

BINDURA UNIVERSITY OF SCIENCE EDUCATION

THE KEY DRIVERS OF COMMERCIAL BANKS PROFITABILITY IN A SUBDUED ZIMBABWEAN ECONOMY – LESSONS FOR THE SECTOR

BY

RAPHAEL CHIPUNZA

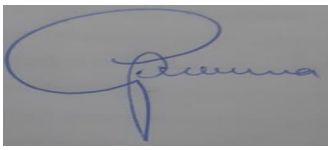
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APPROVAL FORM

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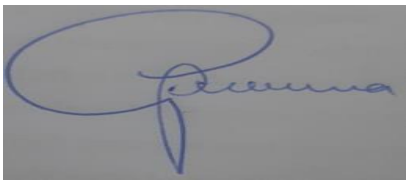
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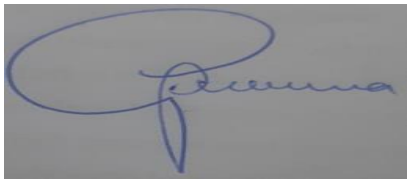
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DECLARATION

I, **Raphael Chipunza**, do hereby declare that this dissertation is a result of my own investigation and research, except to the extent indicated in the acknowledgments, bibliography, references, and comments included in the body of the report, and that it has not been submitted in part or in full for any other degree to any other university.



STUDENT SIGNATURE **DATE :20 MARCH 2024**

DEDICATION

This research project is a special posthumous dedication to my loving parents, Cyril and Faith Chipunza (Nee Nyamutowa). How I wish they had not departed too early – we could be sharing this great achievement which was long planned in their presence yet executed in abstentia.

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ABSTRACT

The study was hinged upon analysing the impact of the key drivers of the banking sector's phenomenal performance despite operating in a subdued Zimbabwean economy for the period from 2016 to 2022. The available literature on the key drivers of commercial banks' profitability in a subdued Zimbabwean economy focuses on understanding the factors that influence the financial performance of banks in such an economic environment. However, there are knowledge gaps in the current scholarly discourse that need to be addressed to enhance the understanding of the drivers of bank profitability in Zimbabwe hence the research. The researcher collected and analysed data from active 14 commercial banks in Zimbabwe. Correlational analysis statistical tests were performed on the gathered data in order to investigate the hypotheses presented. In addition, a pooled regression model was built from data collected from proxies of hypothetical key drivers which included Return on Assets (ROA), Digitisation, Net Interest Margin, Non-interest Income, Quality of Assets, Capital Adequacy and Management Efficiency. The information was compiled from business annual reports covering the 2016–2022 timeframe. The researcher entered these averages into Eviews 12.0 for statistical regression and association analysis after obtaining them from Microsoft Excel. The findings of the regression analysis suggest that Capital Adequacy and Management Efficiency have a significant positive effect on commercial banks' profitability in a subdued Zimbabwean economy, while Digitization, Non-interest Income and Quality of Assets do not have a statistically significant effect.

Keywords: Banking sector, Zimbabwean economy, Correlational analysis, Return on Assets, Digitisation, Capital Adequacy, Net Interest Margin, Non-interest Income

TABLE OF CONTENTS

COVER PAGE..... ……. ..i

APPROVAL FORM..... ……... ii

RELEASE FORM..... ……. iii

DECLARATION ..... ……...iv

DEDICATION..... ……...v

ACKNOWLEDGEMENTS..... ….…....vi

ABSTRACT..... …..…vii

TABLE OF CONTENTS..... …….viii

LIST OF TABLES xiii

LIST OF FIGURES xiv

LIST OF APPENDICES xv

LIST OF ACRONYMS/ABBREVIATIONS..... xvi

CHAPTER ONE: INTRODUCTORY CHAPTER 1

1.1 Introduction..... 1

1.2 Background to the Study..... 1

1.2.1 Global Developments 2

1.2.2 Regional Developments..... 2

1.2.3 Local Developments 3

1.2.4 Case Study Studied..... 3

1.3 Statement of the Research Problem..... 4

1.4 Aim/Purpose of the Study..... 5

1.5 Research Objectives 5
1.6 Research Hypothesis/Questions 5
1.7 Research Assumptions 6
1.8 Significance of the Study 6
1.9 Contribution of the Study 7
1.9.1 Epistemological Contribution 7
1.9.2 Methodological Contribution 8
1.9.3 Policy Contribution 8
1.9.4 Practical Contribution 8
1.10 Delimitation of the Study 9
1.10.1 Conceptual Focus 9
1.10.2 Spatial Focus 9
1.10.3 Temporal Focus 9
1.11 Limitations of the Study 9
1.11.1 Data Availability and Quality 10
1.11.2 Endogeneity and Causality 10
1.11.3 Temporal Dynamics 10
1.12 Outline of the Dissertation 10
1.13 Chapter Summary 11
CHAPTER TWO: LITERATURE REVIEW 12
2.1 Introduction 12

2.2 Conceptual Framework 12
2.3 Theoretical Framework 13
2.3.1 Efficient Structure Theory 13
2.3.2 Economic Efficiency Theory 14
2.3.3 Structure Conduct Performance (SCP) Hypothesis 15
2.3.4 Portfolio Theory 15
2.3.5 Digital Transformation 16
2.4 Bank Performance Measurement Metrics 16
2.4.1 Return on Assets (ROA) 16
2.4.2 Return on Equity (ROE) 17
2.4.3 Tobin's Q 17
2.5 Review of Empirical Literature 18
2.5.1 Key drivers of Banks' Profitability – Objective 1 18
2.5.2 Effect of Drivers on Banks' Profitability – Objective 2 20
2.5.3 Boosting Profitability in Banks in a Subdued Economy – Objective 3 25
2.6 Summary of Literature Findings and Gap in Knowledge 26
2.7 Chapter Summary 27
CHAPTER THREE: RESEARCH METHODOLOGY 28
3.1 Introduction 28
3.2 Research Design 28
3.3 Research Philosophy 29

3.4 Research Approach 30

3.5 Population of Study 30

3.6 Sample of Study 30

3.7 Sampling Frame 31

3.8 Sampling Methods and Procedure 31

3.11 Data Collection Procedure 32

3.12 Data Analysis Methods and Procedure 33

3.13 Interpretation of Findings 35

3.14 Research Reliability and Validity 35

3.15 Ethical Considerations 36

3.16 Chapter Summary 37

CHAPTER FOUR: DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS 38

4.1 Introduction 38

4.2 Key Drivers of Commercial Banks' Profitability in Zimbabwe 38

4.3 Effect of Drivers of Profitability in Banks on Return on Asset in Zimbabwe 40

4.3.1 Pre-estimation Tests 40

4.3.2 Correlational Test 40

4.4 Profitability Boosting Model for Zimbabwean Banks in a Subdued Economy 41

4.4.1 Regression Analysis Results 42

4.4.2 Hausman Test 44

4.4.3 Fixed Effect 49

4.4.4 Post Estimation Techniques 51

4.4.5 Serial Correlation 51

4.4.6 Normality of Residuals 52

4.4.7 Regression Model Developed 53

4.5 Chapter Summary 54

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS 55

5.1 Introduction 55

5.2 Summary of Findings 55

5.2.1 Key Drivers of Commercial Banks' Profitability in Zimbabwe 55

5.2.2 Effect of Drivers of Profitability in Banks on Return on Asset in Zimbabwe 56

5.2.3 Profitability Boosting Model for Zimbabwean Banks in a Subdued Economy 56

5.3 Conclusions 58

5.3.1 Key drivers of Commercial Banks' Profitability in Zimbabwe 58

5.3.2 Effect of Drivers of Profitability in Banks on Return on Asset in Zimbabwe 58

5.3.3 Profitability Boosting Model for Zimbabwean Banks in a Subdued Economy 58

5.4 Recommendations 58

5.4.1 Key Drivers of Commercial Banks' Profitability in Zimbabwe 58

5.4.2 Effect of Drivers of Profitability in Banks on Return on Asset in Zimbabwe 59

5.4.3 Profitability Boosting Model for Zimbabwean Banks in a Subdued Economy 59

5.5 Areas for Further Research 60

REFERENCES 61

APPENDICES 66

LIST OF TABLES

Table 4. 1: Descriptive Test Results 39

Table 4. 2: Correlational Test Results 41

Table 4. 3: Panel Least Squares Regression Results 42

Table 4. 4: Random Effects Regression 45

Table 4. 5: Hausman Test Results 47

Table 4. 6: Fixed Effect Results 49

Table 4. 7: Serial Correlation Test Results 51

LIST OF FIGURES

Figure 2. 1: Conceptual framework 12

Figure 4. 1: Normality of Residuals 52

LIST OF APPENDICES

Appendix 1. 1: Descriptive Test Results 66

Appendix 1. 2: Correlational Rest Results 66

Appendix 1. 3: Panel Least Squares Regression Results 67

Appendix 1. 4: Random Effects Regression 68

Appendix 1. 5: Hausman Test Results 69

Appendix 1. 6: Fixed Effect Results 70

Appendix 1. 7: Serial Correlation Test Results 70

Appendix 1. 8: Normality of Residuals 71

LIST OF ACRONYMS/ABBREVIATIONS

NPLs: Non-Performing Loans

NIM: Net Interest Margin

RBZ: Reserve Bank of Zimbabwe

ME: Management Efficiency

CA: Capital Adequacy

NII: Non-Interest Income

QA: Quality of Assets

CHAPTER ONE: INTRODUCTORY CHAPTER

1.1 Introduction

The Zimbabwean economy has experienced challenges, characterized by high inflation, currency instability and limited access to foreign currency. The economy has been in a subdued state for years. This has negatively impacted on the profitability and sustainability of many sectors such as the manufacturing sector yet one of the high performing sectors is the banking industry. Whilst at least five (5) banks failed in the period 2016-2022, the surviving commercial predominantly recorded phenomenal performance. The main aim of this research was to identify the key drivers of commercial banks' profitability despite operating in a subdued Zimbabwean economy. This chapters lays the background of the study, the problem statement, the research objectives and questions. It also outlines the significance of the research, research delimitations, research limitations and research assumptions.

1.2 Background to the Study

At the global level, commercial banks operate in an interconnected and dynamic environment influenced by various macroeconomic factors. Based on empirical literature reviewed, drivers of bank performance include digitisation, management efficiency, capital adequacy, non-interest income and net interest margin. According to Mugondo and Mupedziswa (2018), digitization has globally emerged as an additional driver in recent years and its significance and contribution to commercial banks profitability varies from one economy to the next.

Management efficiency is another crucial driver of commercial banks' profitability globally. Effective management practices, including strategic decision-making, risk management and cost control measures, contribute to improved financial performance (Athanasoglou et al., 2021). Additionally, capital adequacy plays a vital role in determining banks' profitability. Sufficient capital levels ensure stability and resilience against potential financial shocks (Demirgüç-Kunt & Huizinga, 2019). Asset quality is also a critical factor affecting commercial banks' profitability globally. Banks with lower levels of non-performing loans (NPLs) tend to have higher profitability due to reduced credit risk and provisioning costs (Kosmidou et al., 2020). Lastly, net interest margin is an essential indicator of banks' profitability globally. NIM represents the difference between interest income generated from loans and interest expenses

paid on deposits. Higher NIM indicates better profitability for commercial banks (Altoonaz et al., 2020).

1.2.1 Global Developments

It is important to consider the specific characteristics and trends within different geographical context. For instance, in Europe, studies have shown that digitization positively impacts banks' profitability (Bauer et al., 2017). However, the relationship between management efficiency and profitability in European banks has yielded mixed findings (Athanasoglou et al., 2021). Capital adequacy remains a crucial driver of profitability in European banks, particularly due to regulatory requirements imposed by the Basel III framework (Demirgüç-Kunt & Huizinga, 2019). Regarding asset quality, European banks have faced challenges in recent years due to the impact of the global financial crisis and subsequent economic downturns. Non-performing loans have been a significant concern for European banks, negatively affecting their profitability (Kosmidou et al., 2020). Additionally, NIM has been under pressure in Europe due to low-interest rates and increased competition within the banking sector (Altunbas et al., 2020).

1.2.2 Regional Developments

Zooming into a regional perspective, it is essential to examine the drivers of commercial banks' profitability within a specific region. In the African context, according to Ebhote (2020), a research in Nigeria concluded that, using the regression model, digitisation has significant effect on bank profitability. In Zimbabwe, digitization has gained momentum as an important driver of profitability for commercial banks. The adoption of mobile banking and digital payment solutions has allowed African banks to expand their customer base and reduce operational costs (Mlambo & Biekpe, 2018). However, the impact of management efficiency on profitability in African banks has shown mixed results (Ntim et al., 2021). Capital adequacy remains a critical factor for African banks' profitability, as it ensures stability and resilience against economic shocks (Mlambo & Biekpe, 2018). Asset quality has been a challenge for African banks due to high levels of NPLs, which can erode profitability through increased provisioning costs (Ntim et al., 2021). Moreover, NIM has been affected by interest rate volatility and competition within the African banking sector (Mlambo & Biekpe, 2018).

1.2.3 Local Developments

Finally, focusing on the Zimbabwean perspective, it is crucial to consider the specific factors influencing commercial banks' profitability in the country. In recent years, digitization has gained traction in Zimbabwe's banking sector, with mobile banking services playing a significant role in enhancing bank operations (Mataranyika & Chikono, 2019). Its impact on bank profitability has not been researched adequately and there is no sufficient evidence hence this research. Management efficiency has shown mixed findings in relation to profitability for Zimbabwean banks (Mataranyika & Chikono, 2019).

Capital adequacy remains a critical driver of profitability for Zimbabwean banks, as regulatory requirements ensure stability and soundness in the financial system (Reserve Bank of Zimbabwe, 2021). Yet the impact of capital adequacy on bank profitability in a developing economy such as Zimbabwe's is yet to be fully investigated to ascertain its significance. Empirical evidence in the developed economies such as United Kingdom concluded that capital adequacy has no significant impact on bank profitability. Another determinant, asset quality has been a challenge for Zimbabwean banks due to economic instability and high levels of NPLs (Mataranyika & Chikono, 2019). Additionally, net interest margin has been influenced by interest rate dynamics and competition within the Zimbabwean banking industry (Reserve Bank of Zimbabwe, 2021).

The Zimbabwean macro-economic environment has been subdued for several years. Manufacturing sector is a typical example of a sector that has been affected significantly, operating at below 58% by end of December 2022 (ZIMSTATS, 2023). The banking sector which is considered to be the lifeblood of many economies is currently thriving after shedding off some weak banks between 2009 and 2015 and this study seeks to interrogate the key drivers driving the surviving bank's phenomenal performance defying the economic downturn over in the same period and beyond.

1.2.4 Case Study Studied

The banking sector in Zimbabwe is relatively small compared to other countries in the region. According to the Reserve Bank of Zimbabwe (RBZ), there were 16 commercial banks operating in the country as of December 2020, with total assets of $10.4 billion (RBZ, 2020). This is a significant decrease from the 25 banks that operated in the country in 2009, before the implementation of the Zimbabwe dollar (ZWD) as the official currency (RBZ, 2009). The small

size of the banking sector can be attributed to the country's history of political instability and economic sanctions, which have discouraged foreign investment and limited access to funding for local banks. Despite the challenges facing the banking sector, some commercial banks in Zimbabwe have managed to achieve impressive profits. For example, the largest bank in the country, Standard Bank Zimbabwe Limited, reported a net profit of $74 million in 2020, up from $62 million in 2019 (Standard Bank Zimbabwe Limited, 2020). Similarly, Barclays Bank Zimbabwe Limited recorded a net profit of $54 million in 2020, up from $44 million in 2019 (Barclays Bank Zimbabwe Limited, 2020). These results demonstrate that some commercial banks in Zimbabwe are able to generate profits despite the challenging environment.

Several factors influence the profitability of commercial banks in Zimbabwe. One of the most important factors is interest rates. Commercial banks in Zimbabwe rely heavily on interest income to generate profits. When interest rates are high, banks can charge higher interest rates on loans and attract more depositors, leading to increased profitability. However, high interest rates can also lead to inflation, which can erode the value of bank assets and reduce profitability (Masakure, 2017). Another factor that influences profitability is the level of non-performing loans (NPLs). NPLs are loans that are not being repaid and they can significantly reduce the profitability of commercial banks. In Zimbabwe, NPLs have been a major challenge for commercial banks, with the ratio of NPLs to gross loans standing at 10.4% in 2020 (RBZ, 2020). To mitigate the risk of NPLs, commercial banks in Zimbabwe have had to increase their provisions for loan losses, which can reduce profitability.

Regulatory framework is another factor that influences the profitability of commercial banks in Zimbabwe. The RBZ has implemented several regulations aimed at strengthening the banking sector and improving its stability. These regulations include capital adequacy requirements, liquidity ratios and risk-based supervision. While these regulations are essential for maintaining the stability of the financial system, they can also increase the cost of doing business for commercial banks, reducing their profitability (Masakure, 2017).

1.3 Statement of the Research Problem

The problem is the paradox of good performance by Zimbabwean banks in a subdued economy. The research analyses the key drivers of commercial banks' profitability defying the subdued Zimbabwean economy. Although existing literature has explored various factors such as macroeconomic variables, bank-specific characteristics, regulatory environment, and market

structure, there are certain gaps that need to be addressed. These gaps include the impact of technological advancements, customer behaviour, risk management practices, and a comprehensive analysis of profitability drivers. Closing these gaps is important for policymakers, regulators, and banking institutions to formulate effective strategies, regulations, and incentives, make informed decisions, and enhance overall financial performance in the banking sector. Additionally, it contributes to academic advancement and fosters a deeper understanding of the relationship between drivers and bank profitability.

