Thus, bank profitability tends to be procyclical to economic performance, suggesting an expected positive relationship.

Table 2 below summarizes the variables used in the study, including their measurement.

Table 2: Variables and their measurement

Variable	Measurement	Description	Literature Source
Profitability	NIM	Indicates a bank's ability to generate income relative to its interest-earning assets.	O'Conell (2022); Kohlscheen et al (2018); Adelopo et al (2017)
Liquidity	Liquid Assets to Deposits Ratio	Indicates a bank's ability to meet short-term commitments without financial distress.	Cornett et al. (2011)
Bank Size	Log of Total Assets	Indicates the overall size of a bank, which influences its risk exposure, liquidity management, and profitability.	Kohlscheen et al (2018); Athanasoglou et al. (2008)
Credit Risk	Loan Loss Reserves to Gross Loans	Indicates a bank's exposure to potential loan defaults, which affects profitability through loan loss provisioning.	O'Conell (2022); Louzis et al. (2012); Athanasoglou et al. (2008)
Capital Adequacy	Total Capital Adequacy Ratio	Indicates a bank's ability to absorb financial shocks and ensure solvency, influencing profitability and liquidity decisions.	O'Conell (2022); Athanasoglou et al. (2008)
Cost Efficiency	Cost-to-Income Ratio	Evaluate efficiencies by assessing the proportion of operating costs relative to income.	O'Conell (2022); Kohlscheen et al (2018)
Market Concentration	Concentration Ratio (Top 3 Banks)	Evaluates the assets of the three largest banks in the market, which can influence competition, pricing power, and profitability.	O'Conell (2022); Adelopo et al (2017)
Economic Growth	GDP Growth Rate	Looks at the influence of macroeconomic conditions on banking performance, affecting credit demand and deposit growth.	Kohlscheen et al (2018); Yuksel et al (2018)
Inflation	Inflation Rate	Reflects the impact of inflation on interest rates, real asset values, and banking profitability.	Kohlscheen et al (2018); Kosmidou et al (2008)

Source: Own construction

3.7 Estimation Approach

Following the literature (Al-Homaidi et al., 2018; Adelopo et al., 2017) and a battery of tests presented in Appendix 2, the study adopts a fixed effect estimator to investigate the connection between liquidity and bank profitability in commercial banks in Zimbabwe and South Africa. The fixed effects approach is chosen to control for unmeasured heterogeneity across banks, which may influence profitability but remain constant over time.

3.7.1 Justification for the Fixed Effects Model

The fixed effects model is appropriate when individual entities (banks) have unique, time-invariant characteristics that could correlate with the explanatory variables. Unlike pooled OLS, which assumes no differences across banks, the fixed effects model controls for these unobservable factors (Baltagi, 2012), ensuring that the estimated coefficients reflect the within-bank variations over time. This helps mitigate potential omitted variable bias that may arise from bank-specific characteristics such as management efficiency, business model, or regulatory environment.

Furthermore, a series of tests were performed to determine the most appropriate model, including the F-test (comparing fixed effects and pooled OLS), the Breusch-Pagan LM test (comparing random effects and pooled OLS), and the Hausman test (comparing fixed and random effects). The results (see Appendix 2) favoured the fixed effects model, indicating that individual bank attributes are correlated with the independent variables, making the random effects estimator inconsistent.

3.7.2 Fixed Effects Model Specification

The empirical model used for estimation is expressed as follows:

$$NIM_{ic,t} = \beta_0 + \beta_1 Liquidity_{ic,t} + \beta_2 X_{ic,t} + \eta_i + \varepsilon_{it} \quad \text{.....(1)}$$

Where:

- Subscripts ict represent bank i in country c at time t.
- NIM is the net interest margin measuring bank profitability.
- Liquidity represents the liquidity measure measured by the liquid assets to deposits ratio.

- X is a vector of control variables, including bank size, capital adequacy, credit risk, cost efficiency, market concentration, GDP growth, and inflation.
- η represents the bank-specific fixed effects, encompassing time-invariant characteristics unique to each bank.
- ε is the error term, capturing idiosyncratic shocks.

3.7.3 Estimation Process

1. Check for Stationarity

The data were checked for panel unit root tests (Fisher-ADF) to ensure that all variables were stationary or integrated at level I(0).

2. Perform Hausman Test

The fixed effects model was selected based on the Hausman test, confirming that bank-specific effects are correlated with the explanatory variables.

3. Control for Heteroscedasticity and Autocorrelation

Robust standard errors were applied to correct for heteroscedasticity and serial correlation in panel data.

4. Address Cross-Sectional Dependence

The Driscoll-Kraay standard errors were used to correct for cross-sectional dependence, ensuring robust inference.

3.8 Ethical Considerations

Ethical considerations were taken into account throughout the study to uphold its integrity. The primary ethical consideration was to ensure data integrity and accuracy. Given that bank specific data often includes sensitive financial information, maintaining strict confidentiality and privacy was of paramount importance. Transparency throughout the research process was maintained to enhance the study's credibility and reproducibility. Full disclosure of any potential conflicts of interest and affiliations will be necessary to maintain the study's integrity and avoid any perception of bias. Given the potential impact on various stakeholders including banks, investors, regulators and the public, findings are presented honestly and responsibly. This includes discussing the study's limitations and avoiding the overstatement of conclusions.

