BINDURA UNIVERSITY OF SCIENCE EDUCATION



FACULTY OF COMMERCE

DEPARTMENT OF BANKING AND FINANCE

'ASSESSMENT OF THE RELATIONSHIP BETWEEN NONPERFORMING LOANS AND LEVEL OF BANK PERFORMANCE. A CASE OF ZIMBABWEAN BANKS.'

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DEDICATION

Special thanks goes to my husband for the help rendered during the course of this research, as well as my parents for the support they gave during my studies.

ABSTRACT

The purpose of this study was to assess the relationship that exists between nonperforming loans and a bank's performance level. Banks are an important component of any economy for they mobilise savings for productive investments and facilitate capital flows to various economic sectors. Banks are the principal source of credit for households and business firms. In emerging economies like Zimbabwe, banks play an even more critical role for most borrowers have no access to capital markets thus making the health of the financial sector very important for these economies. During the past few years, there has been an increased number of bank problems which have greatly affected economic growth. Banking crises have historically been associated with the considerable accretion of non-performing loans which can account for a substantial share of total assets of insolvent banks and financial institutions especially in periods of systemic banking crises. Since the onset of the dollarization period in 2009, NPLs have increased from an average of 1.62% in 2009 to 18.49% by June 2014 and from the trend it can be seen that NPLs have yet to reach their peak. While NPLs are high in Zimbabwe, global statistics also show that they have been prevalent in other countries with Global Financial Stability Reports showing that in the European region, they increased from an average of 3% in 2007 to 11% by end of 2011.

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LIST OF ABBREVATIONS

- ANFIS ADAPTIVE NETWORK-BASED FUZZY INFERENCE SYSTEM
- CBD CENTRAL BUSINESS DISTRICT
- CRB CREDIT REFERENCE BUREAU
- DMU DECISION-MAKING UNIT
- FIS FUZZY INFERENCE SYSTEM
- GDP GROSS DOMESTIC PRODUCT
- NPL NON-PERFORMING LOAN
- PCA PRINCIPAL COMPONENT ANALYSIS
- **RBZ RESERVE BANK OF ZIMBABWE**
- ZAMCO ZIMBABWE ASSET MANAGEMENT CORPORATION

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CHAPTER I

INTRODUCTION AND BACKGROUND TO THE STUDY

1.0 Introduction

This chapter introduces the research topic, covering the background to the study and bringing out the problem statement. The research objectives, research questions and the scope of the study are also outlined in this chapter.

1.1 Introduction and Background to the Research Problem

During the financial crisis of 2007-2009, Zimbabwe faced massive bank failure possibly due to an increased number of non-performing loans and deteriorated bank efficiency.

Improving bank efficiency to reduce bank failure is an important task to regulators and bankers. Therefore, ascertaining the correlation of non-performing loans and the level of bank efficiency is important in reducing bank failures in the future.

A sound banking system is the backbone of any vibrant economy as it helps with optimal distribution of limited financial resources amongst entrepreneurs. Any breach in this vital function of the banking system usually has results in deleterious losses to the economy particularly to households and industry.

Despite innovations in financial service sector more than 60% of Zimbabwean banks` balance sheet generally relates to credit risk management, therefore, majority of the commercial banks rely on credit risk management. (RBZ, NPLs seminar, February 2015)

Asset quality (The quality of the bank's loans and advances) and the adequacy of loan loss provision remain key issues amongst bankers and regulators.

To ensure the maintenance of good quality asset management and operate within the legal requirements, the Reserve Bank of Zimbabwe (RBZ) setup a taskforce called Zimbabwe Asset Management Corporation (Private) Limited (ZAMCO), in July 2014 as part of measures to deal with problem of rising non-performing loans (NPLs). ZAMCO's primary objective is the acquisition of non-performing loans (NPLs) in a phased and orderly manner and enforcing strict onsite and offsite compliance to banking regulations when accounting for NPLs.

External exogenous events relating to an increasing number of NPLs decrease bank efficiency as purported by the bad luck hypothesis introduced by Berger and DeYoung (1997). Unforeseen circumstances affect the debtors` repayment ability, thereby incurring extra costs and managerial efforts. Examples of such circumstances include pandemics like the COVID-19, natural disasters, wars (example includes the Russia-Ukraine conflict) and the act of God just to mention but a few. The Covid-19 pandemic halted the global economy particularly for developing countries including Zimbabwe.

Latest global financial crisis confirms that higher non-performing loans slow down economic recovery and deepens recession which consequently affect level of bank performance in a negative manner.