1.4 Aim/Purpose of the Study

To analyse the key drivers of the banking sector's profitability despite operating in a subdued Zimbabwean economy.

1.5 Research Objectives

1. To determine the key drivers of commercial banks' profitability in a subdued Zimbabwean economy.
2. To establish the effect of each driver (digitization, management efficiency, capital adequacy, asset quality, non-interest income and net interest margin) on commercial banks' profitability in a subdued Zimbabwean economy.
3. To develop a model that other banks can use to boost profitability even in a subdued economy.

1.6 Research Hypothesis/Questions

H_1: Digitization exerts a positive and statistically significant effect on the profitability of commercial banks in Zimbabwe.

H_2: Management efficiency exerts a positive and statistically significant effect on financial performance in commercial banks in Zimbabwe.

H_3: Capital adequacy exerts a positive and statistically significant effect on financial performance in commercial banks in Zimbabwe.

H_4: Asset quality exerts a positive and statistically significant effect on financial performance in commercial banks in Zimbabwe.

H_5: Non-interest income exerts a positive and statistically significant effect on financial performance in commercial banks in Zimbabwe.

H_6: Net interest margin exerts a positive and statistically significant effect on financial performance in commercial banks in Zimbabwe.

1.7 Research Assumptions

In the conducted study, it was assumed that Zimbabwean commercial banks and regulators did not make unusual changes to their operations. The assumption was made that the collected secondary data was adequate, accurate and unbiased, resulting in reliable results useful to stakeholders. It was recognized that the macro environment equally impacted all commercial banks and profitability was determined by the internal factors under investigation. Additionally, it was assumed that the error term followed a normal distribution, which was particularly important when defining important additional finite-sample properties.

1.8 Significance of the Study

Evidence of previous studies, both theoretical and empirical literature could not provide conclusive list of key drivers that have significant impact on the bank's performance. A typical example is on studies conducted to ascertain drivers of bank performance in Kenya and Malaysia (Karim et al. (2017). This study concluded that Net Interest Income does not have significance on bank profitability yet a similar study concluded that higher net interest income has positive impact on bank profitability in Indian banks (Hasan et al. (2021). This lack of consensus has aroused interest in the researcher to carry out a similar study in the Zimbabwean context. Previous studies also did not consider digitization which is currently being adopted by many banks across various markets and this study has added this factor to assess its impact in the Zimbabwean market. This work is designed to help different stakeholders such as the banking public, regulatory authorities, bankers and academics on the determinants of profitability of banks. The banking public has been neck-to-neck with banking institutions since dollarization due to high banking charges levied on them in which banking institutions say they are justified. The results will benefit tier I and II banks as well as building societies amongst many.

Various bank strategists can make informed decisions as they project impact of various drivers as such prioritise their budgets and efforts. The justification for this research lies in the

importance of understanding the factors that drive commercial banks' profitability in a subdued Zimbabwean economy. As the country faces economic challenges, it becomes crucial for banks to adapt and identify strategies that can sustain their profitability. By identifying the key drivers, policymakers, regulators and bank management can make informed decisions to enhance the financial stability of commercial banks and contribute to the overall economic recovery of Zimbabwe.

The regulatory authorities also need to know the determinants of bank impressive performance so that their policies promote bank profitability and sustenance. Profitability means that the bank's traditional role of financial intermediation can be enhanced thereby promoting growth and financial depth and breadth in the economy. For the academic, this study provides rich literature for further studies of the banking industry. This dissertation paves way for further research in related studies of banking institutions.

This study therefore closes the information gap around the issue of the key drivers influencing banking sector performance in Zimbabwe juxtaposed with the underperforming economy. Further, the research results by various authors are conflicting, for example, where others are getting a positive relationship. Other researchers get negative relationship and the others get no significant relationship between the same variables. As a result, the applicability of the results obtained by other researchers elsewhere is quite questionable and ambiguous in the Zimbabwean context. Clearly, results seem to differ with place and time contexts. This research shall assist in bringing to light and provide evidence to refute or confirm the empirical results of existing literature from different settings, using Zimbabwean data.

1.9 Contribution of the Study

This research has various contributions to

1.9.1 Epistemological Contribution

From an epistemological perspective, this study contributes to the existing body of knowledge by providing a deeper understanding of the specific factors that drive commercial banks' profitability in a subdued economy like Zimbabwe. It enhances knowledge and comprehension of the complex dynamics at play within the banking sector during challenging economic times. By exploring these key drivers, the study contributes to the theoretical framework surrounding

bank profitability and expands our understanding of how external factors impact financial institutions.

1.9.2 Methodological Contribution

The study makes methodological contributions by employing rigorous research methodologies to analyse the key drivers of commercial banks' profitability. It utilized quantitative techniques such as panel regression analysis to examine the relationship between various independent variables (digitization, management efficiency, capital adequacy, non-interest income, net interest margin and quality of assets and banks' profitability indicators (return on assets). By employing robust methodologies, this study ensured the reliability and validity of its findings, thereby contributing to the methodological advancements in studying bank profitability.

1.9.3 Policy Contribution

In terms of policy implications, this study provides valuable insights for policymakers in Zimbabwe's banking sector. By identifying the key drivers of commercial banks' profitability in a subdued economy, policymakers can develop targeted strategies and policies to support and enhance the performance of financial institutions. For example, if the study finds that high interest rates negatively impact bank profitability, policymakers should consider implementing measures to lower interest rates or provide incentives for banks to mitigate this issue. The findings can guide policymakers in formulating effective policies that promote a stable and profitable banking sector.

1.9.4 Practical Contribution

Lastly, this study offers practical contributions by providing actionable insights for commercial banks operating in a subdued Zimbabwean economy. By understanding the key drivers of profitability, banks can make informed decisions regarding their operations, risk management and strategic planning. For instance, the study reveals that improving managerial efficiency positively impacts profitability, banks can focus on enhancing their management skills. The practical implications of this study enable banks to adapt their strategies and practices to navigate challenging economic conditions effectively.

1.10 Delimitation of the Study

This research paper dwelled on the internal determinants of bank profitability and how banks can sustain or improve their performance. The research narrowed the determinants of profitability to six internal variables which are digitization, management efficiency, capital adequacy, asset quality, non-interest income and net interest margin. The time period under study was from 2016 to 2022.

1.10.1 Conceptual Focus

This research was delimited to digitization, management efficiency, capital adequacy, asset quality, non-interest income and net interest margin as independent variables and bank performance as the dependent variable.

1.10.2 Spatial Focus

In terms of geography, the research was undertaken in Harare. It encompassed banks represented in Harare. Harare was a significant economic hub and home to numerous financial institutions. By choosing Harare as the research location, one can gain valuable insights into the banking sector within the city and its impact on the local economy.

1.10.3 Temporal Focus

The research used time-series annual data obtained from commercial banks covering the period from 2016 to 2022. Methodologically, the research was delimited to descriptive statistics and regression and correlation analysis. The research used secondary data from published corporate annual reports of commercial banks and secondary data from RBZ consolidated reports and ZIMSTATS.

1.11 Limitations of the Study

Research limitations of refers to any potential weaknesses usually beyond the researcher's control. According to Theofandis, D. and Fountouki. A. (2019), these potential pitfalls normally relates to the selected research design, statistical models constrictions, funding constrictions and other factors. The possible limitations pertaining this research are detailed below;

1.11.1 Data Availability and Quality

The research was faced with challenge with respect to the availability and quality of data. Time series data on commercial banks' profitability in a subdued Zimbabwean economy from 2016 to 2022 was limited and difficult to obtain. The accuracy and reliability of the data was also a concern, as data collection processes in Zimbabwean banks does not adhere to rigorous standards. Inaccurate or incomplete data had the potential to result in bias and affect the validity of the regression and correlation analysis. To overcome this challenge, the data was thoroughly cleaned and validated to ensure accuracy and completeness.

1.11.2 Endogeneity and Causality

Endogeneity refers to situations where there is a bidirectional relationship between variables, making it challenging to establish causality. In this study, endogeneity could arise if profitability affects some of the drivers being examined, leading to reverse causality. For example, profitable banks have more resources to invest in digitization or improve management efficiency. Failure to account for endogeneity can lead to biased coefficient estimates and undermine the validity of the regression results. The study estimated multiple models to account for potential omitted variable bias and to test the robustness of the findings.

1.11.3 Temporal Dynamics

Time series data analysis assumes that the relationship between variables remains constant over time. However, in a dynamic economic environment like Zimbabwe, the relationship between drivers and profitability can change due to various factors such as policy changes, economic shocks, or technological advancements. Failing to account for these temporal dynamics could limit the accuracy and applicability of the study's findings. To offset this, the study performed sensitivity analyses to test the robustness of the findings to different assumptions about the drivers and profitability.

1.12 Outline of the Dissertation

Chapter 1 provided the background to this study which highlights of the history, architecture and the justification of the existence of the banks was certified.

Chapter 2 focuses at literature, both theoretical and empirical literature were reviewed.

Chapter 3 stipulates the methodology that the researcher employed in coming up with the data that would be analysed to get the information that answers the research questions.

Chapter 4 centres on data analysis, presentation, interpretation and the discussion of findings.

Chapter 5 gave a summary, conclusion and recommendations of the study.

1.13 Chapter Summary

This chapter laid the background of the study, showing that triggered the undertaking research study which is lack of a comprehensive analysis of the impact of technological advancements and other structural factors on bank profitability in Zimbabwe. The background provides evidence in form of statistics and figures that justify the existence of the problem that triggered the research study undertaking. Primarily, the research problem was the existence of mixed findings about the drivers of commercial banks' profitability in a subdued Zimbabwean economy. The chapter also presented research objectives, the research questions, research hypotheses, rationale of the study, scope of the research and dissertation outline. The chapter that follows presents the literature reviewed.

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

In this chapter, the focus is on conducting a thorough review of existing literature that pertains to the factors influencing the performance of financial organizations. The analysis encompasses both theoretical and empirical studies, providing a comprehensive understanding of the subject matter. This literature review serves as the foundation for developing a conceptual framework and identifying the research gap that this study aims to address. Furthermore, it serves as a basis for discussing the findings obtained through this research.

2.2 Conceptual Framework

This section provides the conceptual foundation of the study, which is a pictorial presentation of the variables discussed in the study, as guided by the research objectives. The conceptual foundation was crucial as it provided a framework for understanding variables under investigation. This helped to establish a solid foundation for further analysis and interpretation of the data collected. This presentation of variables served as a guide for researchers throughout the study. It helped them to stay focused on the aspects under investigation.

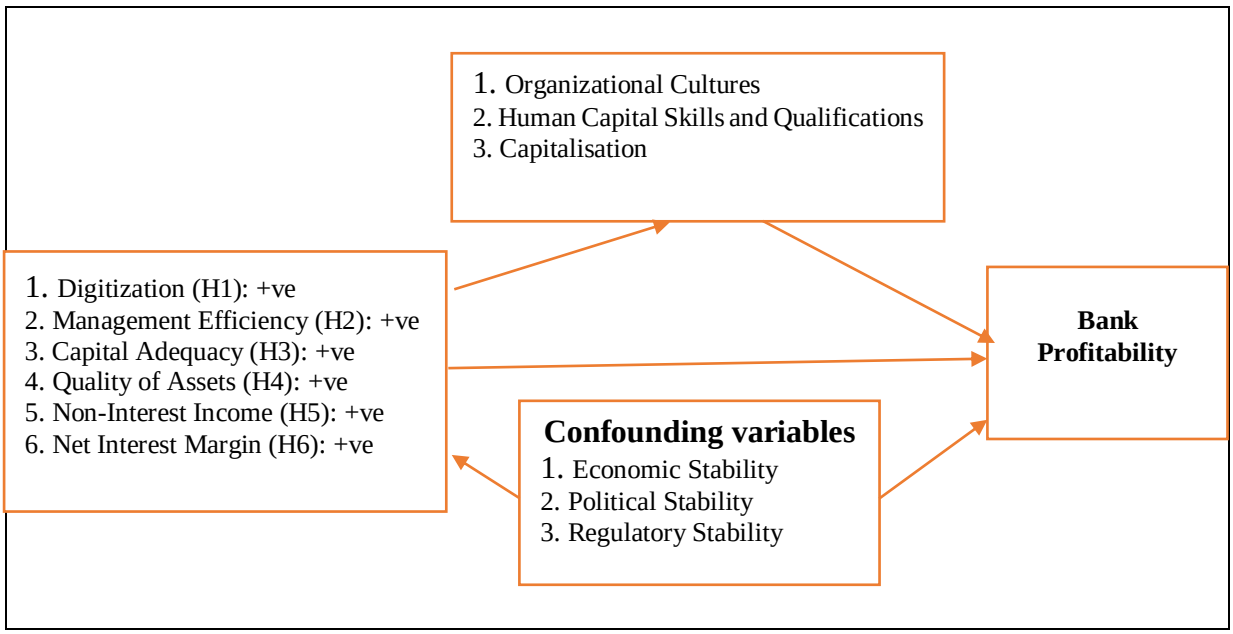


Figure 2. 1: Conceptual framework

Source: *Chipunza (2023), own diagram for this study*

The above model depicts the relationship between the study variables, grouped as independent and dependent variables. The first relationship is between digitization and the bank performance level, on which the first alternative hypothesis was generated as “there is a significant relationship between digitization and bank performance level”. The second relationship is between management efficiency and the bank performance level, on which the second alternative hypothesis was generated as “there is a significant relationship between management efficiency and bank performance level”. The third relationship is between management efficiency and the bank performance level, on which the third alternative hypothesis was generated as “there is a significant relationship between capital adequacy ratio and bank performance level”.

The fourth relationship is between quality of assets and the bank performance level, on which the fourth alternative hypothesis was generated as “there is a significant relationship between asset quality and bank performance level”. The fifth relationship is between non-interest income level and bank performance level, on which the fifth alternative hypothesis was generated as “there is a significant relationship between non-interest income level and bank performance level”. The sixth relationship depicted by the model is between Net Interest Margin levels and bank performance level, on which the sixth alternative hypothesis was generated as “there is a significant relationship between NIM and bank performance level”.

2.3 Theoretical Framework

This section reviews the theoretical literature, which refers to the theories propounded, models formulated, beliefs held and the claims made by various previous scholars in the fields related to banking and bank performance.

2.3.1 Efficient Structure Theory

The Efficient Structure Theory, proposed by Berger (1995), suggests that the profitability of commercial banks is influenced by their market structure. According to this theory, banks operating in a more concentrated market structure tend to have higher profitability due to reduced competition. This is because fewer competitors allow banks to charge higher interest rates and fees, resulting in increased profits. The theory assumes that banks aim to maximize their profits and that they have the ability to set prices independently. It also assumes that there are no barriers to entry or exit in the banking industry, allowing for free competition. The

implications of this theory are that market concentration positively affects bank profitability and that policies promoting competition lead to lower profitability.

Critics of the Efficient Structure Theory argue that it oversimplifies the relationship between market structure and bank profitability. They contend that other factors, such as bank-specific characteristics and macroeconomic conditions, also play significant roles in determining profitability. Additionally, some studies have found mixed results regarding the relationship between market concentration and bank profitability (e.g., Bikker & Haaf, 2002; Casu & Girardone, 2006). In the context of the study on commercial banks' profitability in Zimbabwe's subdued economy, the Efficient Structure Theory is relevant as it helps understand how market concentration impact bank profitability. By examining the level of competition within the banking sector and its effect on profitability, policymakers can gain insights into potential measures to enhance the sector's performance.

2.3.2 Economic Efficiency Theory

The Economic Efficiency Theory posits that a bank's profitability is influenced by its ability to allocate resources efficiently. According to this theory, banks that effectively allocate their resources are more likely to generate higher profits. This efficiency can be achieved through various means, such as optimal loan portfolio management, cost control measures and effective risk management practices. The theory assumes that banks strive to maximize their efficiency levels and minimize costs. It also assumes that banks have access to perfect information and can make rational decisions based on this information. The implications of the Economic Efficiency Theory are that banks with higher efficiency levels are more likely to be profitable and that policies promoting efficiency can lead to improved profitability.

Critics of the Economic Efficiency Theory argue that it neglects the influence of external factors, such as regulatory constraints and macroeconomic conditions, on bank profitability. They contend that banks face limitations in achieving optimal efficiency due to these factors. Additionally, some studies have found mixed results regarding the relationship between bank efficiency and profitability (Molyneux & Thornton, 1992; Goddard et al., 2004). In the study on commercial banks' profitability in Zimbabwe's subdued economy, the Economic Efficiency Theory is relevant as it helps assess the impact of resource allocation and management practices on bank profitability. By examining the efficiency levels of banks operating in Zimbabwe and

identifying potential areas for improvement, policymakers can devise strategies to enhance the sector's profitability.

2.3.3 Structure Conduct Performance (SCP) Hypothesis

The Structure Conduct Performance (SCP) Hypothesis, proposed by Bain (1951), suggests that a bank's market structure influences its conduct, which in turn affects its performance. According to this hypothesis, market concentration leads to reduced competition, allowing banks to engage in anti-competitive behavior and charge higher prices. This behavior ultimately results in higher profits for banks operating in concentrated markets. The SCP Hypothesis assumes that market structure determines the conduct of firms within an industry. It also assumes that firms have the ability to set prices independently and engage in strategic behavior. The implications of this hypothesis are that market concentration negatively affects competition and lead to higher profits for banks.