3.9 Summary

This chapter presented the research methodology employed in this study. The study leveraged on secondary data, collected from reputable bank databases, central banks and economic publications. The outlined methodology ensures a robust and ethical analysis of the study.

CHAPTER IV

RESULTS PRESENTATION, ANALYSIS AND DISCUSSION

4.1 Introduction

This study section presents results from different statistical tests explained in the preceding chapter. Results are explained and discussed compared to past empirical studies done in different nations. The chapter set out by spelling out the basic measures of moments before delving into the bi-variate correlation results. Stationarity tests are also presented in this section of the study. Fixed effect model results are also part of this chapter.

4.2 Descriptive Statistics

To have a general idea on the distribution of the data set, Table 3 below shows the descriptive statistics. It is crucial to emphasise that the descriptive statistics are for the raw data (untransformed data) to get a correct picture of the data distributions. However, the remainder of the analysis was performed on log-transformed data.

Table 3: Descriptive Statistics

Variable	Obs	Mean	Std. dev.	Min	Max	Kurtosis	Skewness
nim	130	9.32	6.41	2.36	31.25	0.99	3.32
ta	130	34,700,000.00	51,200,000.00	164,790.00	182,000,000.00	1.32	3.67
llr	118	4.75	4.27	0.44	23.78	2.43	9.18
tcar	115	22.34	9.30	12.11	48.46	1.24	3.53
cost_inc	130	61.47	12.72	23.7	109.95	0.11	4.59
liq_dep	97	39.76	22.14	10.93	93.90	0.59	2.30
c3	121	67.92	10.12	52.71	81.83	-0.07	1.30
gdpgrowth	132	2.19	5.12	-7.82	15.74	0.30	4.30
inf	132	78.05	150.89	0.37	604.95	2.38	8.25

Source: Own construction based on research data

nim → net interest margin; ta → total assets; llr → loan loss reserves; tcar → total capital adequacy ratio; cost_inc → cost-to-income ratio; liq_dep2 → liquid assets to deposits ratio; c3 → concentration ratio; gdpgrowth → gdp growth rate; inf → inflation rate

Profitability of the banks under consideration averaged 9.32%, indicating that, on average, banks in the sample earn a 9.32% spread between interest income and interest expense. Furthermore, NIM shows a right-skewed distribution (skewness of 3.32), meaning that while most banks reported moderate NIM values, a few achieved significantly higher margins.

The bank size, determined by total assets, also indicates the presence of a right-skewed distribution (skewness of 3.67). The average total asset size was USD 35 million, but the high standard deviation suggests substantial variation among banks. The distinction between the largest bank (USD 182 million) and the smallest bank (USD 165,000) is likely to be statistically significant, reflecting the diverse scale of operations among the banks under study.

The banks pursued aggressive credit risk management strategies, as evidenced by the low average loan loss reserves of 4.75%. The kurtosis of 2.43 indicates a platykurtic distribution, suggesting fewer extreme values compared to a normal distribution. Additionally, the high skewness of 9.18 suggests a long right tail, indicating that while most banks maintained low reserves, a few had significantly higher provisioning for loan losses.

Financial stability of the banks, determined by the capital adequacy ratio (CAR), was relatively strong, averaging 22.34%. A higher CAR signals greater financial strength, as it indicates the ability of banks to absorb losses and remain solvent. However, operational cost efficiency was relatively weak, with an average cost-to-income ratio (CIR) of 61.47%, suggesting that many banks struggled with cost management. A higher CIR indicates operational inefficiencies (Adelopo et al., 2017), as banks with higher costs relative to income may experience reduced profitability.

Liquidity levels varied significantly across the banks. The average liquid assets-to-deposits ratio was 39.76%, reflecting a relatively strong liquidity position. However, the wide range (minimum 10.93%, maximum 93.90%) suggests differences in liquidity management strategies. Some banks maintained high liquidity buffers to mitigate risk, while others allocated more funds toward interest-earning assets to maximize profitability.

The South African and Zimbabwean economies experienced an average GDP growth rate of 2.19%, though periods of economic contraction were observed, with a minimum growth rate of -7.82%. These economic fluctuations likely influenced the financial sector’s performance, affecting credit demand, liquidity management, and overall profitability. Inflation volatility was particularly

high during the period, with a maximum value of 604.95%, likely driven by Zimbabwe's recurring inflationary shocks since the early 2000s.

Overall, the descriptive statistics indicate that the raw data is not normally distributed. All kurtosis values were below 3, indicating platykurtic distributions, while all skewness measures deviated from 0, confirming asymmetry in the data. Given these distributional properties and the presence of large variations in values, natural logarithms were applied to all variables. Log transformation helped to normalize the data and mitigate potential heteroscedasticity issues in subsequent regression analysis.

4.3 Stationarity test results

The ADF-Chi-square statistic in the unit root test was used to establish the presence of the unit root. A high Chi-square value indicates rejection of the null hypothesis (unit root). If the p-value associated with the Chi-square statistic is low, typically below 0.05, we reject the null hypothesis, indicating the time series is stationary.