In addition, the purpose of this study is to review the determinants of NPLs, impacts of NPLs on banks` performance level and measures that can be implemented to ascertain their consequences.

Banks with a higher volume of non-performing loans face higher operating costs and resultingly, are more likely to experience a reduced efficiency.

New waves of banking literature are highlighting the importance of the Basel III regulation. Ly et al. (2017a) finds that if banks could adjust their funding to comply with the Basel III requirements they could reduce systemic risk and stabilise their system.(quang thanh puhung, huong van vu, huy phuoc tran, july 2021).

Haq and Heaney(2012) conclude that bank capital is a shape related to credit risk. If there is a strong correlation between banking efficiency and nonperforming loans, it can be generalised that banks holding a low capital tend to lend to riskier borrowers in order to

maximise revenue, hence becoming inefficient banks. To address this issue, this proposal seeks to investigate the extenuating effect of bank capitalisation on the relation between non-performing loans and bank efficiency.

1.2 Research Problem

Since the dollarization system adopted in Zimbabwe, banking institutions have been experiencing continuous changes due to fluctuations in exchange rates .Banks have also faced a decline in activities on the credit market due to hyperinflation being faced in Zimbabwe especially in the period between 2021 and the first half of 2023.Thus the rise in the rate of non-performing loans in the banking sector. This paper seeks to determine the effects of non-performing loans in relation to performance level of banks and the determinants of non-performing loans. According to the international monetary fund, loans are considered non-performing when less than 90 days past due if there's high uncertainty surrounding future payments.however some banks choose to sell these loans to other banks or investors to free up capital and /or shift focus to performing loans.

1.3Aim of the study

The aim of this study is to assess the relationship between non-performing loans and bank efficiency in Zimbabwe.

1.4Research objectives

The major objective of this research is to determine whether non-performing loans have an impact on the level of bank performance, and the determinants of the non-performing loans. Under this main objective are the ancillary objectives that the researcher seeks to look deeper into as listed below:

• To determine the causes of non-performing loans in Zimbabwean banks

- Assessing impacts of non-performing loans to the level of banks` performance in Zimbabwean banks.
- Measures to ascertain the consequences of non-performing loans on the level of bank performance in Zimbabwean banks.

1.5 Research questions

- what are the causes of non-performing loans in Zimbabwean banks
- What are the impacts of non-performing loans to the level of banks` performance in Zimbabwean banks.
- What measures can be incorporated in ascertaining the consequences of NPLs on the level of bank performance in Zimbabwean banks.

1.6 Significance of the study

1.6.1 To the researcher

The study will allow the student to get a firsthand experience on how a research is carried out and the process involved. The study will also give the student a better understanding and enhance knowledge on the area of study.

1.6.2 BINDURA UNIVERSITY

The study will enhance the university's literature and use such material when carrying out similar projects in future and for future referencing

Assumptions

- Positive support will be received from the respondents.
- The Management would appreciate the suggestions raised and take corrective actions.

1.7 Chapter Summary

This chapter introduced the research topic and the background of this study, highlighting the problem statement. The researcher, in this chapter, outlined the research objectives, the research questions, the scope of the study and the research proposition. The review of literature is going to be carried out in the next chapter.

CHAPTER II

LITERATURE REVIEW

2.0 Introduction

This section comprises of the theoretical literature review and the empirical literature review. The literature review is focused on theories about non-performing loans and their impact on bank performance levels. The causes of non-performing loans will also be looked into.

2.1 THEORATICAL LITERATURE REVIEW

2.1.1 Definition of Terms

Loan: Boorman (1994) defines a loan as a contractual agreement that frameworks the payment onus from a borrower to the bank which may be secured either with collateral or payment guarantees to ensure a steadfast source of secondary repayment in case the borrower defaults. A loan is therefore an advance made to a debtor by a lending institution complemented by a contractual agreement charting out the repayment methods and the interest (Ibid, 1994).

Non-performing Loans: Fofack (2005) defined non-performing loans as those advances which, for a relatively long time period, do not generate income that is the principal And/or interest on these loans have been left unpaid for at least ninety days. Concurring with Hennie (2003), Bexley and Nenninger (2012) ascertain that non-performing loans are loans which are not generating revenue and therefore are loans which are ninety or more days delinquent in payments of principal and /or principal.

Insider Loans: RBZ (2014) defined insider loans as those loans granted to insiders that is people within the bank like employees, executives and top management.

Credit Risk: It is the probable loss owing to the non-performance of a financial contract or financial aspects of non-performance in any contract (Heffernan, 1996). It is therefore the impending loss due to failure of a debtor or borrower to meet its contractual responsibility to repay a debt in accordance with the agreed terms. Credit risk arises from the five Cs of credit which are: Capital, Conditions, Capacity, Character and Collateral.