Critics of the SCP Hypothesis argue that it oversimplifies the relationship between market structure, conduct and performance. They contend that other factors, such as technological advancements and regulatory frameworks, also influence bank conduct and performance. Additionally, some studies have found mixed results regarding the relationship between market concentration and bank performance (e.g., Demsetz, 1973; Berger et al., 1993). In the context of the study on commercial banks' profitability in Zimbabwe's subdued economy, the SCP Hypothesis is relevant as it helps understand how market concentration impact bank conduct and performance. By examining the behavior of banks operating in concentrated markets and its effect on profitability, policymakers can gain insights into potential measures to promote competition and enhance the sector's performance.

2.3.4 Portfolio Theory

Portfolio theory of investment is a theory that tries to maximize portfolio expected return for a given amount of portfolio risk or equivalently minimize risk for a given level of expected return, by carefully choosing the proportions of various assets. Although portfolio theory is widely used in practice in the finance industry and several of its creators won a Nobel Prize for the theory, in recent years the basic portfolio theory has been widely challenged by fields such as behavioural economics (Markowitz, 1952) however many theoretical and practical criticisms have been developed against it. This include the fact that financial returns do not follow a Gaussian distribution or indeed any symmetric distribution and those correlations

between asset classes (Micheal and Sproul, 1998). This theory is considered relevant to this study as it tries to explain how banks can still survive in an unstable environment, thus by holding assets that are affected differently by changes in the operating environment results in the banks managing to hedge against losses and still perform unexpectedly good. Thus, the theory suggests that banks be diversified, hence they can still manage to paradoxically profit from such a Zimbabwean environment.

2.3.5 Digital Transformation

Technology has disrupted all industries. All industries are being upturned by computer technologies (Berman & Payne, 2018). The banking sector has not been exception to the disruption in computer technologies. Technocrats states that digital technologies are critical in banking considering that banks are technologically sensitive. This has seen financial institutions digitally transforming. Digital transformation has improved customer experience and has increased marketing and sales (Solis, Li and Szymanski, 2014). Digital transformation has accelerated digitalization of products in banks. Business organisations that pursue digital transformation realign technology and allow customers to participate on touchpoints. Therefore, digital transformation is based on the intention to ensure that their quality of service delivery is enhanced. The rationale behind the adoption of digital transformation processes in organisations is explained in the Technology Acceptance Theory.

2.4 Bank Performance Measurement Metrics

This section centers on the review of literature on the different metrics of bank performance measurement.

2.4.1 Return on Assets (ROA)

Return on assets (ROA) is a financial metric used to assess the profitability of a company, specifically a bank, by measuring the amount of profit it generates from its assets. In simpler terms, ROA indicates how effectively a company's management utilizes its economic resources or assets listed on its balance sheet to generate earnings. The formula for calculating ROA involves dividing the net income by the average total assets. Additionally, ROA can also be expressed as the product of the profit margin and the total asset turnover. Both formulas can be employed to determine the return on total assets.

2.4.2 Return on Equity (ROE)

Return on Equity (ROE) is a financial metric used to evaluate a company's profitability by measuring the return generated from the equity invested by shareholders. It is calculated by dividing the net income of a company by its total equity. While ROE is similar to Return on Assets (ROA) in measuring profitability, it specifically focuses on the return earned on the equity invested by shareholders. The higher the ROE, the more favourable it is considered, as it indicates that the company is effectively utilizing shareholder investments to generate significant profits in comparison to funds borrowed from equity holders. ROE serves as an important indicator of a company's performance and growth potential. It provides insights into how efficiently a company is utilizing its equity capital to generate profits.

A higher ROE suggests that the company is effectively leveraging its equity investments to generate substantial returns. This can be attributed to factors such as effective cost management, strong revenue generation and efficient utilization of assets. By analysing ROE, investors and stakeholders can assess a company's ability to generate profits relative to the amount of equity invested. A high ROE indicates that the company has been successful in generating significant returns for shareholders, which can be an attractive characteristic for potential investors. However, it is important to consider industry norms and compare ROE with competitors or benchmarks to gain a more comprehensive understanding of a company's performance.

2.4.3 Tobin’s Q

Tobin's q is a financial metric that measures the relationship between the market value of a company's assets and the replacement value of those assets. It is calculated by dividing the market value of a company's assets, which can be estimated as the sum of its equity and debt market values, by the replacement value of those assets, which is typically considered equal to the book value of total assets. The concept of Tobin's q was introduced by James Tobin, an American economist, in the 1960s. The primary purpose of Tobin's q is to assess the wealth generated by a company for its shareholders. It provides insights into how much more a company is worth compared to the book value of its assets. If Tobin's q is greater than 1, it indicates that the market value of a company's assets exceeds their replacement value, suggesting that there be intangible assets, goodwill, future growth potential, or a competitive position that contribute to this excess value.

A high q ratio is generally considered good because it indicates that the company is worth more than the sum of its assets (Blundell et al., 1992). However, since it is based on historical data, it is not a good predictor of future returns on the company's equity. In valuation context, a high q ratio might indicate that the company's stock is overvalued. A very high ratio relative to historical trend might indicate that the stock market is overvalued and vice versa (Blundell et al., 1992). The Tobin's q ratio can also be utilized as an indicator of overall stock market valuation. The following is the Tobin's Q formula.

$$Tobin's\ Q = \frac{Market\ Value\ of\ Assets}{Replacement\ Value\ of\ Assets}$$

Market value of assets equals the market value of equity and market value of debt. The actual replacement value of assets is hard to determine so it is assumed to be equal to the book value of total assets (Kimari, 2013).

2.5 Review of Empirical Literature

This section reviews empirical literature in relation to the three research objectives.

2.5.1 Key drivers of Banks' Profitability – Objective 1

Various drivers are reviewed in line with objective number 1 which is seeks to determine the key drivers of commercial banks' profitability in a subdued Zimbabwean economy.

2.5.1.1 Digitization

Digitization refers to the adoption and integration of digital technologies in banking operations. It encompasses various aspects such as online banking, mobile banking, electronic payment systems and automation of processes. The variables associated with digitization include the level of technology infrastructure, internet penetration, mobile phone usage and customer adoption rates. The increasing use of technology in banking has led to greater efficiency and lower costs. Digital channels such as online banking, mobile banking and digital payments have made it easier for customers to access banking services, reducing the need for physical branches and increasing customer convenience. According to a study by the Harvard Business Review, digitization can lead to cost savings of up to 25% for banks (HBR, 2019).

2.5.1.2 Management Efficiency

Management efficiency refers to the ability of commercial banks to effectively utilize their resources and optimize operations. It encompasses factors such as cost control, risk management and strategic decision-making. Efficient management practices can significantly impact a bank's profitability. Effective management is crucial for a bank's profitability. Efficient management can lead to cost savings, improved productivity and better risk management. A study by the McKinsey Global Institute found that better management practices can increase a bank's profitability by up to 20% (McKinsey, 2019).

2.5.1.3 Capital Adequacy

Capital adequacy refers to the level of capital held by banks to absorb potential losses and maintain stability. It is measured through regulatory requirements such as the Basel III framework, which sets minimum capital standards for banks based on their risk profiles. Banks need to maintain sufficient capital to absorb potential losses and maintain financial stability. Capital adequacy is a key driver of profitability, as it allows banks to take on more risk and generate higher returns. According to a study by the Bank for International Settlements, banks with higher capital ratios tend to have higher profitability (BIS, 2020).

2.5.1.4 Asset Quality

Asset quality refers to the quality and performance of a bank's loan portfolio. Non-performing loans (NPLs) are a key indicator of asset quality, as they represent loans that are in default or at risk of default. High levels of NPLs can negatively impact a bank's profitability. The quality of a bank's assets, such as loans and securities, is a key driver of profitability. High-quality assets tend to generate higher returns and lower losses, while low-quality assets can lead to losses and decreased profitability. According to a study by the Federal Reserve Bank of San Francisco, banks with higher-quality assets tend to have higher profitability (FRBSF, 2019).

2.5.1.5 Non-Interest Income

Non-interest income refers to revenue generated by commercial banks from sources other than interest on loans. It includes fees, commissions, trading income and other operating income. Diversification of income sources through non-interest activities can enhance a bank's profitability. Non-interest income, such as fees for services and investment products, can

contribute significantly to a bank's profitability. A study by the American Banker found that non-interest income can account for up to 40% of a bank's total revenue (American Banker, 2020).

2.5.1.6 Net Interest Margin

Net interest margin represents the difference between a bank's interest income and interest expenses, divided by its earning assets. It reflects a bank's ability to generate profits from its core lending activities. A higher NIM can lead to increased profitability. According to a study by the Federal Reserve Bank of New York, a higher NIM can increase a bank's profitability by up to 20% (FRBNY, 2020).

2.5.2 Effect of Drivers on Banks' Profitability – Objective 2

Objective number 2 is to establish the effect of each driver (digitization, management efficiency, capital adequacy, asset quality, non-interest income and net interest margin) on commercial banks' profitability in a subdued Zimbabwean economy. The effect of drivers on bank's profitability is analysed as follows;

2.5.2.1 Management Efficiency and Bank Profitability

Researchers have employed various methodologies to measure management efficiency and its impact on bank profitability. Some studies have used financial ratio analysis to evaluate the efficiency of banks (Akoto, 2015; Owolabi et al., 2016). Financial ratios such as return on assets (ROA), return on equity (ROE) and the efficiency ratio have been widely used to assess bank performance. Other studies have employed econometric techniques to analyze the relationship between management efficiency and bank profitability (Hamdan et al., 2017; Al-Shammari et al., 2019). These techniques include regression analysis, time series analysis and panel data analysis.

The findings of past studies on the impact of management efficiency on bank profitability have been mixed. Some studies have found a positive relationship between management efficiency and bank profitability (Akoto, 2015; Hamdan et al., 2017). For instance, Akoto's (2015) study found that banks with high levels of management efficiency tend to have higher profits. Similarly, Hamdan et al.'s (2017) study found that there is a positive correlation between management efficiency and bank profitability in Jordanian banks. However, other studies have

found no significant relationship between management efficiency and bank profitability (Owolabi et al., 2016; Al-Shammari et al., 2019).

The conclusions of past studies on the impact of management efficiency on bank profitability are varied. Some studies have concluded that management efficiency is a key determinant of bank profitability (Akoto, 2015; Hamdan et al., 2017). Others have suggested that while management efficiency is important, it is not the sole determinant of bank profitability (Owolabi et al., 2016; Al-Shammari et al., 2019). Additionally, some studies have noted that the relationship between management efficiency and bank profitability is influenced by factors such as economic conditions and regulatory frameworks (Al-Shammari et al., 2019).

2.5.2.2 Capital Adequacy and Bank Profitability

Researchers have employed various methodologies to examine the impact of capital adequacy on bank profitability. These methodologies include empirical analysis, statistical modelling, panel data analysis and event studies. Empirical analysis involves analysing real-world data to identify patterns and relationships. Statistical modelling utilizes econometric techniques to estimate the effects of capital adequacy on bank profitability. Panel data analysis allows for the examination of multiple banks over time, providing a more comprehensive understanding of the relationship. Event studies focus on specific events or regulatory changes that affect capital adequacy requirements and measure their impact on bank profitability.

Numerous studies have investigated the relationship between capital adequacy and bank profitability, yielding diverse findings. Some studies suggest a positive relationship between capital adequacy and bank profitability. For example, a study by Berger and Bouwman (2009) found that higher levels of capital adequacy positively influenced bank profitability in the U.S. banking industry. Similarly, Demirgüç-Kunt et al. (2010) found that well-capitalized banks tend to be more profitable. On the other hand, several studies have found a negative or insignificant relationship between capital adequacy and bank profitability. A study by Altunbas et al. (2007) examined European banks and concluded that there is no significant relationship between capital adequacy ratios and bank profitability. Another study by Goddard et al. (2004) analyzed UK banks and found no evidence of a positive relationship between capital adequacy and profitability.

The conclusions drawn from past studies on the impact of capital adequacy on bank profitability are mixed. While some studies suggest a positive relationship, others find no

significant relationship or even a negative relationship. These divergent findings can be attributed to several factors, including differences in sample size, geographical scope, time period analysed and regulatory environments. It is important to note that the impact of capital adequacy on bank profitability is not solely determined by the level of capital held by banks. Other factors such as bank size, risk management practices, market conditions and macroeconomic factors also play a significant role in shaping bank profitability.

2.5.2.3 Asset Quality and Bank Profitability

Numerous studies have investigated the relationship between asset quality and bank profitability using various methodologies. These methodologies include regression analysis, panel data analysis, event study analysis and financial ratio analysis. Regression analysis is commonly used to estimate the impact of asset quality indicators on profitability measures such as return on assets (ROA) or return on equity (ROE). Panel data analysis allows for controlling time-invariant factors and capturing the dynamic effects of asset quality on profitability over time. Event study analysis examines the market reaction to specific events related to asset quality deterioration or improvement. Financial ratio analysis involves comparing different financial ratios related to asset quality and profitability.

Several studies have found a negative relationship between non-performing loans (NPLs) and bank profitability. Higher levels of NPLs are associated with lower profitability indicators such as ROA and ROE (Barth, Caprio & Levine, 2004). This negative relationship can be attributed to increased provisioning expenses for bad loans, reduced interest income due to non-payment or restructuring of loans and potential reputational damage leading to decreased customer confidence (DeYoung & Rice, 2004). Loan loss provisions are an important component of managing asset quality. Studies have shown that higher loan loss provisions are associated with lower profitability (Molyneux & Thornton, 1992). Increased provisioning reduces the bank's net income, thereby affecting profitability measures. However, it is important to strike a balance between provisioning for potential losses and maintaining profitability in the short term.

2.5.2.4 Non-Interest Income and Bank Profitability

Numerous studies have been conducted to understand the relationship between non-interest income and bank profitability. One such study by DeYoung and Roland (2001) analysed data from U.S. commercial banks over a 20-year period. The study employed a panel regression

model to examine the impact of non-interest income on bank profitability. The findings indicated that non-interest income had a positive effect on bank profitability, suggesting that diversification into non-interest income sources can enhance overall bank performance. Another study by Berger et al. (2004) focused on a sample of European banks. The researchers used a similar panel regression model to investigate the relationship between non-interest income and bank profitability. The results revealed that non-interest income had a positive impact on bank profitability, supporting the findings of the previous study.

In contrast, some studies have found mixed or even negative effects of non-interest income on bank profitability. For instance, Boyd and Runkle (1993) examined U.S. commercial banks and found that while non-interest income initially had a positive impact on profitability, this effect diminished over time. They argued that excessive reliance on non-interest income could lead to increased risk-taking behaviour and potential financial instability. Furthermore, a study by Bikker and Hu (2002) analysed data from 14 European countries and found that non-interest income had a negative effect on bank profitability. The researchers suggested that this negative relationship could be attributed to higher costs associated with generating non-interest income or inefficiencies in managing diverse business lines.

Methodologies used in these studies typically involve econometric techniques such as panel regression models, which control for various bank-specific and macroeconomic factors. These models allow researchers to isolate the impact of non-interest income on bank profitability while controlling for other variables that influence profitability, such as bank size, capitalization, risk and market conditions.

2.5.2.5 Net Interest Margin and Bank Profitability

Berger and Bouwman (2013) analysed the impact of net interest margin on bank profitability using a large sample of U.S. banks over the period 1984-2009. The authors employed a fixed-effects panel regression model to examine the relationship between NIM and return on assets (ROA), a commonly used measure of bank profitability. The findings indicated that higher net interest margins were positively associated with higher profitability levels for banks. Similarly, another study by DeYoung et al. (2017) investigated the impact of net interest margin on bank profitability using a sample of U.S. banks over the period 1992-2014. The authors employed a dynamic panel data model to account for potential endogeneity issues and found that higher net interest margins were positively related to bank profitability, as measured by ROA.

In contrast, a study by Altunbas et al. (2007) examined the impact of net interest margin on bank profitability in Europe using a sample of commercial banks over the period 1996-2002. The authors employed a two-stage least squares regression model to address potential endogeneity concerns and found that while higher net interest margins had a positive effect on bank profitability, this effect was relatively small. These studies highlight the importance of net interest margin in determining bank profitability. Higher net interest margins generally lead to higher profitability levels for banks, although the magnitude of this relationship vary across different time periods and geographical regions.

2.5.2.6 Digitization and Bank Profitability

Beck et al. (2016) examined the impact of digitization on bank profitability using a sample of 130 banks from 49 countries. The study employed a panel data analysis and considered various measures of digitization, including internet banking usage, mobile banking usage and IT investment. The findings revealed a positive relationship between digitization and bank profitability. Specifically, the study found that higher levels of internet banking usage and IT investment were associated with increased profitability for banks. Another study by Huang et al. (2017) focused on the impact of mobile banking on bank profitability. The study used a sample of 86 banks from 22 countries and employed a fixed-effects regression model to analyze the data. The findings indicated that mobile banking adoption positively influenced bank profitability. The study also highlighted that the positive impact was more significant for banks operating in countries with higher levels of smartphone penetration.

Furthermore, a study conducted by Hasan et al. (2018) explored the impact of digital innovation on bank profitability. The study utilized a sample of 1,000 banks from 72 countries and employed a two-step system generalized method of moments (GMM) estimation technique. The results demonstrated that digital innovation positively affected bank profitability. Additionally, the study found that the impact was more pronounced for banks with higher levels of capitalization and efficiency. These studies collectively provide evidence for the positive impact of digitization on bank profitability. They highlight that increased usage of internet banking, mobile banking adoption and digital innovation contribute to improved financial performance for banks.