Table 4: Unit Root Test Results

Variable	ADF-Fisher Chi-Square	p-value	Order of Intergration	Conclusion
Lnnim	83.5149	0.0000	Level	Stationary
Lnta	46.5390	0.0038	Level	Stationary
Lnllr	50.9952	0.0004	Level	Stationary
lntcar	99.0138	0.0000	Level	Stationary
lncost_inc	74.6107	0.0000	Level	Stationary
lnliq_dep	130.0879	0.0000	Level	Stationary
lnc3	53.9303	0.0004	Level	Stationary
Lngdpgrowth	37.9544	0.0350	Level	Stationary
Lninf	37.4325	0.0396	Level	Stationary

Source: Own construction based on research data

lnta → log of total assets; lnllr → log of loan loss reserves; lntcar → log of total capital adequacy ratio; lncost_inc → log of cost-to-income ratio; lnliq_dep2 → log of liquid assets to deposits ratio; lnc3 → log of concentration ratio (top 3 banks); lngdpgrowth → log of gdp growth rate; lninf → log of inflation rate

Using the ADF-Fisher test, the results indicate that the variables are integrated of order zero implying that there is no need for any kind of data transformation. Resultantly, all variables were used to estimate parameters in their raw form.

4.4. Bi-variate correlation test results

To assess the extent of linear relationship between the variables used, a correlation coefficient was used and the results are presented in Table 5 below.

Table 5: Correlation Matrix

Variable	Lnnim	lnta	Lnllr	lntcar	lncost_inc	lnliq_dep	lnc3	lngdp	lninf
Lnnim	1.00								
Lnta	-0.73*	1.00							
Lnllr	0.36*	-0.24*	1.00						
Lntcar	0.71*	-0.50*	0.52*	1.00					
lncost_inc	-0.18*	-0.29*	-0.41*	-0.32*	1.00				
lnliq_dep	0.57*	-0.64*	0.22*	0.52*	0.07	1.00			
lnc3	-0.38*	0.74*	-0.12	-0.29*	-0.42*	-0.45*	1.00		
Lngdp	0.38*	-0.45*	0.06	0.24*	0.16	0.45*	-0.20*	1.00	
Ninf	0.35*	-0.21*	-0.23*	0.32*	-0.001	0.47*	-0.18	0.44*	1.00

Source: Own construction based on research data

lnta → log of total assets; lnllr → log of loan loss reserves; lntcar → log of total capital adequacy ratio; lncost_inc → log of cost-to-income ratio; lnliq_dep2 → log of liquid assets to deposits ratio; lnc3 → log of concentration ratio (top 3 banks); lngdp → log of gdp growth rate; lninf → log of inflation rate

The connection between bank performance (as measured by net interest margin) and bank liquidity (indicated by liquid assets to deposit ratio) is positive and statistically significant at 5% in South Africa and Zimbabwe. Although the correlation measure treats all the variables equally (neither is a dependent nor an independent variable), it is likely that liquid banks are likely to fulfil their short-term commitments thereby enhancing their credibility and thus boosting their profitability.

The correlation coefficient between net interest margin (a measure of bank profitability or performance) and total assets over the period under review was negative and statistically significant (-0.73). This suggests that bigger banks (measured by size) are actually under diseconomies of scale in Zimbabwe and South Africa. The demerits of being a big bank far outweigh the advantages of the same.

The connection between bank performance and credit risk management was positive and statistically significant (0.36). This is expected given that one of the key risks most banks are subject to is credit risk. Thus, if a bank can manage such a risk, its performance is most likely to be enhanced over time.

Capital adequacy ratio and bank performance are positively correlated and statistically significant (0.71). This is expected under normal circumstances given that a higher capital adequacy ratio signals greater financial strength thereby fostering bank performance in both the short and long term.

Bank profitability and market concentration or the dominance of the three largest banks in the market (measured by c3) are negatively correlated (-0.38) and the relationship is statistically significant. Although a higher concentration suggests less competition, the impact on bank profitability is negative. This defies the common claim that less competition leads to abnormal profits. This might be attributed to the fact that the operations and the fees charged by the banking institutions in the countries of interest are highly regulated.

Economic growth and bank performance are positively correlated (0.38) and the relationship is statistically significant. Surprisingly, the relationship between bank performance and inflation is positive and statistically significant. This might be attributed to the fact that a bank's performance is captured in nominal terms. As such, when inflation increases, profit increases (at face value or in a nominal sense).

Gujarati (2008) opined that the multicollinearity test is a statistical method used to detect the existence of multicollinearity in a regression analysis. Multicollinearity occurs when two or more predictor variables in a regression model are strongly correlated with one another, leading to unstable estimates of regression coefficients and inflated variance. The correlation matrix was employed to test for the presence of multicollinearity. From Table 5 above, it can be noted that there is no multicollinearity given that all the bi-variate correlation coefficients are less than absolute 0.8.

4.5 The Impact of liquidity on Bank profitability

In line with the arguments highlighted in the previous chapter, the following fixed effects model was estimated (see equation 1):

The results are given hereunder in Table 6.

Table 6: Fixed Effects Model Results (The Dependent Variable is Net Interest Margin)

Variable	Estimate	Std. Error	t-value	p-value	Significance
lnliq_dep	-0.0406	0.0954	-0.4252	0.6728	
lnta	-0.1301	0.0652	-2.0095	0.0505	.
lnllr	-0.2002	0.1062	-1.8862	0.0657	.
lntcar	0.7381	0.2073	3.5599	0.0009	***
lncost_inc	-0.8096	0.1322	-6.1264	2.027	***
lnc3	1.6889	0.7950	2.1243	0.0392	*
lngdpgrowth	-0.0638	0.0193	-3.2981	0.0019	**
lninf	0.0189	0.0168	1.1275	0.2655	
Diagnostics					
R-squared	0.6269				
N	62				
Wooldridge'sTest	F = 0.7126; p-value = 0.4025				
Pesaran's CD Test	z = -1.484; p-value = 0.1378				
Breusch-Pagan Test	BP test = 44.996; p-value = 3.687e-07				

*** (p < 0.001); ** (p < 0.01); * (p < 0.05); . (p < 0.10); No symbol (p > 0.10)

Source: Own construction based on research data

lnta → log of total assets; lnllr → log of loan loss reserves; lntcar → log of total capital adequacy ratio; lncost_inc → log of cost-to-income ratio; lnliq_dep2 → log of liquid assets to deposits ratio; lnc3 → log of concentration ratio; lngdpgrowth → log of gdp growth rate; lninf → log of inflation rate.

4.5.1 The relationship between liquidity and profitability in Zimbabwe and South Africa commercial banks.

From the regression results given in Table 6 above, it can be noted that the relationship between bank performance and liquidity is negative (β = -0.0406, p = 0.6728) and the relationship is not statistically significant. This is in contrast to the results obtained from the bi-variate correlation computations where the relationship between liquidity and profitability was noted to be positive and statistically significant using the bi-variate correlation measure (refer to Table 5 above). The difference in the obtained results can be attributed to the fact that correlation and regression are econometrically different.

The absence of a significant relationship between bank performance and bank liquidity might be explained by the fact that banks must meet liquidity regulatory requirements and the regulation might not be in any way related to bank performance. Such a regulatory requirement is the liquidity coverage ratio. Thus, regardless of whether the bank is profitable or not, its liquidity level must be above the board lest the regulatory authorities penalize the bank. Related to this claim, bank performance might be attributed more to asset quality and the ability of the bank to generate earnings than bank liquidity.

4.5.2 Comparing the profitability performance of highly liquid versus less liquid in Zimbabwe and South Africa commercial banks.

Given that the liquidity coefficient from the fixed effect model is insignificant (β = -0.0406, p = 0.6728), this implies that the liquidity level of the South African and Zimbabwean banks only matters when it comes to regulatory issues but not as a driver of profitability. Restated, when it comes to bank profitability, liquidity does not matter. As already alluded to earlier on, all banks are required to meet stipulated liquidity ratios rendering all banks almost equal (in terms of liquidity). Thus, all banks are liquid (regulatory wise). Resultantly, the profitability of South African and Zimbabwean banks will be hinged on other bank-specific factors such as management quality, operational, efficiency and asset quality. In other words, liquidity is not a tool that can be utilized by South African and Zimbabwean banks in their quest to outcompete other banks.

To add on, South African and Zimbabwean banks might be pursuing different business models that require different liquidity needs. For example, bank A might be retail-focused and bank B might be

wholesale-focused. Although the liquidity needs of such banks might be different, their performance is not affected in any significant way.

4.5.3 The impact of other bank factors on bank profitability in South Africa and Zimbabwe

Bank size, as determined by total assets has a negative relationship with bank performance and the relationship is statistically significant at 10% level of significance (β = -0.1301, p = 0.0505). This is consistent with the correlation matrix results presented in Table 5 above. This finding drives home the point that as the bank grows in size, diseconomies of scale will significantly affect bank profitability in South Africa and Zimbabwe. This relationship might be a result of capital adequacy regulatory requirements which stipulate the amount of capital and asset that a bank must own in line with Basel I to III accords. Thus, even if the bank is not profitable, the regulatory authorities require the bank to increase its assets to a minimum expected threshold. After all, the performance of any financial entity is not solely hinged on its size but on its earning power, efficiency and quality of assets. These attributes are likely to be compromised if bank growth is not associated with corresponding efficiency, governance and technological enhancement. The inverse relationship between bank performance and bank size implies that smaller banks perform better than bigger banks in South Africa and Zimbabwe.

Bank performance is negatively related to loan loss reserves and the relationship is statistically significant (β = -0.2002, p = 0.0657). Loan loss reserves represent the provisions reserved by banks to cover potential loan defaults. Thus, a higher ratio implies that the probability of loan default is likely to be high and the bank following a more conservative risk management approach. Expectedly, as more reserves are set aside, less capital is devoted to earning assets like loans and mortgages. Thus, in South Africa and Zimbabwe, banks are supposed to be more aggressive when it comes to credit risk management using loan loss reserves. In other words, the banks are supposed to opt for other credit risk management strategies given that more loan loss reserves are associated with declining bank performance.

The relationship between bank performance and capital adequacy is positive and statistically significant (B= 0.7381, p = 0.0009). The capital adequacy ratio indicates a bank's capacity to absorb losses and maintain solvency. A higher capital adequacy ratio signals greater financial strength. Expectedly, financially strong banks are better positioned when it comes to; access to funding, investor confidence, financing bigger deals, lower funding costs, and meeting stakeholder

needs. To add on, a higher capital adequacy ratio contributes to South African and Zimbabwean banks' financial stability enabling them to weather economic downturns and maintain profitability.

In South Africa and Zimbabwe, the relationship between bank performance and cost-to-income ratio is negative and statistically significant (β= -0.8096, p = 2.027). It must be emphasized that the ratio captures the percentage of operating costs to income. A lower ratio indicates higher efficiency, while a higher ratio indicates operational inefficiencies which results in low profitability. Thus, a negative relationship is expected for banks operating in South Africa and Zimbabwe. This is based on the fact that when operating costs rise, they eat into the bank's income thereby reducing its profitability. Relatedly, when operating costs are high, banks may have fewer resources to invest in growth initiatives such as new product development, new technologies and marketing efforts.