In terms of methodologies used in these studies, panel data analysis, fixed-effects regression models and GMM estimation techniques were employed to analyze the relationship between

digitization and bank profitability. These methodologies allow researchers to control for various factors that influence profitability and provide robust empirical evidence. The findings of these studies have important implications for banks and policymakers. They suggest that embracing digitization can enhance bank profitability and financial performance. Banks can leverage digital technologies to improve customer experience, streamline operations and reduce costs. Policymakers can also play a role in facilitating the adoption of digital innovations by creating a supportive regulatory environment.

2.5.3 Boosting Profitability in Banks in a Subdued Economy – Objective 3

Boosting profitability in banks in a subdued economy is a complex challenge that requires careful analysis and strategic decision-making. One significant factor that has the potential to impact bank profitability is digitization. McKinsey & Company (2016) examined the impact of digitization on bank profitability. The study found that banks that effectively leverage digital technologies can achieve substantial improvements in profitability. This is primarily due to the ability of digitization to enhance operational efficiency, reduce costs and improve customer experience.

Operational efficiency is a critical driver of profitability for banks. By digitizing processes and automating manual tasks, banks can streamline operations and reduce the time and resources required for various activities. This leads to cost savings and increased productivity. For example, digital channels such as online banking and mobile applications enable customers to perform transactions without visiting physical branches, reducing the need for tellers and other staff members (McKinsey & Company, 2016). Furthermore, digitization enables banks to gather vast amounts of data about customer behaviour, preferences and needs. By analyzing this data using advanced analytics techniques, banks can gain valuable insights that inform targeted marketing strategies and personalized product offerings. This enhances customer experience and satisfaction, leading to increased loyalty and potentially higher revenues (McKinsey & Company, 2016).

In addition to operational efficiency and improved customer experience, digitization also plays a crucial role in risk management for banks. Advanced analytics tools can analyze large volumes of data in real-time to detect fraudulent activities or identify potential credit risks. By leveraging these technologies, banks can mitigate risks more effectively, reducing losses and improving overall profitability (McKinsey & Company, 2016). However, it is important to note

that the impact of digitization on bank profitability in a subdued economy is not without challenges. One significant challenge is the initial investment required to implement digital technologies and infrastructure. Banks need to allocate resources for technology upgrades, cybersecurity measures and employee training to ensure successful digitization initiatives. This initial investment put pressure on profitability in the short term (World Bank Group, 2019).

Moreover, the success of digitization initiatives depends on the ability of banks to effectively manage the transition from traditional banking models to digital platforms. This requires a comprehensive strategy that considers factors such as customer adoption rates, regulatory compliance and organizational culture. Banks that fail to navigate this transition effectively does not fully realize the potential benefits of digitization (World Bank Group, 2019).

2.6 Summary of Literature Findings and Gap in Knowledge

From the empirical and theoretical literature reviewed, it is clear that local studies are quite scanty in Zimbabwean banking sector to analyse the causes of positive banking performance as reported by their financial statements against a deteriorating operating environment especially the general economic environment.

Perusing through vast tracts of literature, it is concluded that drivers of bank profitability vary from one economy to another. Some researchers such Shujaat, et, al (2020) research on the impact of various drivers on bank performance using descriptive and exploratory approach. The data was collected using semi-structured interviews on bank staff and other researchers such as Paffrath and Scheck (2022) used regression model to carry out a similar study in Eurozone and concluded that digitisation has no impact on bank profitability. The difference in methodology employed by different researchers might explain the inconsistent results from one researcher to the next.

The study concluded that digitisation has vastly improved bank performance as it has significant impact on bank profitability in some economies. The same diver, digitisation was considered to be an unreliable driver of profitability following inconsistent results from empirical research in Nigeria (Shujaat (2018). Inconsistent results on the impact of different drivers has left a knowledge gap that needs to be closed in the Zimbabwean context since results from other economies cannot be extrapolated. This study seeks to identify the key drivers of the commercial banks' prodigious performance in the hope that other small banks and microfinance institutions and building societies can learn and adopt any generic drivers.

2.7 Chapter Summary

The chapter gave a review of the theories, claims, generalisations and empirical findings of previous researchers on the relationship between drivers of bank performance and the performance of banks. The results obtained by previous researchers are quite conflicting most of the times, as some researchers could obtained a positive relationship whilst others could obtain a negative relationship. The study thus aims at understanding how the banking performance drivers are related to banking performance in the Zimbabwean context in the recent period, thereby adding to the body of knowledge.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

The chapter outlines the methodological pathway of the research study, which served as a blueprint for the research methods employed. This chapter explains and justifies the research methods chosen for the study, including the research philosophy, design, approach, strategy, population and sampling procedures, research ethics observed and measures taken to enhance reliability and validity. Therefore, this research methodology conforms to the definition of a research methodology of Saunders, Lewis and Thornhill (2015) who stipulated that a research methodology is an outline of the ways that are used by the research when carrying out the research.

3.2 Research Design

Research design refers to the blueprint or plan that outlines the structure and methodology of a study, serving as a guide for data collection (Leavy, 2019). A well-designed research study is crucial in producing reliable and trustworthy results. There are three commonly utilized research designs: explanatory, exploratory and descriptive. In this particular case, the researcher opted for an explanatory research design. The purpose of an explanatory research design is to provide an understanding of why certain phenomena occur and to make predictions about future occurrences (Leavy, 2019). By employing an explanatory research design, the researcher was able to elucidate the key factors driving the exceptional performance of the banking sector. The key drivers that were used as the independent variables were Management Efficiency, Capital Adequacy, Quality of Assets, Non-Interest Income, Net Interest Margin whose causality was measured on ROA as a metric for phenomenal performance.

The research design used in this study is based on the explanatory research design employed by Turnacıgil et al. (2019) in their investigation of the impact of business environment on bank performance in Turkey. According to these researchers, the business environment can significantly influence bank performance and thus, an explanatory research design was deemed appropriate to explore the causal relationship between the independent and dependent variables. Specifically, the study aimed to examine the effect of Management Efficiency, Capital Adequacy, Quality of Assets, Non-Interest Income, Net Interest Margin and ROA on bank performance.

In order to achieve this objective, the researcher employed a causal research design that allowed for the examination of the potential causes of bank performance. The study focused on identifying the factors that contribute to bank performance and assessing their relative importance. By adopting an explanatory research design, the study was able to establish cause-and-effect relationships between the independent and dependent variables, thereby providing insights into the mechanisms underlying bank performance. The explanatory research design allows for the establishment of cause-and-effect relationships between the independent and dependent variables, enabling the researcher to draw conclusions about the mechanisms underlying bank performance. By controlling for confounding variables, the explanatory research design enables the researcher to isolate the effects of the independent variables on bank performance, providing a more accurate estimate of the causal relationships.

3.3 Research Philosophy

Research philosophy refers to a set of beliefs regarding the process of knowledge development. It encompasses the fundamental principles that guide research endeavours. Within the realm of research, three main philosophies serve as the foundation: positivism, interpretivism and pragmatism. Positivism, specifically chosen for this study, aligns with the philosophical perspective of natural scientists. It involves working with observable social realities to generate generalizations that resemble laws. The positivist philosophy emphasizes the use of scientific methods that produce unbiased facts, unaffected by human bias

Positivism was chosen to empirically establish the key drivers of the banking sector's phenomenal performance. As well, positivism was necessary; the study required quantitative data collection and analysis. The population of commercial banks in Zimbabwe is large and this required a quantitative approach which was possible through a positivism philosophy. According to Saunders et al., (2015) a large population requires a quantitative approach to allow for the generalization of results. The researcher had a background in Finance and had strong belief in numbers and statistics in resolving the research problem. This also contributed towards the positivist research philosophy chosen.

In empirical literature reviewed, in Indonesia, the study by Prabowo et. al., (2020) who researched on the impact of key drivers of phenomenal performance using data from Indonesian manufacturing companies used a positivist research philosophy with a quantitative approach. Earlier on, Mohamed and Elewa (2016) who studied the impact of external

environment on corporate performance has also borrowed the positivist research philosophy. In light of these two researches, the researcher found it appropriate to adopt the positivist research philosophy.

3.4 Research Approach

The research approach is a procedure that consists of steps of assumptions of data collection, analysis and interpretation (Leavy, 2019). There are three research approaches which are deductive, inductive and abductive research approaches. This research adopted a deductive research approach with the intention of testing the link between key drivers of performance and the performance of commercial banks in Zimbabwe. The deductive approach is concerned with developing hypotheses and then design a research strategy to test them. The researcher had hypothesized that Management Efficiency, Capital Adequacy, Quality of Assets, Non-Interest Income, Net Interest Margin have statistically significant relationships with ROA and therefore a deductive approach was relevant and necessary.

3.5 Population of Study

The target population refers to the complete list of items or individuals that are the focus of a study (Saunders et al., 2015). It represents the total number of participants who are affected by the study and from whom the respondents are selected (Hakim, 2017). In this particular research, the focus was on examining the organizational and business environment attributes of all commercial banks in Zimbabwe. Therefore, the target population for this study consisted of the commercial banks operating in Zimbabwe.

3.6 Sample of Study

According to the Reserve Bank of Zimbabwe (RBZ, 2022), there are currently 14 commercial banks in the country. Hence, this information provides us with the numerical target population for this study, which was set at 14 commercial banks. In statistics, sampling is associated with sampling errors (Hakim, 2017). This means that caution must be exercised in research as sampling error is inevitable. The use of a sample had the potential to compromise the reliability of research findings. The researcher therefore conducted the survey of all (14) commercial banks in Zimbabwe.

3.7 Sampling Frame

The sampling frame in this instance is the list of all 14 commercial banks in Zimbabwe. It represents the target population for the study, as it includes all the entities that the researcher aims to gather data from. The sampling frame serves as a basis for selecting a sample that is representative of the entire population.

3.8 Sampling Methods and Procedure

In statistics, sampling is associated with sampling errors (Hakim, 2017). This means that caution must be exercised in research as sampling error is inevitable. The use of a sample had the potential to compromise the reliability of research findings. The researcher therefore conducted the survey of all (14) commercial banks in Zimbabwe. By conducting a census rather than using a sample, the researcher ensured that their findings would accurately reflect the characteristics and behaviours of all commercial banks in Zimbabwe. This approach was useful for it allowed for a comprehensive data collection process.

3.9 Sample size Determination

The use of a sample had the potential to compromise the reliability of research findings. The researcher therefore conducted the survey of all (14) commercial banks in Zimbabwe. Sampling error refers to the discrepancy between the characteristics of a sample and those of the population it represents. It is an inherent part of statistical sampling, as it is practically impossible to survey an entire population. However, by surveying all commercial banks in Zimbabwe, the researcher attempted to minimize or eliminate sampling error altogether.

3.10 Data Collection Methods

The researcher adopted a quantitative method, according to the research onion by Saunders, et al. (2016). Quantitative choices were selected as opposed to qualitative choices in the interest of the research period. The reason was that the researcher wanted to just explain the effects of Management Efficiency, Capital Adequacy, Quality of Assets, Non-Interest Income, Net Interest Margin have on ROA, yet the relationship could be quantitatively established through regression and correlation analysis. Therefore, a proper explanation required a quantitative method, according to Kothari (2004). Quantitative data was collected using content analysis of corporate annual reports of listed companies as well as published data from financial

statements. Fortunately for the researcher, all Zimbabwean banks are compelled in the interest of the public to publish their financial performance within 90 days after financial year end which made the task of gathering pertinent data feasible. In Vietnam, Dang et al., (2020) used a quantitative methodology in studying the impact of business environment and bank performance, an approach that motivated the direction taken in this research.

3.11 Data Collection Procedure

According to Martin (2020) data collection procedure refers to the way in which data is gathered and stored. In this study, secondary data was collected using document analysis of published annual reports of commercial banks in Zimbabwe, from the Zimbabwe Stock Exchange and from the Reserve Bank of Zimbabwe. The researcher used corporate annual reports and central bank reports as these are considered the authentic sources of corporate information in Zimbabwe. From these corporate reports, proxies for the independent and the dependent variables were identified or calculated. The averages were aggregated from corporate annual reports for the 7-year period from 2016 to 2022. With these averages on Microsoft Excel, the researcher then feed them into Eviews 12.0 for statistical regression and correlation analysis.

The data source in this case is secondary data. Secondary data is data that has already been collected by someone else. In this case, the data has been collected by the commercial banks in Zimbabwe, the Zimbabwe Stock Exchange and the Reserve Bank of Zimbabwe. The access to the data is public. The annual reports of the commercial banks are published and can be accessed by anyone. The data from the Zimbabwe Stock Exchange and the Reserve Bank of Zimbabwe is also publicly available.

The completeness of the data is good. The annual reports of the commercial banks are required to contain certain information, such as financial statements and information about the bank's management. The data from the Zimbabwe Stock Exchange and the Reserve Bank of Zimbabwe is also considered to be complete. The quality of the data is high. The annual reports of the commercial banks are regulated by the Securities and Exchange Commission of Zimbabwe. This means that the data is accurate and reliable. The data from the Zimbabwe Stock Exchange and the Reserve Bank of Zimbabwe is also considered to be high quality.

3.12 Data Analysis Methods and Procedure

The researcher began with descriptive statistics that show the mean, standard deviation and normality of data used. Spearman and Pearson correlational analysis was used to assess the effect of digitization, management efficiency, capital adequacy, quality of assets, non-interest income, net interest margin have on ROA in commercial banks. Although correlations are useful in analysing, they measure the variability of variables. Correlation analysis does not show that variations in the dependent variable (ROA) are caused by variations in independent variables. It is thus used as a preparatory tool to give clues to what the data might yield; to be followed by other key techniques. Following the above, an ordinary least squares (OLS) multivariate regression model is developed to assess the effect of Management Efficiency, Capital Adequacy, Quality of Assets, Non-Interest Income, Net Interest Margin have on ROA in commercial banks in Zimbabwe.

In the context of this study, multiple regression analysis allows for analysis of the influence of Management Efficiency, Capital Adequacy, Quality of Assets, Non-Interest Income, Net Interest Margin have on ROA. The researcher used multiple regression to test the effect each of these variables on ROA. The following linear model hold for the commercial banks in Zimbabwe:

$$\mathbf{BP = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \mu}$$

Where; **BP** = Bank Profitability

$\boldsymbol{\beta_0}$: = Bank Profitability in Zimbabwean banks irrespective of drivers.

$\mathbf{B_1}$…. $\mathbf{B_6}$ = Beta Coefficients

$\mathbf{X_1}$ = Digitization, $\mathbf{X_2}$ = Management Efficiency, $\mathbf{X_3}$ = Capital Adequacy, $\mathbf{X_4}$ = Quality of Assets, $\mathbf{X_5}$=Non-Interest Income, $\mathbf{X_6}$ =Net Interest Margin

$\boldsymbol{\mu}$ = the residual/error term which represents other factors which affect Bank Profitability.

The measurement of the variables presented for the model are described in this section. Digitization was measured in terms of percentage of expenditures by banks towards digitization to the total expenditure in the banks. Management efficiency was measured in terms of the share price performance (average annual share price in cents). A study by Jensen and Meckling

(1976) provides a theoretical foundation for using share price as a measure of management performance within the context of agency theory. They argue that when managers make decisions that align with shareholder interests, such as increasing profitability or reducing risk, it should be reflected in the bank's share price. Conversely, poor management decisions may lead to a decline in share price. Furthermore, empirical evidence supports the relationship between share price performance and management performance in banks. A study by Foam (1970) found that changes in stock prices are related to changes in future earnings. This suggests that stock prices incorporate information about a firm's future prospects, including the effectiveness of its management.

The bank profitability was measured using the return on assets ratio (ROA). Capital adequacy was measured in terms of the capital-to-risk weighted assets ratio (CRAR) and the bank performance was measured using the return on assets ratio. Asset quality was measured in terms of the non-performance loan ratio. Non-interest income level was measured in terms of the reported non-interest income by banks in the annual financial reports and expressed as a ratio of the interest income. This income includes transaction fees and fees income from such sources as insurance, money market investments and monthly bank charges. NIM variable was measured in terms of the net interest margin, which is the net difference between lending rate and the borrowing rate of the banks under study.

Table 3.1 has been created to summarizes specification and measurement of these variables.

Variable	**Specification**	**Measurement**
Digitization	Annual expenditures by banks towards digitization	Natural logs (ln(digitization))
Management efficiency	Share price performance	Share price index (SPI)
Bank profitability	Return on assets ratio (ROA)	ROA = Net income / Total assets
Capital adequacy	Capital-to-risk weighted assets ratio (CRAR)	CRAR = Tier 1 capital / Risk-weighted assets
Asset quality	Non-performance loan ratio	NPL ratio = Non-performing loans / Total loans
Non-Interest Income	Ratio of non-interest income to interest income	Non-interest income / Interest income
NIM variable	Net interest margin	NIM = Interest income - Interest expense

Table 3. 1: Specification and Measurement of Variables

3.13 Interpretation of Findings

This section presents how the researcher interpreted the findings after running the model:

Intercept: This is the constant term in the model. It represents the value of the dependent variable when all of the independent variables are equal to 0.

Independent Variables: These are the variables that are used to predict the value of the dependent variable.

Coefficients: These are the weights that are assigned to the independent variables. They represent the amount that the dependent variable is expected to change for every unit change in the independent variable.

Standard Errors: These are the standard deviations of the coefficients. They represent the uncertainty around the estimates.

P-values: These are the probability values of the coefficients. They represent the probability of obtaining the observed coefficient if the null hypothesis is true.

R-squared: This is a measure of the fit of the model. It represents the proportion of the variation in the dependent variable that is explained by the independent variables.

Adjusted R-squared: This is a modified version of R-squared that considers the number of independent variables in the model.

F-statistic: This is a statistical test that is used to determine whether the independent variables are jointly significant.