South African and Zimbabwean banks' profitability is positively associated with market concentration and the relationship is statistically significant (β = 1.6889, p=0.0392). The concentration ratio (top 3 banks) measures the dominance of the three biggest banks in the market. Higher concentration suggests less competition, thereby enhancing bank performance. With less competition, the biggest banks can exercise market power by setting terms that maximize their profits. Such banks may benefit from network effects where the value of their services increases with the number of customers, creating a self-reinforcing cycle of growth and profitability.

4.5.4 The impact of external economic factors on the profitability of commercial banks in Zimbabwe and South Africa.

Economic growth rate and bank performance are negatively related and the relationship is statistically significant (β =-0.0638, p = 0.0019). Economic growth is often associated with increased competition in the banking sector making it harder for banks to maintain market share and profitability. On the same note, economic growth can create a credit bubble where banks over-lend and take on excessive risk leading to poor performance when the bubble bursts. In Zimbabwe and South Africa, economic growth is often associated with increased market volatility. This makes it more difficult for banks to manage their risk exposures and remain profitable. Relatedly, economic growth is associated with changing consumer behavior (such as increased demand for digital bank services) that might disrupt traditional banking business models.

In South Africa and Zimbabwe, bank profitability and inflation are not significantly related (β = 0.0189, p = 0.2655). This might have been necessitated by the capacity of banking institutions to change their interest rates to keep pace with inflation thereby maintaining their net interest margins and profitability. In other words, if banks in South Africa and Zimbabwe are indexing their assets and liabilities to inflation, they are less vulnerable to inflation. On the same note, banks can anticipate and adjust to inflation expectations thereby minimizing the effect of inflation on their profitability.

In South Africa and Zimbabwe, economic growth is a key macroeconomic variable that might affect bank profitability. Inflation is not a significant driver of bank profitability

Table 7 Model with ratios of nim, llr, tcar, liq_dep, c3 and gdpgrowth as they are without taking logarithms:

Variable	**Estimate**	**Std. Error**	**t-value**	**p-value**	**Significance**
Liq-dep	-0.0625	0.0515	-1.21	0.230	
ta	-0.2461	0.8505	-0.29	0.773	
IIr	-0.5844	0.1204	-4,85	0.000	***
tcar	0.5244	0.1329	3.95	0.000	***
Cost-inc	-0.1125	0.0633	-1.78	0.081	*
C3	0.2875	0.0977	3.05	0.004	***
gdpgrowth	-0.1068	0.0977	-1.09	0.279	
inf	0.0141	0.0051	2.79	0.007	***
R-Squared	0.53				
N	70				

Table 8 Descriptive Statistics for South Africa and Zimbabwe based on raw data.

South Africa					
Variable	**Obs**	**Mean**	**Standard Deviation**	**Minimum**	**Maximum**
nim	55	6.2338	6.5801	2.36	23.64
ta	55	17.8039	1.1662	14.97	19.02
llr	55	4.9513	5.3030	1.53	23.78
tcar	55	19.6546	8.4567	12.7	41.3
cost_inc	55	54.5809	9.1698	32.25	69.07
liq_dep	55	27.0851	12.9892	10.93	52.25
c3	51	77.4772	0.9852	75.99	79.45
gdpgrowth	55	1.0799	2.6452	-6.34	4.9131
inf	55	5.3833	0.8241	3.75	6.95
Zimbabwe					
nim	75	11.5873	5.2661	3.61	31.25
ta	75	13.2874	0.8422	12.01	15.46
llr	63	4.5815	3.1479	0.4391	20.07
tcar	60	24.8047	9.4266	12.11	48.46
cost_inc	75	66.5287	12.6233	23.7	109.95
liq_dep	42	56.3537	20.6812	19.11	93.90
c3	70	60.9618	7.7985	52.71	81.83
gdpgrowth	77	2.9908	6.2136	-7.82	15.74
inf	77	129.9505	180.8135	0.37	604.95

Descriptive statistics comparison and stylised facts from the data

Profitability – Zimbabwean banks have higher returns on average but the volatility is also significant. South African banks while more stable have lower profitability.

Total Assets – South African banks are larger consistent with a more mature and developed banking system.

Loan Loss Reserves – Fairly similar averages but South Africa shows higher variability suggesting potential episodic risk spikes.

Capital Adequacy – Zimbabwean banks maintain higher capital buffers, likely as a safeguard against high macroeconomic risks.

Cost efficiency – South African banks are more cost efficient while Zimbabwean banks incur higher operating costs relative to income.

Liquidity – Zimbabwean banks hold substantially more liquid assets, possibly due to depositor distrust or volatile market conditions.

Market concentration – South African banking sector is more concentrated implying less competition but possibly more systemic risk.

Macroeconomic environment – Zimbabwe has higher growth potential but it's overshadowed by extreme inflation, volatility, increasing systemic banking risks.

4.6 Robustness test

To ascertain the robustness of the obtained results, three additional models were estimated and compared to the base model (model 1).

Table 9: Robustness Test Results

Variable	Model 1 DepVar (NIM)	Model 1 t - values	Model 2 DepVar (ROAA)	Model 2 t - values	Model 3 Dep Var (NIM)	Model 3 t-values
lnliq_dep	-0.0277	-0.25	0.0649	0.32	-0.0143	
lnta	-0.1889**	-2.42	0.2138*	1.79	-0.1280*	-1.82
lnllr	-0.2818***	-2.79	-0.3157**	-2.11	-0.1704*	-1.98
lntcar	0.6670***	2.75	0.0719	0.17	0.6651***	2.73
lncost_inc	-0.9045***	-3.77	-1.4306***	-3.46	-0.7690***	-3.21
lnc3	1.5314***	3.60	0.9030	1.22	-	-
lnc5	-	-	-	-	1.6515***	3.60
lngdpgrowth	-0.0502*	-1.95	-0.080*	-1.86	-0.0556**	-2.25
lninf	0.01712	0.85	0.0044	0.12	0.0201	0.96
Cons	-28.2091	-1.51	-1.0392	-0.21	-2.2556	-0.73
Time-effects	YES		NO		NO	
N	62		62		62	
r-squared	0.5867		0.1780		0.7216	

***; **, * represent statistical significance at 0.01; 0.05, and 0.1 level respectively.

Source: Own construction

Robustness analysis was performed using three model specifications to evaluate the reliability of the findings. Model 1 adds time-fixed effects to control for macroeconomic factors, isolating variable impacts from time-driven fluctuations. Model 2 uses return on average assets (ROAA) instead of net interest margin (NIM) to see if profitability measurement affects results. Model 3 switches from C3 (three largest firms) to C5 (five largest firms) as the market concentration measure, testing if conclusions hold with a broader measure.

The robustness checks show that key relationships remain stable across models. Liquidity does not significantly impact bank profitability. Bank size and concentration effects vary with the profitability measure, while loan loss reserves, capital adequacy, and cost inefficiency consistently affect performance. Model 1 and Model 4 fit best overall.

Table 10 Model Re-Run With Bank Specific Variables

Variable	**Estimate**	**Std. Error**	**t-value**	**p-value**	**Significance**
Liq-dep	0.0575	0.0383	1.50	0.138	
ta	-1.8414	0.7703	-2.39	0.020	**
llr	-0.6038	0.1145	-5.47	0.000	***
tcar	0.1955	0.1005	1.94	0.056	*
Cost-inc	0.0835	0.0601	-1.39	0.170	
R-Squared	0.5023				
N	77				

The results in Tables 6 and 7 show that capital adequacy (tcar) positively and significantly influences net interest margins (NIM), while loan loss reserves (llr) and cost-to-income ratio negatively affect profitability. These findings are robust across different models, including when return on assets (ROAA) is used. Bank size (ta) and macroeconomic factors like GDP growth also show significant effects.

In contrast, when the model is re-run with bank specific variables, while showing a similar negative effect of llr and ta, finds cost_inc and liq_dep to be statistically insignificant, and tcar only marginally

significant. This suggests that results are sensitive to model choice, with fixed effects (Table 6 and 7) offering stronger explanatory power.

4.7 Discussion of Findings

The current study exposed that bank liquidity does not significantly affect bank profitability in South Africa and Zimbabwe. These results are in tandem with what Jaworski and Czerwonka (2021) noted. Jaworski and Czerwonka (2021) could not determine the combined direction and strength of the relationship between liquidity and profitability in enterprises while using meta-analysis. Similar findings were made by Tariq Islam (2020) who found no causal relationship between liquidity and profitability for private banks in Bangladesh. This can be attributed to that liquidity cannot be a differentiating factor as all banks have a regulatory responsibility of ensuring that their liquidity levels are above board. Sharma and Chauhan (2023) observed that the Basel III framework assesses bank liquidity using the Liquidity Cover Ratio (LCR) and the Net Stable Funding Ratio (NSFR). Basel III requires banks to maintain adequate levels of high-quality and ample liquid assets. Compliance with these regulatory requirements is essential for banks, as failure to maintain adequate liquidity levels can result in regulatory penalties.

However, the results obtained in the current study are in contrast to the findings made by Adamu et al. (2022) who discovered a significant negative correlation between liquidity and the performance of deposit taking banks in Sub-Saharan Africa. This finding indicates that higher liquidity levels are linked with lower performance outcomes for these banks in the region. Contrary results were also obtained by (Al-Matari, 2023; Lalon et al., 2023); Nworji and Alayemi (2014); (Quoc Thinh et al., 2022), using different datasets, also found a positive relationship between liquidity and profitability. These studies consistently demonstrate that higher liquidity often correlates with increased profitability.

The research also discovered that bank size, proxied by the log of total assets, has a negative relationship with bank profitability in Zimbabwe and South Africa, suggesting diseconomies of scale associated with asset size growth. This evidence is consistent with Kohlschen et al (2018). As highlighted by Athanasoglou (2008) large banks may experience reduced profitability due to bureaucracy and other challenges associated with growth such as inefficiencies and management issues (O’Connell, 2022).

The study established that asset quality, proxied by the loan loss ratio, has a negative effect on banks profitability among the sampled banks. This evidence is intuitive as higher credit risk is linked with lower bank profitability. This evidence concurs with Bucevska and Misheva (2017) from Balkan states and calls for robust credit risk management to mitigate the adverse impact of credit risk on bank profitability in Zimbabwe and South Africa. As expected, cost management has a negative relationship with bank profitability. This evidence concurs with the results of Athanasoglou (2008) from Greece and it underscores the importance of efficient cost management.