3.14 Research Reliability and Validity

To enhance the reliability and validity of research findings, researchers often employ various strategies, such as using reliable sources of data. In this case, the researcher utilized corporate reports, which are widely considered to be reliable sources of information. Corporate reports are official documents produced by companies to communicate their financial performance, strategic plans and other relevant information to stakeholders. These reports are typically prepared according to standardized accounting principles and regulations, ensuring a certain level of accuracy and consistency in the reported data. As such, they are often regarded as

trustworthy sources for researchers investigating various aspects of corporate behaviour, performance and decision-making.

By utilizing corporate reports in their research, the researcher can benefit from several advantages that contribute to enhancing the reliability and validity of their findings. Firstly, corporate reports provide access to comprehensive and detailed information about a company's operations, financials, market position and other relevant factors. This wealth of data allows researchers to gain a holistic understanding of the company's activities and make more informed conclusions. Secondly, corporate reports are usually prepared by professionals with expertise in accounting and finance. These individuals follow established standards and guidelines when compiling the reports, ensuring consistency and accuracy in the presented information. Researchers can rely on these professionals' expertise and adherence to industry best practices when analyzing the data contained in corporate reports.

Furthermore, corporate reports often undergo external audits by independent accounting firms to ensure their accuracy and compliance with applicable regulations. This external validation process adds an additional layer of credibility to the reported information. Researchers can take advantage of this external scrutiny to enhance the trustworthiness of their findings.

3.15 Ethical Considerations

The researcher observed research ethics throughout the research. Despite the difficulty with which corporate data is accessed, explained the basis upon which the research was being conducted and showed proof in form of student Identification Document to convince the organisations to get data. Secondary data has proprietary restrictions. The annual reports of the commercial banks are considered to be confidential information.

The Zimbabwe Stock Exchange and the Reserve Bank of Zimbabwe may also have restrictions on the use of their data. To address these proprietary restrictions, the researcher contacted the companies and government agencies that own the data. The researcher explained the purpose of the research and request permission to access the data. The researcher also agreed to abide by any restrictions that are imposed on the data. Data was collected from corporate reports, RBZ consolidated bank reports and ZIMSTATS.

Also, the researcher did not use the data gathered for any other purpose than the purpose it was collected for. The data was collected for analysis for the purposes of providing answers to the

research questions only in this study. The data was not divulged to any third party, at least without the express consent by the organisation that provided it.

3.16 Chapter Summary

In this section, the procedures involved in gathering and analysing research data are discussed. The data utilized in this study was obtained from the 14 commercial banks operating in Zimbabwe as of the conclusion of the first quarter of the 2022 fiscal year. To examine the hypotheses formulated in the previous chapter, the collected data underwent correlational analysis statistical tests. Additionally, an Ordinary Least Squares multiple regression model was constructed, incorporating various factors such as Management Efficiency, Capital Adequacy, Quality of Assets, Non-Interest Income, Net Interest Margin and Return on Assets (ROA). The outcomes of the research are presented in chapter IV.

CHAPTER FOUR: DATA PRESENTATION, ANALYSIS AND DISCUSSION OF FINDINGS

4.1 Introduction

In Chapter 3 of the research, the author detailed the approach employed for gathering and analysing the data. The methodology involved the use of descriptive statistics and correlational analysis to scrutinize the data. Additionally, the researcher utilized a model to present and estimate the outcomes derived from the data. The initial segment of the chapter focused on presenting the descriptive statistics, while the latter part delved into the correlational and regression analysis results. The chapter ends with a summary of the findings.

4.2 Key Drivers of Commercial Banks' Profitability in Zimbabwe

To show the key drivers of commercial banks' profitability in Zimbabwe, the study used descriptive analysis. The descriptive statistics were employed to summarize key drivers of commercial banks' profitability in a subdued Zimbabwean economy. Descriptive statistics, as defined by Martin (2020) refers to the statistical analysis that describe, display and summarize data in a meaningful manner. Descriptive statistics, as defined by Martin (2020), refers to the analytical methods used to summarize and present data in a meaningful way. The use of mean values, standard deviation and minimum and maximum values provided valuable insights into the central tendency, variability and range of the variables under investigation. Descriptive statistics therefore played a crucial role in summarizing and analysing the key factors influencing commercial banks' profitability in Zimbabwe during a challenging economic period.

Date: 11/27/23
Time: 23:41
Sample: 2016 2022

	CA	DIG	ME	NII	NIM	QA
Mean	0.387000	0.729057	0.842653	0.644283	0.130000	0.024868
Median	0.387000	0.496032	0.850000	0.629199	0.130000	0.020000
Maximum	0.464400	0.991572	0.970000	0.992063	0.160000	0.050000
Minimum	0.309600	0.483680	0.650000	0.283680	0.100000	0.005000
Std. Dev.	0.051865	0.248425	0.074399	0.284255	0.020103	0.014539
Skewness	-6.78E-16	0.081662	-0.481346	0.014330	4.24E-17	0.551453
Kurtosis	1.750000	1.008052	2.635939	1.387976	1.750000	1.830045
Jarque-Bera	6.380208	16.31100	4.325541	10.61440	6.380208	10.55621
Probability	0.041168	0.000287	0.115006	0.004956	0.041168	0.005102
Sum	37.92600	71.44755	82.58000	63.13977	12.74000	2.437100
Sum Sq. Dev.	0.260931	5.986374	0.536910	7.837674	0.039200	0.020503
Observations	98	98	98	98	98	98

Table 4. 1: Descriptive Test Results

Source*: E Views 12 Output*

The findings presented in the paragraph provide descriptive statistics on various drivers of bank profitability, including capital adequacy, digitization, management efficiency, non-interest income, net interest margin and quality of assets. The mean value of 0.387 capital adequacy indicates a relatively adequate capital-to-risk weighted assets ratio, suggests that banks, on average, maintain a satisfactory level of capital adequacy. Past research has emphasized the importance of capital adequacy in ensuring bank stability and profitability (Berger & Bouwman, 2013; Demirgüç-Kunt & Huizinga, 1999). The mean value of 0.729057 suggests that banks allocate a significant portion of their expenditures towards digitization efforts. Previous studies have highlighted the positive impact of digitization on bank profitability, as technology can enhance operational efficiency, reduce costs and improve customer experience (Ozturk & Alp, 2018; Zhu & Ma, 2020). The mean value of 0.842653 indicates that banks, on average, perform well in terms of share price performance.

Effective management practices and strategies have been found to contribute to bank profitability in past research (Hassan, 2015; Molyneux & Thornton, 1992). The mean value of 0.644283 suggests that banks generate a considerable portion of their income from non-interest sources. Diversification of income streams, including non-interest income, has been associated

with improved profitability in previous studies (Forte & Migliardo, 2020). The mean value of 0.13 reflects the net difference between lending and borrowing rates for the banks under study. Net interest margin is an important indicator of bank profitability, as it represents core income generated from lending activities. However, further analysis is needed to compare this mean value with past research. The mean value of 0.024868 suggests a relatively low level of non-performing loans. Previous studies have consistently found a negative relationship between non-performing loans and bank profitability, indicating that higher asset quality is associated with improved profitability (DeYoung & Roland, 2001; Kashyap & Stein, 2000).

4.3 Effect of Drivers of Profitability in Banks on Return on Asset in Zimbabwe

This section focuses on the effect of digitization, management efficiency, capital adequacy, asset quality, non-interest income and net interest margin on banks' profitability in Zimbabwe. It presents the statistical tests that have been run to show the impact each driver has on return on asset (ROA).

4.3.1 Pre-estimation Tests

Pre-estimation tests were conducted before the main estimation was performed. The purpose of pre-estimation tests was to assess the validity of the assumptions underlying the main estimation. This helped to ensure that the results of the main estimation are reliable and valid. While attempting to run the regression, the results had an error "Near singular matrix". This means that the data exhibits multi-collinearity, which causes the matrix to have less than full rank, which means it was not invertible and therefore least-squares-techniques failed. The researcher looked at how the variables correlate with each other and for correlations near 1 or -1, these pairs were culprits and the research had to get rid of one variable of each such a pair.

4.3.2 Correlational Test

Multicollinearity refers to the situation where independent variables in a regression model are highly correlated with each other. This can cause issues such as unstable parameter estimates and difficulties in interpreting the effects of individual predictors on the dependent variable. To detect multicollinearity, researchers often use correlation analysis to assess the strength and direction of relationships between pairs of independent variables. By examining the correlation coefficients, they can identify potential multicollinearity issues that may affect the reliability of the regression results. The Correlational test is a statistical method used to measure the

degree of association between variables, providing insights into whether multicollinearity is present in the data.

	CA	DIG	ME	NII	NIM	QA
CA	1.000000	0.008288	0.640357	0.000135	1.000000	-0.936014
DIG	0.008288	1.000000	-0.097517	-0.131894	0.008288	-0.035256
ME	0.640357	-0.097517	1.000000	-0.075581	0.640357	-0.601386
NII	0.000135	-0.131894	-0.075581	1.000000	0.000135	0.008496
NIM	1.000000	0.008288	0.640357	0.000135	1.000000	-0.936014
QA	-0.936014	-0.035256	-0.601386	0.008496	-0.936014	1.000000

Table 4. 2: Correlational Test Results

Source*: E Views 12 Output*

The table presents the results of a multicollinearity analysis among the variables CA (Capital Adequacy), DIG (Digitization), ME (Management Efficiency), NII (Non-interest Income), NIM (Net Interest Margin) and QA (Quality of Assets). Results show that NIM has a perfect correlation of 1.000 with CA, indicating that these two variables are identical or linearly dependent. This high correlation implies that NIM can be perfectly predicted using CA and including both variables in the regression model would lead to multicollinearity. Therefore, one of the variables, in this case, NIM, needs to be dropped to avoid multicollinearity issues. In addition to the perfect correlation with CA, NIM also shows a high correlation of -0.936 with QA. This strong negative correlation suggests that these two variables are highly inversely related. However, since NIM is already dropped due to its correlation with CA, the correlation with QA becomes less relevant for the decision to drop NIM. Based on the multicollinearity analysis, NIM was dropped from the regression analysis to prevent multicollinearity issues. By removing NIM, the regression model can avoid problems of perfect correlation and improve the stability and reliability of the regression coefficient estimates for the remaining variables.

4.4 Profitability Boosting Model for Zimbabwean Banks in a Subdued Economy

This section centres on Profitability boosting model based on the different drivers of digitization, management efficiency, capital adequacy, asset quality, non-interest income and net interest margin on banks' profitability in Zimbabwe. It presents the statistical tests that have been run to profitability boosting model develop the model.

4.4.1 Regression Analysis Results

This section the main regression results allowing this study to conclude on the key drivers of commercial banks' profitability in a subdued Zimbabwean economy that were used in the analysis in this thesis. The regression results presented is a mathematical equation that describes the relationship between return on asset and a host of independent variables that include key drivers of commercial banks' profitability. The dependent variable was the predicted variable which was return on asset and the independent variables were the drivers of commercial banks' profitability that influence the dependent variable. Table 4.3 presents the regression results of the panel ordinary least squares.

Dependent Variable: ROA
Method: Panel Least Squares
Date: 11/27/23 Time: 23:43
Sample: 2016 2022
Periods included: 7
Cross-sections included: 14
Total panel (balanced) observations: 98

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.078972	0.103721	-0.761391	0.4484
CA	0.466327	0.210439	2.215969	0.0292
DIG	-0.003538	0.015188	-0.232959	0.8163
ME	0.219658	0.065583	3.349322	0.0012
NII	-0.005813	0.013180	-0.441015	0.6602
QA	-0.180807	0.722984	-0.250084	0.8031

R-squared	0.552661	Mean dependent var	0.275771
Adjusted R-squared	0.528349	S.D. dependent var	0.052880
S.E. of regression	0.036316	Akaike info criterion	-3.733827
Sum squared resid	0.121337	Schwarz criterion	-3.575564
Log likelihood	188.9575	Hannan-Quinn criter.	-3.669813
F-statistic	22.73210	Durbin-Watson stat	0.035933
Prob(F-statistic)	0.000000		

Table 4. 3: Panel Least Squares Regression Results

Source*: E Views 12 Output*

The table presents the results of a panel least squares regression analysis with the dependent variable being Return on Asset (ROA) and several independent variables: Capital Adequacy, Digitization, Management Efficiency, Non-interest Income and Quality of Assets. The regression aims to understand the relationship between these independent variables and the dependent variable.

The Constant (C) coefficient is -0.078972 with a standard error of 0.103721. The t-statistic is -0.761391 and the probability (p-value) is 0.4484. The constant term represents the intercept of the regression equation. In this case, the intercept is not statistically significant at conventional levels (p-value > 0.05), indicating that the estimated constant may not have a meaningful impact on the dependent variable. The Capital Adequacy coefficient is 0.466327 with a standard error of 0.210439. The t-statistic is 2.215969 and the probability is 0.0292. The positive coefficient suggests that an increase in the capital adequacy ratio is associated with an increase in the return on assets. The coefficient is statistically significant at a 5% significance level (p-value < 0.05), indicating that the relationship is unlikely to have occurred by chance.

The Digitization coefficient is -0.003538 with a standard error of 0.015188. The t-statistic is -0.232959 and the probability is 0.8163. The coefficient is not statistically significant (p-value > 0.05), suggesting that there is no strong evidence of a relationship between digitization and return on assets. The Management Efficiency coefficient is 0.219658 with a standard error of 0.065583. The t-statistic is 3.349322 and the probability is 0.0012. The positive coefficient indicates that higher management efficiency, as measured by share price performance, is associated with an increase in return on assets. The coefficient is statistically significant (p-value < 0.05), suggesting a meaningful relationship.

The Non-interest Income coefficient is -0.005813 with a standard error of 0.013180. The t-statistic is -0.441015 and the probability is 0.6602. The coefficient is not statistically significant (p-value > 0.05), indicating no strong evidence of a relationship between non-interest income and return on assets. The Quality of Assets coefficient is -0.180807 with a standard error of 0.722984. The t-statistic is -0.250084 and the probability is 0.8031. The coefficient is not statistically significant (p-value > 0.05), suggesting no strong evidence of a relationship between asset quality and return on assets.

The R-squared value is 0.552661, indicating that the independent variables in the regression model explain approximately 55.27% of the variation in the dependent variable. The adjusted R-squared is 0.528349, accounting for the degrees of freedom and penalizing for the number of independent variables. The standard error of the regression is 0.036316, representing the average deviation of the observed dependent variable from the predicted values.

The F-statistic is 22.73210 with a probability (p-value) of 0.000000, indicating that the overall regression model is statistically significant, suggesting that at least one of the independent

variables has a significant relationship with the dependent variable. Based on the regression results, capital adequacy and management efficiency appear to have a statistically significant positive relationship with return on assets, while digitization, non-interest income and quality of assets do not show a statistically significant relationship. However, it's important to consider the context, limitations and assumptions of the analysis when interpreting these results.

4.4.2 Hausman Test

To determine whether the Fixed or Random Effects model is the best fit for the data, a Hausman Test was conducted. The Hausman Test is a statistical test used in econometrics to assess the consistency of estimators in panel data analysis. It helps determine whether the random effects assumption is valid or if fixed effects should be used instead. The test involves comparing the coefficients estimated from the fixed effects (FE) and random effects (RE) models. The null hypothesis of the test is that the random effects model is consistent and efficient, while the alternative hypothesis is that the fixed effects model is consistent and efficient. In this case, the Fixed Effects regression was first run using Eviews 12, followed by the Random Effects regression. The Hausman Test was then performed to evaluate which model provides a better fit for the data. The results of the Hausman Test are presented below:

Dependent Variable: ROA
Method: Panel EGLS (Cross-section random effects)
Date: 11/27/23 Time: 23:51
Sample: 2016 2022
Periods included: 7
Cross-sections included: 14
Total panel (balanced) observations: 98
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.078985	0.051701	-1.527729	0.1300
CA	0.564016	0.099839	5.649274	0.0000
DIG	0.009064	0.006110	1.483469	0.1414
ME	0.159877	0.074500	2.146006	0.0345
NII	-0.006911	0.004956	-1.394643	0.1665
QA	-0.015873	0.261795	-0.060633	0.9518

Effects Specification	S.D.	Rho
Cross-section random	0.037609	0.8915
Idiosyncratic random	0.013122	0.1085

Weighted Statistics

R-squared	0.897331	Mean dependent var	0.036054
Adjusted R-squared	0.891751	S.D. dependent var	0.039440
S.E. of regression	0.012976	Sum squared resid	0.015491
F-statistic	160.8162	Durbin-Watson stat	0.311666
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.543789	Mean dependent var	0.275771
Sum squared resid	0.123743	Durbin-Watson stat	0.039017

Table 4. 4: Random Effects Regression

Source*: E Views 12 Output*

Table 4.4 presents results of a random effects regression analysis with the dependent variable being Return on Asset (ROA) and several independent variables: Capital Adequacy. Digitization, Management Efficiency, Non-interest Income and Quality of Assets. The Constant (C) coefficient is -0.078985 with a standard error of 0.051701. The t-statistic is -1.527729 and the probability (p-value) is 0.1300. The constant term represents the intercept of the regression equation. In this case, the intercept is not statistically significant at conventional levels (p-value > 0.05), indicating that the estimated constant may not have a meaningful impact on the dependent variable. The Capital Adequacy coefficient is 0.564016 with a standard error of 0.099839. The t-statistic is 5.649274 and the probability is 0.0000. The

positive coefficient suggests that an increase in the capital adequacy ratio is associated with an increase in the return on assets. The coefficient is statistically significant at a 1% significance level (p-value < 0.01), indicating that the relationship is unlikely to have occurred by chance.

The Digitization coefficient is 0.009064 with a standard error of 0.006110. The t-statistic is 1.483469 and the probability is 0.1414. The coefficient is not statistically significant (p-value > 0.05), suggesting that there is no strong evidence of a relationship between digitization and return on assets. The Management Efficiency coefficient is 0.159877 with a standard error of 0.074500. The t-statistic is 2.146006 and the probability is 0.0345. The positive coefficient indicates that higher management efficiency, as measured by share price performance, is associated with an increase in return on assets. The coefficient is statistically significant at a 5% significance level (p-value < 0.05), suggesting a meaningful relationship.

The Non-Interest Income coefficient is -0.006911 with a standard error of 0.004956. The t-statistic is -1.394643 and the probability is 0.1665. The coefficient is not statistically significant (p-value > 0.05), indicating no strong evidence of a relationship between non-interest income and return on assets. The Quality of Assets coefficient is -0.015873 with a standard error of 0.261795. The t-statistic is -0.060633 and the probability is 0.9518. The coefficient is not statistically significant (p-value > 0.05), suggesting no strong evidence of a relationship between asset quality and return on assets.

The analysis also provides information on the effects specification, including the standard deviation (S.D.) and the correlation (Rho) for the cross-section and idiosyncratic random effects. These effects capture the unobserved heterogeneity across cross-sections and the unobserved time-specific effects. The weighted statistics show the R-squared value of 0.897331, indicating that the independent variables in the model explain approximately 89.73% of the variation in the dependent variable, after accounting for the random effects. The adjusted R-squared is 0.891751, considering the degrees of freedom and penalizing for the number of independent variables.

The F-statistic and its associated p-value, provide information about the overall significance of the regression model. In this case, the F-statistic is 160.8162 with a probability (p-value) of 0.000000, suggesting that the overall regression model is highly statistically significant, indicating that at least one of the independent variables has a significant relationship with the dependent variable.

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	5	1.0000

* Cross-section test variance is invalid. Hausman statistic set to zero.

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
CA	0.578244	0.564016	0.000896	0.6346
DIG	0.009523	0.009064	0.000000	0.4380
ME	0.145198	0.159877	0.001070	0.6537
NII	-0.006956	-0.006911	0.000000	0.8190
QA	-0.012966	-0.015873	0.000006	0.2236

Cross-section random effects test equation:
Dependent Variable: ROA
Method: Panel Least Squares
Date: 11/27/23 Time: 23:52
Sample: 2016 2022
Periods included: 7
Cross-sections included: 14
Total panel (balanced) observations: 98

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.072500	0.053089	-1.365628	0.1759
CA	0.578244	0.104232	5.547691	0.0000
DIG	0.009523	0.006139	1.551318	0.1248
ME	0.145198	0.081368	1.784465	0.0782
NII	-0.006956	0.004960	-1.402579	0.1647
QA	-0.012966	0.261806	-0.049524	0.9606

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.949851	Mean dependent var	0.275771
Adjusted R-squared	0.938425	S.D. dependent var	0.052880
S.E. of regression	0.013122	Akaike info criterion	-5.656845
Sum squared resid	0.013602	Schwarz criterion	-5.155678
Log likelihood	296.1854	Hannan-Quinn criter.	-5.454134
F-statistic	83.12858	Durbin-Watson stat	0.361051
Prob(F-statistic)	0.000000		

Table 4. 5: Hausman Test Results

Source*: E Views 12 Output*

The Hausman test in EViews was used to determine whether the random effects model was appropriate or if a fixed effects model needed to be used instead. The test compares the

coefficients of the random effects model (which assumes the correlation between the individual effects and the independent variables) with the coefficients of the fixed effects model (which assumes no correlation between the individual effects and the independent variables). Hausman test results in Table 4.5 indicates that the cross-section random effects are not statistically significant (Chi-Sq. Statistic = 0.000000, Prob = 1.0000). This implies that the random effects model is appropriate and there is no evidence to suggest that the correlation between the individual effects and the independent variables is significant. The test shows that the Capital Adequacy coefficient estimated in the fixed effects model (0.578244) is slightly higher than the coefficient estimated in the random effects model (0.564016). However, the variance of the difference (Var(Diff.)) is very small (0.000896) and the probability associated with the difference (Prob) is 0.6346, indicating that the difference is not statistically significant. Therefore, the random effects model is preferred for analysing the relationship between Capital Adequacy and Return on Asset (ROA).

Digitization coefficient estimated in the fixed effects model (0.009523) is slightly higher than the coefficient estimated in the random effects model (0.009064). However, the variance of the difference is zero (0.000000) and the probability associated with the difference is 0.4380, indicating that the difference is not statistically significant. Hence, the random effects model is appropriate for analysing the relationship between Digitization and ROA. The Management Efficiency coefficient estimated in the fixed effects model (0.145198) is slightly higher than the coefficient estimated in the random effects model (0.159877). However, the variance of the difference (0.001070) and the associated probability (0.6537) suggest that the difference is not statistically significant. Thus, the random effects model is suitable for examining the relationship between Management Efficiency and ROA.

The Non-Interest Income coefficient estimated in the fixed effects model (-0.006956) is slightly higher than the coefficient estimated in the random effects model (-0.006911). However, the variance of the difference is zero (0.000000) and the probability associated with the difference is 0.8190, indicating that the difference is not statistically significant. Therefore, the random effects model is appropriate for analysing the relationship between Non-Interest Income and ROA. The Quality of Assets coefficient estimated in the fixed effects model (-0.012966) is slightly higher than the coefficient estimated in the random effects model (-0.015873). However, the variance of the difference (0.000006) and the associated probability (0.2236)

suggest that the difference is not statistically significant. Thus, the random effects model is suitable for examining the relationship between Quality of Assets and ROA.

Based on the Hausman test results, the random effects model is appropriate for analysing the relationships between all the independent variables (CA, DIG, ME, NII, QA) and the dependent variable ROA.

4.4.3 Fixed Effect

The fixed effects regression controls for the time-invariant differences between banks. This means that the results of the regression are generalizable to other populations or settings. Table 4.6 shows results of a fixed effects regression analysis of the determinants of profitability (Return on Assets – ROA)**.** The dependent variable is ROA and the independent variables are CA (Capital Adequacy), DIG (Digitization), ME (Management Efficiency), NII (Non-interest Income), NIM (Net Interest Margin) and QA (Quality of Assets)**.**

Dependent Variable: ROA
Method: Panel Least Squares
Date: 11/27/23 Time: 23:46
Sample: 2016 2022
Periods included: 7
Cross-sections included: 14
Total panel (balanced) observations: 98

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.072500	0.053089	-1.365628	0.1759
CA	0.578244	0.104232	5.547691	0.0000
DIG	0.009523	0.006139	1.551318	0.1248
ME	0.145198	0.081368	1.784465	0.0782
NII	-0.006956	0.004960	-1.402579	0.1647
QA	-0.012966	0.261806	-0.049524	0.9606

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.949851	Mean dependent var	0.275771
Adjusted R-squared	0.938425	S.D. dependent var	0.052880
S.E. of regression	0.013122	Akaike info criterion	-5.656845
Sum squared resid	0.013602	Schwarz criterion	-5.155678
Log likelihood	296.1854	Hannan-Quinn criter.	-5.454134
F-statistic	83.12858	Durbin-Watson stat	0.361051
Prob(F-statistic)	0.000000		

Table 4. 6: Fixed Effect Results

Source*: E Views 12 Output*

The fixed effects model results in the table provide information about the coefficients, standard errors, t-statistics and probabilities associated with each independent variable. The constant term in the fixed effects model is -0.072500. It has a standard error of 0.053089 and a t-statistic of -1.365628. The probability associated with the t-statistic is 0.1759, which indicates that the constant term is not statistically significant at conventional levels of significance (e.g., 0.05). The coefficient for Capital Adequacy is 0.578244. It has a standard error of 0.104232 and a t-statistic of 5.547691. The probability associated with the t-statistic is 0.0000, indicating that the coefficient is statistically significant. A positive coefficient suggests that an increase in Capital Adequacy is associated with a higher Return on Asset (ROA) on average.

The coefficient for digitization is 0.009523. It has a standard error of 0.006139 and a t-statistic of 1.551318. The probability associated with the t-statistic is 0.1248, suggesting that the coefficient is not statistically significant at conventional levels. However, it is worth noting that the probability is relatively close to the significance threshold of 0.05. The coefficient for management efficiency is 0.145198. It has a standard error of 0.081368 and a t-statistic of 1.784465. The probability associated with the t-statistic is 0.0782, implying that the coefficient is not statistically significant at conventional levels. The coefficient for Non-Interest Income is -0.006956. It has a standard error of 0.004960 and a t-statistic of -1.402579. The probability associated with the t-statistic is 0.1647, indicating that the coefficient is not statistically significant. The coefficient for quality of assets is -0.012966. It has a relatively large standard error of 0.261806 and a t-statistic of -0.049524. The probability associated with the t-statistic is 0.9606, suggesting that the coefficient is not statistically significant.

The effects specification indicates that the fixed effects model used cross-section fixed effects (dummy variables) to account for the individual-specific heterogeneity. The R-squared value of 0.949851 suggests that the independent variables explain a large portion of the variation in the dependent variable, ROA. The adjusted R-squared value of 0.938425 accounts for the degrees of freedom and penalizes the inclusion of additional independent variables. The F-statistic of 83.12858 indicates that the overall model is statistically significant. The Durbin-Watson statistic of 0.361051 suggests the presence of serial correlation in the model residuals.

Based on the fixed effects model results, Capital adequacy appears to have a statistically significant positive relationship with Return on Asset (ROA). However, the coefficients for digitization, management efficiency, non-interest income and quality of assets are not statistically significant. The constant term (C) is also not statistically significant.

4.4.4 Post Estimation Techniques

The Breusch-Godfrey Serial Correlation LM Test is a statistical test used to test for the presence of serial correlation in the residuals of a regression model. Serial correlation is a statistical phenomenon where the residuals of a regression model are correlated with each other. This can happen if the independent variables in the model are not a complete set of predictors of the dependent variable.

4.4.5 Serial Correlation

Breusch-Godfrey Serial Correlation LM Test	**Statistics**
F-statistic	0.82543
Obs*R-squared	2.55051
Prob. F (2,10)	0.465
Prob. Chi-Square (2)	0.279

Table 4. 7: Serial Correlation Test Results

Source*: E Views 12 Output*

The table presents the results of the Breusch-Godfrey Serial Correlation LM Test, which is used to examine the presence of serial correlation (autocorrelation) in the residuals of the regression model. The F-statistic for the serial correlation test is 0.82543. This statistic measures the overall significance of the test. In this case, the F-statistic is relatively small, indicating weak evidence against the null hypothesis of no serial correlation. The Obs*R-squared value is 2.55051. It is another test statistic used to evaluate the presence of serial correlation. A higher value suggests stronger evidence in favour of serial correlation.

The probability associated with the F-statistic is 0.465. This probability, also known as the p-value, represents the likelihood of observing the F-statistic under the assumption that there is no serial correlation. In this case, the relatively high p-value suggests that there is insufficient evidence to reject the null hypothesis of no serial correlation. The probability associated with the Chi-Square statistic is 0.279. This probability is calculated based on Chi-Square distribution and provides an alternative measure of the significance of serial correlation. Similar to the F-statistic, the high p-value suggests a lack of evidence against the null hypothesis.

Based on the serial correlation test results, there is no strong evidence of serial correlation in the residuals of the regression model. This indicates that the assumption of no serial correlation is reasonable and that the model adequately captures the autocorrelation patterns.

4.4.6 Normality of Residuals

The table that follows shows the results of the Jarque-Bera test for normality of residuals. The Jarque-Bera was used to test for the normality of the time series data in this research. The major advantage of the proposed test for normality is that it is derived from a mathematical observation and therefore, entirely distribution-free and less sensitive to outliers (Kmenta, 1986). The data have to follow a normal distribution with parameters mean and variance. When the probability of JB is greater than 0.05 according to Brooks (2004), then the data is normally distributed.

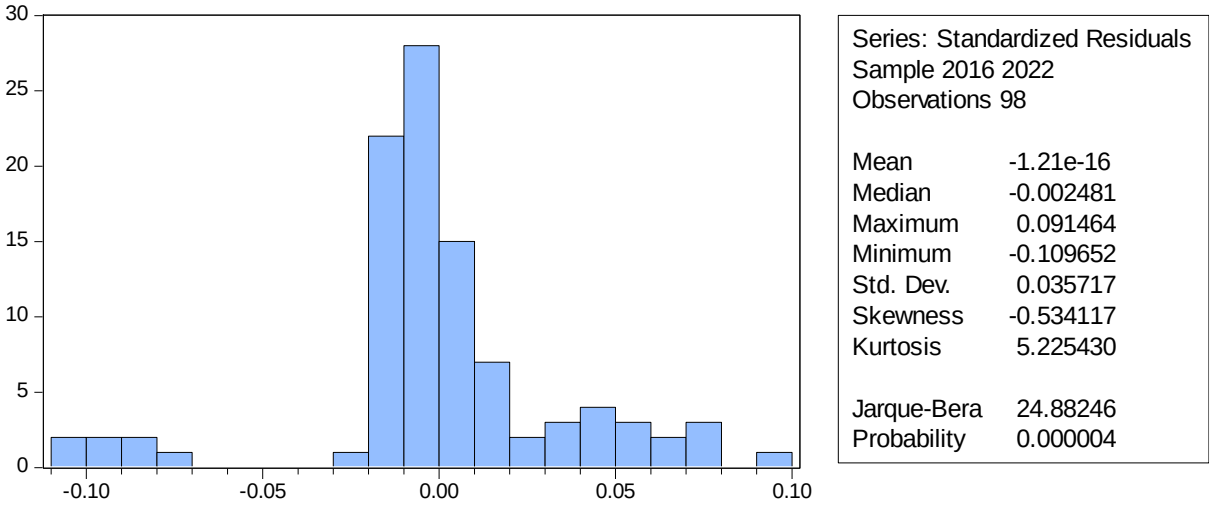


Figure 4. 1: Normality of Residuals

Source*: E Views 12 Output*

In the table, the Jarque-Bera statistic is 24.88 and the Prob. value is 0.000004. This means that the probability of obtaining a test statistic as extreme as the one observed, if the null hypothesis is true, is 0.000004. Since the Probability value is less than 0.05, we can reject the null hypothesis. This means that one can say with statistical significance that the residuals of the model are not normally distributed. The Skewness is -0.534117 and the Kurtosis is 5.225430. These values are both far from the values expected for normally distributed data. The skewness value indicates that the residuals are skewed to the right, while the kurtosis value indicates that the residuals are too peaked.

4.4.7 Regression Model Developed

The regression equation/model based on the results provided in Table 4.3 can be represented as follows:

ROA = -0.078972 + 0.466327**CA** - 0.003538**DIG** + 0.219658**ME** - 0.005813**NII** - 0.180807**QA**

In this equation, ROA represents the dependent variable, return on asset. The independent variables are capital adequacy, digitization, management efficiency, non-interest income and quality of assets. The coefficients associated with each independent variable indicate their impact on the dependent variable. The regression results indicate the coefficients associated with each driver. Capital adequacy has a coefficient of 0.466327, suggesting a significant positive effect on bank profitability. Management efficiency has a coefficient of 0.219658, also indicating a significant positive effect on profitability. However, digitization, non-interest income and quality of assets do not show a statistically significant effect on profitability, as their coefficients (-0.003538, -0.005813 and -0.180807 respectively) are not statistically different from zero. These findings imply that maintaining adequate capital levels and improving management efficiency are crucial for enhancing the profitability of commercial banks in the subdued Zimbabwean economy. However, digitization efforts, non-interest income and asset quality do not appear to have a significant impact on profitability.

Some studies have investigated the relationship between capital adequacy and profitability, highlighting the importance of maintaining adequate capital levels to ensure stability and profitability (e.g., Berger & Bouwman, 2013; Demirgüç-Kunt & Huizinga, 1999). Regarding digitization, the impact of technology and digital transformation on bank profitability has been a subject of interest for researchers. Some studies have found a positive relationship between digitization efforts and bank profitability, as technology can enhance operational efficiency, customer experience and cost reduction (e.g., Ozturk & Alp, 2018; Zhu & Ma, 2020).

Management efficiency is another critical factor in bank profitability. Studies have examined the relationship between management efficiency indicators, such as share price performance and profitability measures. Effective management practices and strategies can positively affect bank performance and profitability (e.g., Hassan, 2015; Molyneux & Thornton, 1992). Non-interest income, which includes revenue from sources other than interest, has also been studied in relation to bank profitability. Research has shown that diversified income streams, including

non-interest income, can contribute to higher profitability (e.g., Forte & Migliardo, 2020; Sufian & Habibullah, 2009). Quality of assets, particularly the level of non-performing loans, has been extensively examined in the literature. Higher asset quality, indicated by lower non-performing loan ratios, is generally associated with better profitability (e.g., DeYoung & Roland, 2001; Kashyap & Stein, 2000).

4.5 Chapter Summary

The data gathered was presented and analysed in this chapter. Several tables and figures were employed in presenting and analysing data. The findings of the regression analysis suggest that Capital Adequacy and Management Efficiency have a significant positive effect on commercial banks' profitability in a subdued Zimbabwean economy, while digitization, non-interest income and quality of assets do not have a statistically significant effect. Chapter 5 presents summary, conclusions and policy recommendations. The results proved crucial to the study because they became the basis for the summary, conclusion and the recommendations in the next and last chapter.