Turning to market structure, the empirical findings confirm that, as expected, bank concentration has a strong positive relationship with liquidity among the sampled banks. Based on the structure-conduct-performance (SCP) theory, banks in concentrated markets often engage in collusion and generate high monopolistic profits (Bucevska and Misheva, 2017). As noted by Adelepo et al. (2017), banks in such markets set higher interest rates on loans while offering lower rates to depositors, thereby maximizing their returns. This pattern appears consistent with the sampled economies, both of which exhibit highly concentrated banking systems.

This study found a negative relationship between economic growth and bank profitability. These findings align with the results of Masood and Ashraf (2012) and Borio et al. (2015), who also observed an inverse correlation between GDP growth and banking sector performance. Kasman et al. (2010) suggest that this negative relationship can occur because banks tend to lower lending rates during times of economic expansion to increase their market share, which in turn reduces interest margins and profitability. Additionally, Kasman et al. highlight that banks operating in volatile economic environments may experience inconsistent performance, as periods of growth are often disrupted by financial crises. This seems particularly relevant given the ongoing economic challenges in Zimbabwe and South Africa, where growth phases are frequently overshadowed by instability. However, the findings of this study contrast with those of Martinho, Oliveira, and Oliveira (2017), who found a positive relationship between GDP growth and bank profitability in European banks. Their research suggests that in more stable economies, higher economic growth boosts credit demand, improves asset quality, and enhances bank earnings. The differing results indicate that the relationship between economic growth and bank profitability may be context-dependent, influenced by economic stability, financial market structures, and macroeconomic policies.

In line with findings made by Masood, Ashraf and Turen, (2015) considering commercial and Islamic banks within the Organisation of Islamic Cooperation, inflation was found to insignificantly impact bank profitability. The results are contrary to Kosmidou (2006), and Masood and Ashraf (2012) who concluded that bank profitability and inflation are positively correlated. Consistent with the findings of Bucevska and Misheva (2017) in Balkan states, the findings suggest that inflation has an insignificant impact on bank profitability in Zimbabwe and South Africa. Possibly, banks in these two economies are able to fully anticipate inflation expectations, thereby minimizing its impact on their margin.

4.8 Chapter Summary

This section of the study examined the impact of bank factors and macroeconomic variables on bank profitability in South Africa and Zimbabwe through a detailed analysis of data. Descriptive statistics and a correlation matrix provided an initial overview of the dataset, while a unit root test was carried out to make sure that all the variables were stationary before further analysis was done. A fixed effects model was estimated in line with the stated objectives. The results indicated that most bank factors and economic growth significantly affect bank profitability in South Africa and Zimbabwe. Inflation and bank liquidity were found to insignificantly affect bank profitability due to a multiplicity of explained factors. The findings made in this study are both in agreement and contrary to past empirical studies conducted in various parts of the world. The next chapter presents the study's summary, conclusions and recommendations.

CHAPTER V

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

This chapter provides a comprehensive overview of the study, a summary of research findings, conclusions derived from the analysis, and practical recommendations based on the results. The study aimed to evaluate the impact of bank liquidity on bank performance in South Africa and Zimbabwe. This study utilized fixed effects regression models to expose this relationship.

5.2 Summary of the study

The main aim of this study was to ascertain the impact of bank liquidity on bank profitability in South Africa and Zimbabwe. The study further explored the impact of other bank factors and macroeconomic variables on bank performance. The study was necessitated by the existence of mixed or context-specific results. For example, Jaworski and Czerwonka (2021) could not determine the combined direction and strength of the relationship between liquidity and profitability in enterprises while using meta-analysis. Similarly, Tan and Tuluca (2023) reported mixed results indicating that the liquidity profitability relationship may be context-specific, varying by region, economy, economic sector and company-specific conditions. Czerwińska-Kayzer et al. (2021) found the presence of a multidirectional relationship between liquidity and profitability while studying companies in the food industry in terms of financial liquidity and profitability.

The study employed a quantitative research method through the application of measures of moment (descriptive statistics), correlation matrix and stationarity tests. To appropriately capture the relationship between the variables of interest, the study adopted a fixed effects model. To ensure that the results were robust, three different models were used and similar results were obtained.

5.3 Summary of Findings

5.3.1 The Impact of liquidity on Bank Profitability

The research aimed to determine the impact of bank liquidity on bank profitability in South Africa and Zimbabwe. The results showed that bank liquidity does not significantly affect bank profitability. This is based on the fact that liquidity is a regulatory requirement, thus all banks are liquid to some extent, thus no bank can generate profit by holding excess liquidity.

5.3.2 The impact of highly liquid and less liquid on bank profitability

Bank liquidity was determined to be insignificant when it comes to bank profitability in South Africa and Zimbabwe. Thus, the liquidity level assumed by a bank is not a driver of bank profitability.

5.3.3 The effect of macro-economic variables on bank profitability

The results indicated that there is a statistically significant negative relationship between economic growth rate and bank profitability in South Africa and Zimbabwe. On the contrary, inflation was found to insignificantly affect bank profitability.

5.4 Conclusions

Based on the findings summarized above, the following conclusions can be safely made;

i. Bank liquidity does not affect bank profitability in South Africa and Zimbabwe.
ii. Liquidity levels of a bank does not matter when it comes to generating bank profits in South Africa and Zimbabwe.
iii. In South Africa and Zimbabwe, economic growth negatively affects bank profitability.
iv. The inflation rate has no effect on bank profitability in South Africa and Zimbabwe.

5.5 Recommendations

Given the stated conclusions, the following recommendations are hereby suggested;

i. Banks operating in South Africa and Zimbabwe are encouraged to focus less on their liquidity levels in their attempt to maximize profits. To put it differently, banks are recommended to meet stipulated regulatory requirements, commit more resources to operational efficiency (invest in financial technology) and ensure that the capital adequacy ratios are above board. These other metrics will drive their profitability to higher levels.
ii. South African and Zimbabwean banks are recommended to be wary of economic growth given its adverse effect on bank profitability. The banks are encouraged to worry about credit

bubbles and interest rate volatility often associated with economic growth. The banking institutions are encouraged to continuously review and adjust their business strategies in line with economic development. Such strategies might include firm consolidation or restructuring to restore profitability given the negative effect of economic growth on bank profitability.

iii. Given that the banks operating in the nations of interest appear to be immune to inflationary shocks, they are hereby encouraged to uphold their inflation risk management strategies such as indexing their assets and liabilities to inflation.

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APPENDICES

Appendix 1: List of banks used in the study

No.	South Africa	Zimbabwe
1	Absa Group Limited	CBZ
2	Capitec Bank Limited	FBC
3	FirstRand Limited	First Capital (formerly Barclays Bank)
4	Nedbank	Nedbank (formerly MBCA)
5	Standard Bank	NMB
6		Stanbic
7		Standard Chartered

Source: Own construction

Appendix 2: Pre-estimation and Diagnostic tests

Appendix 2.1 F-Test

To compare between Fixed Effects and Pooled OLS

```
F(  8,     44) =   11.20
     Prob > F =    0.0000
```

The p-value below 0.05 indicates that the null hypothesis is rejected (Pooled OLS is sufficient), meaning that the unobserved heterogeneity among banks is significant and should be accounted for. This confirms that banks have unique characteristics that influence profitability, making the Fixed Effects model a better choice than the Pooled OLS model, which assumes no bank-specific differences.

Appendix 2.2 Breusch-Pagan LM Test

To compare between Random Effects and Pooled OLS

```
Estimated results:
                 |       Var      SD = sqrt(Var)
-----------------+------------------------------
           lnnim |    .5748766        .7582062
               e |    .0143307        .1197109
               u |          0                0

Test: Var(u) = 0
                          chibar2(01) =      0.00
                       Prob > chibar2 =    1.0000
```

Since the p-value = 1.0000, we fail to reject the null hypothesis, indicating that Pooled OLS is appropriate. This means that the panel-specific effects (u) are not significantly different from zero, so using a Random Effects (RE) model offers no advantage over Pooled OLS. In other words, Pooled OLS is the better choice over Random Effects. Since the Breusch-Pagan LM Test confirms that Pooled OLS is preferable to Random Effects, the next step is to compare Fixed Effects and Pooled OLS. This comparison was conducted above using the F-test, which pointed toward a Fixed Effects model. Given this result, the Hausman Test isn't strictly necessary, but for completeness, it is run below for reference.

2.2.1 Hausman test

```
    chi2(9) = (b-B)'[(V_b-V_B)^(-1)](b-B)
            =  93.50
Prob > chi2 = 0.0000
(V_b-V_B is not positive definite)
```

The Hausman test yields a p-value < 0.05; therefore, we reject the null hypothesis that the Random Effects (RE) model is consistent and efficient. This result indicates that the unobserved individual effects correlate with the model's independent variables. Therefore, the Fixed Effects (FE) estimation is preferred over Random Effects to avoid biased and inconsistent estimates. Thus, the analysis proceeded with the Fixed Effects model.

Appendix 2.3 Diagnostic tests

2.3.1 Wooldridge's Test for Serial Correlation

```
        Wooldridge's test for serial correlation in FE panels

data:  fe_model
F = 0.71262, df1 = 1, df2 = 51, p-value = 0.4025
alternative hypothesis: serial correlation
```

Since the p-value = 0.4025 (greater than 0.05), we fail to reject the null hypothesis. This means there is no significant serial correlation in your panel data. Therefore, you do not need to adjust for serial correlation in your model.

2.3.2 Pesaran's CD Test for Cross-Sectional Dependence

```
        Pesaran CD test for cross-sectional dependence in panels

data:  lnnim ~ lnta + lnllr + lntcar + lncost_inc + lnliq_dep2 + lnc3 +     lngdpgrowth + lninf
z = -1.484, p-value = 0.1378
alternative hypothesis: cross-sectional dependence
```

The p-value = 0.1378 (greater than 0.05), we fail to reject the null hypothesis. This means that there is no evidence of cross-sectional dependence in the panel data model. Hence, there is no need to adjust for cross-sectional dependence in the Fixed Effects model.

2.3.3 Breusch-Pagan Test for Heteroskedasticity

```
        studentized Breusch-Pagan test

data:  fe_model
BP = 44.996, df = 8, p-value = 3.687e-07
```

The p-value < 0.05, we reject the null hypothesis, meaning heteroskedasticity is present. This indicates that standard errors in your Fixed Effects (FE) model are likely biased, leading to unreliable statistical inference. Since heteroskedasticity was detected in the Breusch-Pagan test, but no serial correlation was found, the study proceeded to estimate heteroskedasticity-robust standard errors.