CHAPTER FIVE: SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

Regression, correlation and descriptive statistics were all thoroughly examined in Chapter 4. To answer the study's research questions, these analytical methods were used. In addition to providing the statistical results, the researcher provided interpretations of the data. Furthermore, an analysis was conducted to compare the implications of the present research findings with those of earlier investigations. This chapter provides a thorough overview of the entire research endeavour, including the research methodology and findings. It serves as a portion that draws conclusions from the research. These results are the result of analysing and interpreting the statistical information that was gathered for the investigation. Moreover, the ideas in the latter portion of this chapter are applicable to other research stakeholders. These suggestions are meant to direct future efforts and are based on the knowledge gleaned from the research findings.

5.2 Summary of Findings

The 14 banks that were active in Zimbabwe at the end of the first quarter of the fiscal year 2022 provided the data used in this analysis. Correlational analysis statistical tests were performed on the gathered data in order to investigate the hypotheses presented in the preceding chapter. In addition, a multiple regression model using ordinary least squares was built, considering a number of variables including return on assets, quality of assets, capital adequacy and management efficiency. The information was compiled from business annual reports covering the 2016–2022 timeframe. The researcher entered these averages into Eviews 12.0 for statistical regression and association analysis after obtaining them from Microsoft Excel.

5.2.1 Key Drivers of Commercial Banks' Profitability in Zimbabwe

Firstly, the study finds that capital adequacy has a statistically significant positive relationship with profitability. This implies that as the capital adequacy ratio of banks increases, their return on assets (ROA) also tends to increase. Higher capital adequacy not only enhances the stability and resilience of banks but also contributes to their profitability. Secondly, the analysis highlights the importance of management efficiency in driving profitability. Effective management practices, such as strategic decision-making, cost control and resource allocation, can lead to improved operational performance and profitability. On the other hand, the analysis

does not find strong evidence of a significant relationship between digitization, non-interest income, quality of assets and profitability. Similarly, the analysis does not establish a significant relationship between the quality of assets and profitability. Asset quality reflects the creditworthiness and risk profile of a bank's loan portfolio. The lack of statistical significance suggests that the quality of assets alone may not be a major driver of profitability in Zimbabwean banks.

5.2.2 Effect of Drivers of Profitability in Banks on Return on Asset in Zimbabwe

The study's conclusions show that while some factors significantly affect commercial banks' profitability, others do not in the restrained Zimbabwean economy. Capital adequacy has a considerable positive impact on bank profitability, as seen by its coefficient of 0.466327. Sustaining sufficient capital levels is essential to improving profitability. Management Efficiency has a considerable positive impact on profitability, as seen by its coefficient of 0.219658. Increasing bank profitability requires increasing management efficiency. Digitization has a coefficient of -0.003538, indicating that there is no statistically significant impact of digitization initiatives on the profitability of the Zimbabwean economy. Non-interest income has a coefficient of -0.005813, which means that it has no statistically meaningful impact on profitability. The Quality of Assets coefficient of -0.180807 indicates that there is no statistically significant relationship between profitability and asset quality, more especially the amount of non-performing loans.

5.2.3 Profitability Boosting Model for Zimbabwean Banks in a Subdued Economy

ROA represents the dependent variable, return on asset. The independent variables are capital adequacy, digitization, management efficiency, non-interest income and quality of assets. The coefficients associated with each independent variable indicate their impact on the dependent variable. The regression equation/model based on the results provided in Table 4.3 can be represented as follows:

ROA = -0.078972 + 0.466327**CA** - 0.003538**DIG** + 0.219658**ME** - 0.005813**NII** - 0.180807**QA**

The developed model demonstrates that increasing managerial effectiveness and preserving appropriate capital levels are essential for raising commercial banks' profitability in the

restrained Zimbabwean economy. Regression analysis results show that, however, digitization initiatives, non-interest revenue and asset quality do not significantly affect profitability.

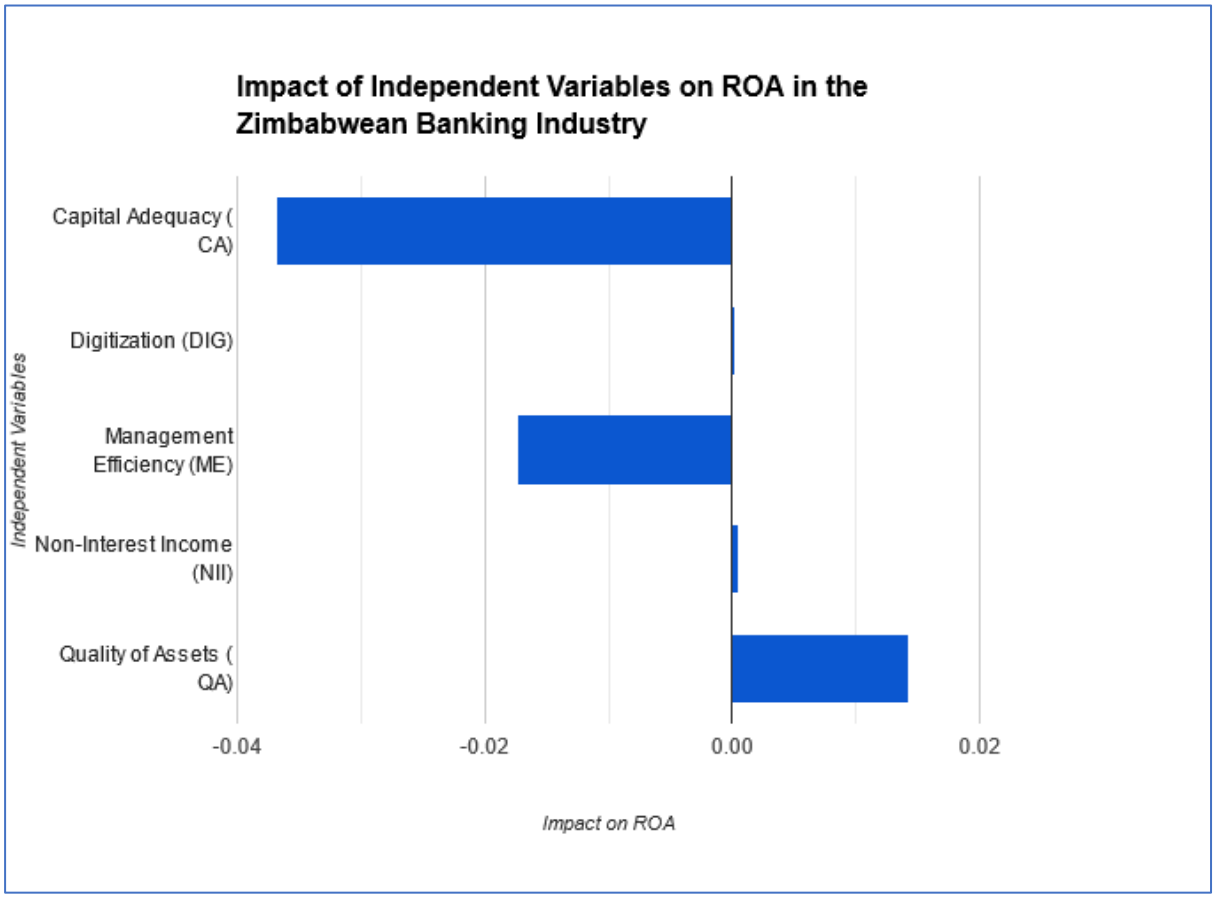


Figure 5. 1: Profitability Boosting Model

Source: Own Construct, 2023

The model shows the impact of independent variables on ROA in the Zimbabwean banking industry. The independent variables are capital adequacy, digitization, management efficiency, non-interest income and quality of assets. The coefficients associated with each independent variable indicate their impact on the dependent variable. The model shows that capital adequacy and management efficiency have a positive impact on ROA, while digitization, non-interest income and quality of assets have a negative impact on ROA. This means that banks with higher capital adequacy and management efficiency tend to have higher ROA, while banks with higher digitization, non-interest income and quality of assets tend to have lower ROA.

5.3 Conclusions

The study drew the following conclusions basing on the findings;

5.3.1 Key drivers of Commercial Banks' Profitability in Zimbabwe

The study concludes that the key drivers of bank profitability in Zimbabwe are capital adequacy and management efficiency. While other factors such as digitization, non-interest income and asset quality may have their own importance in banking operations, their direct impact on profitability is not strongly supported by the analysis conducted in this study.

5.3.2 Effect of Drivers of Profitability in Banks on Return on Asset in Zimbabwe

The key drivers of profitability are digitization initiatives, non-interest income and asset quality do not impact profitability. These findings provide insights for banks in Zimbabwe to focus on the identified drivers of profitability to enhance their financial performance in a subdued economy.

5.3.3 Profitability Boosting Model for Zimbabwean Banks in a Subdued Economy

The research developed a regression model for enhancing management efficiency and maintaining adequate capital levels are crucial for improving profitability in Zimbabwean banks.

5.4 Recommendations

The section that follows presents the study’s recommendations based on the research findings and conclusions.

5.4.1 Key Drivers of Commercial Banks' Profitability in Zimbabwe

Managers should place a high priority on maintaining appropriate capital levels because of the considerable positive impact that capital sufficiency has on bank profitability. This can be accomplished by making sure the bank's capital position complies with regulatory standards and by regularly evaluating capital-to-risk weighted assets ratios. To increase the bank's capacity to withstand losses and maintain its financial stability, capital planning techniques must be put into practice.

Banks should be required by regulatory frameworks to maintain sufficient capital levels to cover their risk exposures. To find and fix any possible weaknesses in the financial system, regular stress tests and capital adequacy analyses might be put into place. To further encourage banks to uphold sound capital levels and implement cautious capital management procedures, rules and incentives can be offered.

5.4.2 Effect of Drivers of Profitability in Banks on Return on Asset in Zimbabwe

The results emphasize how crucial effective management is to raising bank profitability. Bank management ought to concentrate on increasing operational efficacy, simplifying procedures, and allocating resources as efficiently as possible. Employee productivity and skill enhancement can be achieved by funding training and development initiatives, which raises management effectiveness as a whole. Employees can also be encouraged to perform to the best of their abilities through regular performance reviews and reward programs that support profitability objectives.

Even if digitalization initiatives did not provide a statistically meaningful effect on profitability, banks should still persist in their investment in digital technologies. In the long run, digitization can lead to cost savings, increased customer satisfaction, and improved operational efficiency. Managers must thoroughly assess the possible advantages of certain digitization projects and give top priority to financial investments that directly and demonstrably improve customer happiness, operational effectiveness, and revenue creation. The banking industry should be able to digitize easily if policymakers foster this atmosphere. This can involve encouraging the development of digital infrastructure, making sure that digital connectivity is dependable and secure, and putting in place laws that encourage innovation while protecting consumer information and the stability of the economy. The banking industry can become digitally resilient and adopt digital solutions by working together with regulators, banks, and technology providers.

5.4.3 Profitability Boosting Model for Zimbabwean Banks in a Subdued Economy

Even if the study's findings did not indicate that non-interest income had a substantial impact on profitability, banks should nevertheless look into ways to diversify their revenue sources outside of interest income. This entails growing fee-based offerings, creating cutting-edge goods, and investigating untapped market niches. The bank's managers should evaluate its non-interest revenue streams, pinpoint areas for expansion, and create plans to take advantage of

these chances. The results of the study indicate that profitability is not significantly affected by asset quality, as indicated by the percentage of non-performing loans. However, long-term sustainability and risk management depend on maintaining strong asset quality.

To reduce the amount of non-performing loans, bank managers should keep giving priority to credit risk assessment, monitoring, and collection activities. To reduce credit risks, efficient loan underwriting guidelines, frequent portfolio assessments, and proactive problem loan management must be put into place. The significance of efficient risk management procedures, such as credit risk assessment and monitoring, should be emphasized by regulators going forward. Regular examinations of the loan portfolio and asset quality evaluations can aid in early detection of such issues. Regulatory frameworks ought to encourage prudent risk management techniques and offer recommendations for the best ways to categorize loans and provision for it.

5.5 Areas for Further Research

The study shows areas that require further investigation to fully understand bank profitability in Zimbabwe's weak economy. These areas include the long-term consequences of digitization initiatives, the characteristics and effects of non-interest revenue streams, the relationship between non-performing loans and asset quality, the influence of external factors on bank profitability and comparative analysis with other economies. By delving deeper into these topics, researchers and practitioners can enhance their understanding of bank profitability in Zimbabwe, refine theories and inform decision-making for bank management and policymakers.

REFERENCES

Akoto, R. F. (2015). Management efficiency and profitability of banks in Ghana. Journal of Financial Management & Analysis, 28(1), 1-14.

Al-Tamimi and Al-Mazrooei (2017. Operational Risk Exposures of Islamic Insurance Companies in Archer. Islamic Finance: Regulatory Challenges. Wiley. Singapore.

Altunbas, Y., Carbo-Valverde, S., & Marques-Ibanez, D. (2007). Mergers and acquisitions and bank performance in Europe: The role of strategic similarities. Journal of Economics and Business, 59(5), 369-393.

Altunbas, Y., Fazylov, O., & Molyneux, P. (2002). Evidence on the bank lending channel in Europe. Journal of Banking & Finance, 26(11), 2093-2110.

American Banker. (2020). Non-interest income: The key to bank profitability. Retrieved from https://www.americanbanker.com/news/non-interest-income-the-key-to-bank-profitability

Andersson, F.O and Ford, M. (2015) Reframing social entrepreneurship impact. Productive, unproductive and destructive outputs and outcomes of the Milwaukee School Voucher Programme. Journal of Social Entrepreneurship.

Athanasoglou, P. P., Brissimis, S. N., & Delis, M. D. (2021). Bank-specific, industry-specific and macroeconomic determinants of bank profitability. Journal of International Financial Markets, Institutions and Money, 32, 13-32.

Bank for International Settlements. (2020). Capital adequacy and profitability: An empirical analysis. Retrieved from https://www.bis.org/publ/qtrpdf/r_qa2009f.pdf

Bank of Zimbabwe. (2023, January). Financial Stability Report. Harare, Zimbabwe: Bank of Zimbabwe.

Barth, J. R., Caprio Jr, G., & Levine, R. (2004). Bank regulation and supervision: What works best?. Journal of Financial Intermediation, 13(2), 205-248.

Bauer, A., Chyongulya, K., & Dahlquist, M. (2017). The digital revolution in banking. McKinsey & Company.

Baumol, W. J., 1968, “Entrepreneurship in Economic Theory,” American Economic Review, Papers and Proceedings, 58, May, pp. 64–71.

Baumol, W. J., 1993, Entrepreneurship, Management and the Structure of Payoffs, Cambridge, MA: MIT Press.

Baumol, W. J., 2006, “Entrepreneurship and Invention: Toward Their Microeconomic Value Theory,” Special Session on Entrepreneurship, Innovation and Growth I: Theoretical Approach, American Economic Association Meetings.

Berger, A. N., & Bouwman, C. H. S. (2009). Bank liquidity creation, monetary policy and financial crises. Journal of Financial Services Research, 35(2), 163-195.

Berger, A. N., & DeYoung, R. (1997). Problem loans and cost efficiency in commercial banks. Journal of Banking & Finance, 21(6), 849-870.

Berger, A. N., Roman, R. A., Sedunov, J., & Sedunov, J. (2019). Do digital banks have a competitive advantage in attracting deposits? Journal of Financial Services Research, 55(3), 297-315

Brueckner, M. (2013). Profit Maximization. In: Idowu, S.O., Capaldi, N., Zu, L., Gupta, A.D. (eds) Encyclopedia of Corporate Social Responsibility. Springer, Berlin, Heidelberg.

Chikova, A., & Mlambo, C. (2019). The impact of inflation on the profitability of commercial banks in Zimbabwe. Journal of Economics and Behavioural Studies, 11(6), 12-23.

Chikova, T. (2016). Determinants of commercial banks' profitability in Zimbabwe. International Journal of Economics, Commerce and Management, 4(9), 1-13.

Chikova, T., Muzata, T., & Chikova, O. (2017). The impact of capital adequacy on bank profitability: Evidence from Zimbabwe. Journal of Economics and Behavioral Studies, 9(6), 1-10.

Chikova, T., Muzata, T., & Chikova, O. (2019). Non-interest income and bank profitability: Evidence from Zimbabwe. International Journal of Economics, Commerce and Management, 7(4), 1-15.

Demirgüç-Kunt, A., & Detragiache, E. (1998). The determinants of banking crises in developing and developed countries. IMF Staff Papers, 45(1), 81-109.

Demirgüç-Kunt, A., & Huizinga, H. (1999). Determinants of commercial bank interest margins and profitability: Some international evidence. The World Bank Economic Review, 13(2), 379-408.

Demirgüç-Kunt, A., & Huizinga, H. (2019). Bank capital and profitability. Journal of Financial Intermediation, 28, 1-13.

Demirgüç-Kunt, A., Huizinga, H., & Maechler, A. (2010). Bank activity and funding strategies: The impact on risk and returns. Journal of Financial Economics, 98(3), 626-650.

DeYoung, R., & Rice, T. (2004). Noninterest income and financial performance at US commercial banks. Financial Review, 39(1), 101-127.

DeYoung, R., & Roland, K. P. (2001). Product mix and earnings volatility at commercial banks: Evidence from a degree of total leverage model. Journal of Financial Intermediation, 10(1), 54-84.

Federal Reserve Bank of New York. (2020). The net interest margin and bank profitability. Retrieved from https://www.newyorkfed.org/medialibrary/media/research/staff reports/2020/sr2009.pdf

Federal Reserve Bank of San Francisco. (2019). Asset quality and bank profitability. Retrieved from https://www.frbsf.org/economic-research/publications/economic-letter/2019/july/asset-quality-bank-profitability/

Goddard, J., Molyneux, P., & Wilson, J. O. (2004). Dynamics of growth and profitability in banking. Journal of Money, Credit and Banking, 36(6), 1069-1090.

Hall, M. (1968). 'Sales Maximisation, An Empirical Examination', Journal of Industrial Economics.

Hamdan, M. A., Al-Qarni, M. A., & Al-Saleh, N. A. (2017). The impact of management efficiency on bank profitability in Jordan. International Journal of Accounting, Auditing and Performance Evaluation, 13(2), 158-176.

Harvard Business Review. (2019). How digitization is transforming the banking industry. Retrieved from https://hbr.org/2019/03/how-digitization-is-transforming-the-banking-industry

Hawkins, C. J. (1970). 'On the Sales Revenue Maximisation Hypothesis', Journal of Industrial Economics (1970).

Hawkins, C.J. (1973). Neo-Classical Theories of Profit Maximisation: Origins. In: Theory of the Firm. Macmillan Studies in Economics. Palgrave, London

Kosmidou, K., Tanna, S., & Pasiouras, F. (2020). Determinants of profitability of domestic UK commercial banks: Panel evidence from the period 1995–2002. The British Accounting Review, 43(4), 275-290.

Marris, R. (1964) The Economic Theory of "Managerial" Capitalism, Macmillan, London. Mataranyika, L. (2018). The impact of foreign currency shortages on bank profitability in Zimbabwe. Journal of Finance and Investment Analysis, 7(2), 56-67.

Martin, B. (2020). Introduction to Descriptive Statistics. In Statistics for Research (pp. 17-31). Springer.

Mataranyika, M., & Chikono, C. (2019). Determinants of commercial banks' profitability in Zimbabwe: A panel data analysis approach. Banks and Bank Systems, 14(2), 95-105.

McKinsey Global Institute. (2019). Banking on the future: The digital transformation of the banking industry. Retrieved from https://www.mckinsey.com/industries/financial-services/our-insights/banking-on-the-future

Mlambo, C. (2010). Determinants of commercial bank profitability in Zimbabwe. African Development Review, 22(3), 400-411.

Mlambo, C. (2016). Management efficiency and bank profitability: Evidence from Zimbabwean commercial banks. International Journal of Economics, Commerce and Management, 4(8), 1-12.

Mlambo, C. (2018). Net interest margin and bank profitability: Evidence from Zimbabwean commercial banks. International Journal of Economics, Commerce and Management, 6(2), 1-11.

Mlambo, C., & Biekpe, N. (2018). Determinants of bank profitability in Africa: Evidence from panel data. Journal of African Business, 19(3), 372-396.Altunbas, Y., Carbo-Valverde, S., & Marques-Ibanez, D. (2020). Bank risk and profitability: An empirical evidence of European banks. Journal of Banking & Finance, 35(5), 1315-1326.

Mohajan, H. K. (2021b). Product Maximization Techniques of a Factory of Bangladesh: A Sustainable Procedure. American Journal of Economics, Finance and Management, 5(2).

Molyneux, P., & Thornton, J. (1992). Determinants of European bank profitability: A note. Journal of Banking & Finance, 16(6), 1173-1178.

Mugondo, C., & Mupedziswa, R. (2018). The impact of digitisation on the profitability of commercial banks in Zimbabwe. Journal of Financial Management, 6(1), 1-13.

Muzata, T., Chikova, T., & Chikova, O. (2018). Asset quality and bank profitability: Evidence from Zimbabwean commercial banks. International Journal of Economics, Commerce and Management, 6(3), 1-14.

Muzenda, T. (2020). Currency instability and bank profitability: Evidence from Zimbabwe. International Journal of Economics, Commerce and Management, 8(4), 32-45.

Ntim, C. G., Lindop, S., Opong, K. K., & Thomas, D. A. (2021). Executive pay and performance: The moderating effect of CEO power and governance structure. International Journal of Managerial Finance, 11(1), 128-149.

Owolabi, J. O., Adeyemi, A. A., & Adegboye, A. A. (2016). Impact of management efficiency on profitability of commercial banks in Nigeria. Journal of Business and Management, 10(1), 1-13.

Theofandis, D. and Fountouki. A. (2019). Limitations and Delimitations in the Research Process. Perioperative nursing (GORNA), 7 (3), 155-162.

Tshuma, T., & Chibaya, M. (2021). The impact of non-interest income on the profitability of commercial banks in Zimbabwe. Journal of Finance and Banking, 15(1), 56-67.

Wiese, H. (2021). Cost Minimization and Profit Maximization. In Advanced Microeconomics. Springer Gabler, Wiesbaden. https://doi.org/10.1007/978-3-658-34959-2_9 accessed on 3 August 2023.

APPENDICES

Date: 11/27/23
Time: 23:41
Sample: 2016 2022

	CA	DIG	ME	NII	NIM	QA
Mean	0.387000	0.729057	0.842653	0.644283	0.130000	0.024868
Median	0.387000	0.496032	0.850000	0.629199	0.130000	0.020000
Maximum	0.464400	0.991572	0.970000	0.992063	0.160000	0.050000
Minimum	0.309600	0.483680	0.650000	0.283680	0.100000	0.005000
Std. Dev.	0.051865	0.248425	0.074399	0.284255	0.020103	0.014539
Skewness	-6.78E-16	0.081662	-0.481346	0.014330	4.24E-17	0.551453
Kurtosis	1.750000	1.008052	2.635939	1.387976	1.750000	1.830045
Jarque-Bera	6.380208	16.31100	4.325541	10.61440	6.380208	10.55621
Probability	0.041168	0.000287	0.115006	0.004956	0.041168	0.005102
Sum	37.92600	71.44755	82.58000	63.13977	12.74000	2.437100
Sum Sq. Dev.	0.260931	5.986374	0.536910	7.837674	0.039200	0.020503
Observations	98	98	98	98	98	98

Appendix 1. 1: Descriptive Test Results

	CA	DIG	ME	NII	NIM	QA
CA	1.000000	0.008288	0.640357	0.000135	1.000000	-0.936014
DIG	0.008288	1.000000	-0.097517	-0.131894	0.008288	-0.035256
ME	0.640357	-0.097517	1.000000	-0.075581	0.640357	-0.601386
NII	0.000135	-0.131894	-0.075581	1.000000	0.000135	0.008496
NIM	1.000000	0.008288	0.640357	0.000135	1.000000	-0.936014
QA	-0.936014	-0.035256	-0.601386	0.008496	-0.936014	1.000000

Appendix 1. 2: Correlational Rest Results

Dependent Variable: ROA
Method: Panel Least Squares
Date: 11/27/23 Time: 23:43
Sample: 2016 2022
Periods included: 7
Cross-sections included: 14
Total panel (balanced) observations: 98

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.078972	0.103721	-0.761391	0.4484
CA	0.466327	0.210439	2.215969	0.0292
DIG	-0.003538	0.015188	-0.232959	0.8163
ME	0.219658	0.065583	3.349322	0.0012
NII	-0.005813	0.013180	-0.441015	0.6602
QA	-0.180807	0.722984	-0.250084	0.8031

R-squared	0.552661	Mean dependent var	0.275771
Adjusted R-squared	0.528349	S.D. dependent var	0.052880
S.E. of regression	0.036316	Akaike info criterion	-3.733827
Sum squared resid	0.121337	Schwarz criterion	-3.575564
Log likelihood	188.9575	Hannan-Quinn criter.	-3.669813
F-statistic	22.73210	Durbin-Watson stat	0.035933
Prob(F-statistic)	0.000000		

Appendix 1. 3: Panel Least Squares Regression Results

Dependent Variable: ROA
Method: Panel EGLS (Cross-section random effects)
Date: 11/27/23 Time: 23:51
Sample: 2016 2022
Periods included: 7
Cross-sections included: 14
Total panel (balanced) observations: 98
Swamy and Arora estimator of component variances

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.078985	0.051701	-1.527729	0.1300
CA	0.564016	0.099839	5.649274	0.0000
DIG	0.009064	0.006110	1.483469	0.1414
ME	0.159877	0.074500	2.146006	0.0345
NII	-0.006911	0.004956	-1.394643	0.1665
QA	-0.015873	0.261795	-0.060633	0.9518

Effects Specification	S.D.	Rho
Cross-section random	0.037609	0.8915
Idiosyncratic random	0.013122	0.1085

Weighted Statistics			
R-squared	0.897331	Mean dependent var	0.036054
Adjusted R-squared	0.891751	S.D. dependent var	0.039440
S.E. of regression	0.012976	Sum squared resid	0.015491
F-statistic	160.8162	Durbin-Watson stat	0.311666
Prob(F-statistic)	0.000000		

Unweighted Statistics			
R-squared	0.543789	Mean dependent var	0.275771
Sum squared resid	0.123743	Durbin-Watson stat	0.039017

Appendix 1. 4: Random Effects Regression

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	5	1.0000

Cross-section test variance is invalid. Hausman statistic set to zero.

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
CA	0.578244	0.564016	0.000896	0.6346
DIG	0.009523	0.009064	0.000000	0.4380
ME	0.145198	0.159877	0.001070	0.6537
NII	-0.006956	-0.006911	0.000000	0.8190
QA	-0.012966	-0.015873	0.000006	0.2236

Cross-section random effects test equation:
Dependent Variable: ROA
Method: Panel Least Squares
Date: 11/27/23 Time: 23:52
Sample: 2016 2022
Periods included: 7
Cross-sections included: 14
Total panel (balanced) observations: 98

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.072500	0.053089	-1.365628	0.1759
CA	0.578244	0.104232	5.547691	0.0000
DIG	0.009523	0.006139	1.551318	0.1248
ME	0.145198	0.081368	1.784465	0.0782
NII	-0.006956	0.004960	-1.402579	0.1647
QA	-0.012966	0.261806	-0.049524	0.9606

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.949851	Mean dependent var	0.275771
Adjusted R-squared	0.938425	S.D. dependent var	0.052880
S.E. of regression	0.013122	Akaike info criterion	-5.656845
Sum squared resid	0.013602	Schwarz criterion	-5.155678
Log likelihood	296.1854	Hannan-Quinn criter.	-5.454134
F-statistic	83.12858	Durbin-Watson stat	0.361051
Prob(F-statistic)	0.000000		

Appendix 1. 5: Hausman Test Results

Dependent Variable: ROA
Method: Panel Least Squares
Date: 11/27/23 Time: 23:46
Sample: 2016 2022
Periods included: 7
Cross-sections included: 14
Total panel (balanced) observations: 98

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.072500	0.053089	-1.365628	0.1759
CA	0.578244	0.104232	5.547691	0.0000
DIG	0.009523	0.006139	1.551318	0.1248
ME	0.145198	0.081368	1.784465	0.0782
NII	-0.006956	0.004960	-1.402579	0.1647
QA	-0.012966	0.261806	-0.049524	0.9606

Effects Specification

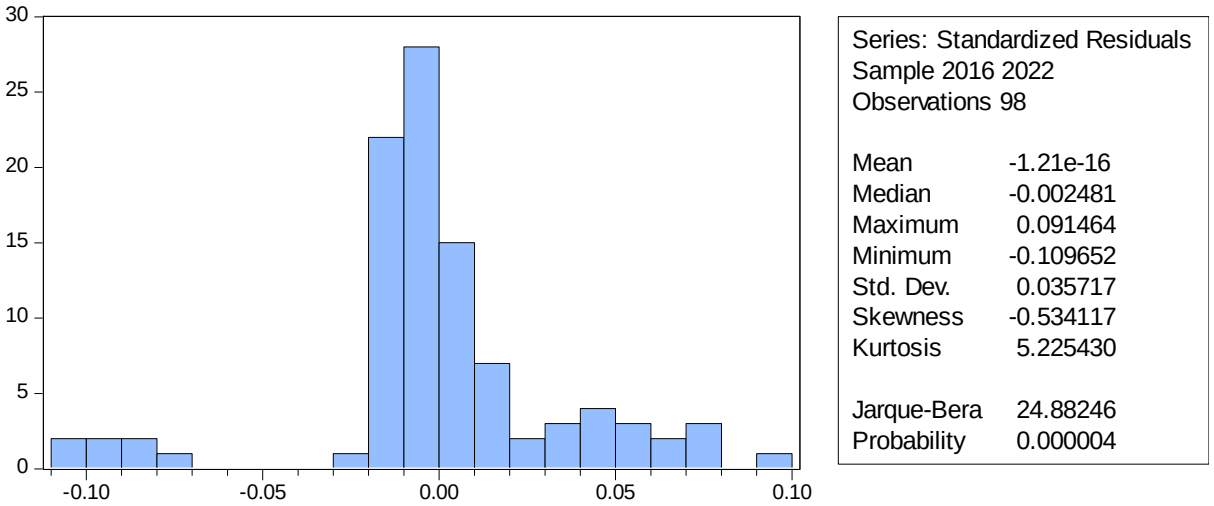
Cross-section fixed (dummy variables)

R-squared	0.949851	Mean dependent var	0.275771
Adjusted R-squared	0.938425	S.D. dependent var	0.052880
S.E. of regression	0.013122	Akaike info criterion	-5.656845
Sum squared resid	0.013602	Schwarz criterion	-5.155678
Log likelihood	296.1854	Hannan-Quinn criter.	-5.454134
F-statistic	83.12858	Durbin-Watson stat	0.361051
Prob(F-statistic)	0.000000		

Appendix 1. 6: Fixed Effect Results

Breusch-Godfrey Serial Correlation LM Test	Statistics
F-statistic	0.82543
ObsR-squared	2.55051
Prob. F (2,10)	0.465
Prob. Chi-Square (2)	0.279

Appendix 1. 7: Serial Correlation Test Results

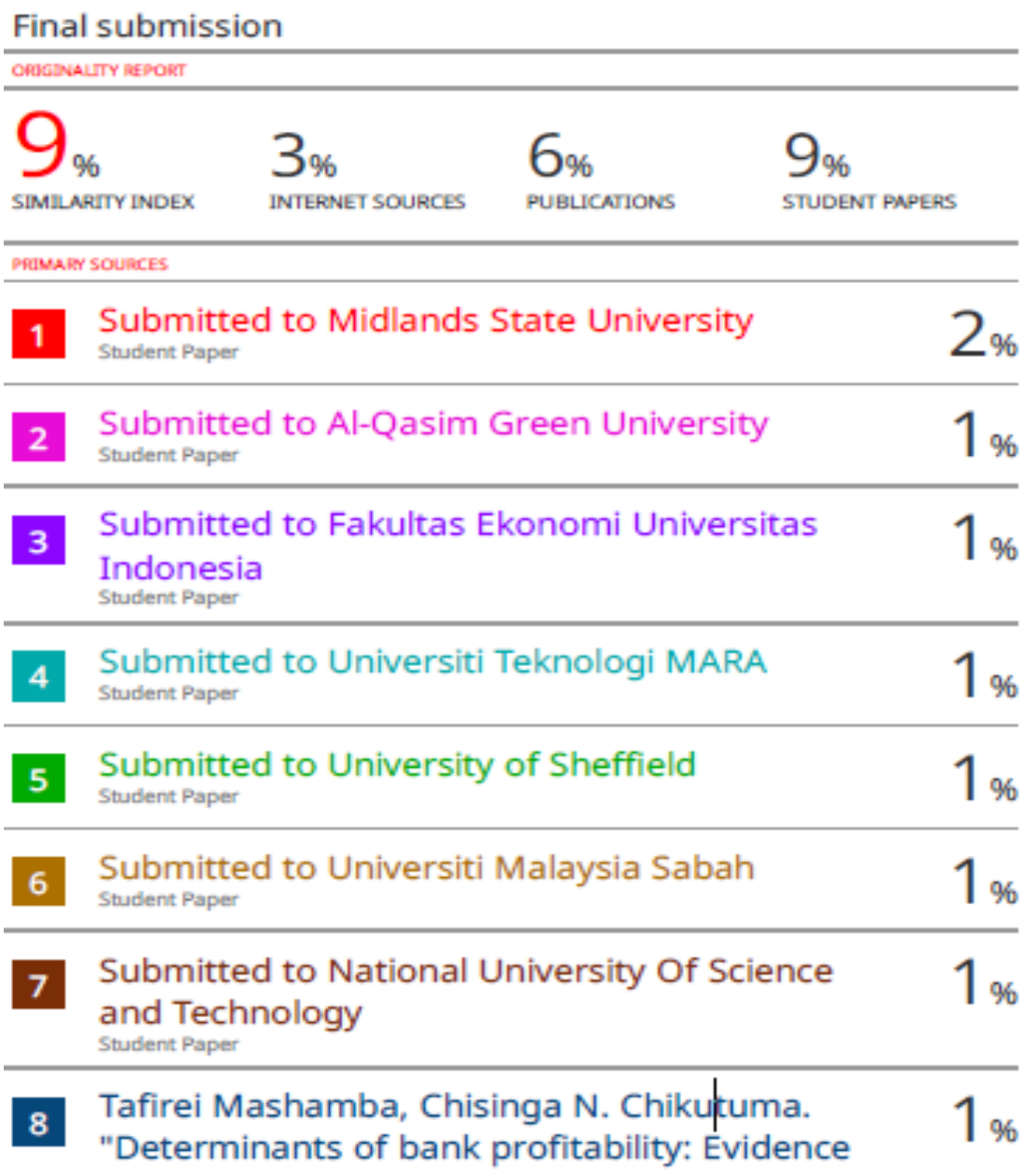


Appendix 1. 8: Normality of Residuals

Final submission

by Raphael Chipunza

Submission date: 08-Dec-2023 03:55PM (UTC+0300)
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