2.2 Theories of nonperforming loans

The theory of NPLs as it relates to stability of banks rests on three pillars: (i) information asymmetry, (ii) adverse selection and (iii) moral hazard theories. They provide useful information on the traditional causes of loan default that translates to banking system instability.

2.2.1 Information asymmetry theory

Akerlof was the first to apply it (1970). According to the hypothesis, it could be difficult to distinguish between good and bad borrowers, which could result in issues with moral hazard and adverse selection. According to the idea, Cottarelli et al. (2005) and Kraft and Jankov (2005) demonstrate how bank risk-taking and the ensuing instability are influenced by loan growth. According to De Bandt and Hartmann (2000), the theory also addresses contagious withdrawals that occur when depositors have incomplete knowledge about the kinds of shocks that affect banks and about interbank risks. Originally put forth by Akerlof in 1970 and then elaborated upon by Rothschild and Stiglitz in 1976

2.2.2 the adverse selection theory

It depicts the scenario in which the likelihood of a loan default rises as interest rates rise and the quality of borrowers declines as borrowing costs rise (Musara and Olawale, 2012). The underlying premise of the theory is that banks cannot be guaranteed that they would choose creditworthy borrowers from a pool of applicants for loans who have varying ex-ante exposures to credit risk.

According to Ezeoha (2011), financial intermediaries are therefore more likely to lend to high-risk borrowers who are likely to default on their loans and are unconcerned with the strict terms of the loan. By providing more information on loan applicants, Pagano and Jappelli (1993) contend that information sharing lessens the issues associated with adverse selection.

Furthermore, Padilla and Pagano (2000) record that in the event that banks share credit data regarding defaults, borrowers are incentivized toput more effort into their projects even if they are fully aware that loan default results in increased interest rates or the inability to obtain financing in the future.

2.3 Nonperforming loans in Zimbabwe

In June 2023, the Reserve Bank of Zimbabwe (RBZ) released its monetary policy statement. The statement mentioned 19 banks in Zimbabwe, with 14 of them being commercial banks. The banking industry is still successful, as seen by its reported \$4.55 trillion in total profits, up from \$207.25 billion in 2022. The primary factor propelling the profitability of the banking industry was non-interest income, which accounted for 91.519% of the total revenue, or \$6.013 trillion. Foreign exchange profits (14.45%), fees and commissions (14.78%), and revaluation gains from investment properties (70.78%) accounted for the majority of the total non-interest income. But the performance of the few remaining non-profitable loans was tarnished by non-performing ones. Despite the fact that the RBZ observed a noticeable rise in nonperforming loans—from 0.36% in March 2021 to 3.62% in June 2023.Despite the fact that NPL levels are still below the internationally advised 5% threshold, they are nonetheless high enough to have an impact on banking institutions' performance, as shown by the other banks' inability to turn a

profit in 2023. The amount of nonperforming loans in Zimbabwe's banking industry throughout the last three years. inFigur4.5C below.



Figure 1:Non perfoming loans in Zimbabwe between 2020 and 2023

2.4 Empirical Literature Review

The dominance of NPLs can precipitate banking industry instability and poor economic performance. Moreover, if the repercussions associated with a surge in non-performing loans are not properly addressed, they can generate a new crisis and trigger a financial feedback loop within an economy. For example, NPLs increase the interest rates for bank loans, adversely affecting banks' profitability which induces instability (Merhbene, 2021).

Beaton, Myrvoda, and Thompson (2016) examined the factors that contribute to nonperforming loans in the Eastern Caribbean Central Union (ECCU) using both static and dynamic models. Using a panel VAR technique, they further examined the effect of NPLs on economic activity. A quarterly dataset of 34 foreign and local banks from six countries, spanning from 1996 to 2015, was utilized by the authors. They came to the conclusion that factors at the bank and macroeconomic levels deteriorate the quality of loan portfolios. Furthermore, Beaton et al. (2016) discovered that the ECCU has macrofinancial feedback loops and that the percentage of non-performing loans was higher in domestic banks than in international banks. To the best of the researcher's knowledge, no research has used data from Zimbabwe to investigate the relationship between deconstructed Z scores, economic performance, and NPLs in a unified framework. Additionally, the The insufficiency of utilizing composite Z scores as a measure of the stability of the banking industry, which the current study found less helpful for the sake of policy development, is the basis for identifying the literature gap. Decomposed Z scores, which will aid policymakers in understanding the extent to which the banking sector is weakened through risk-adjusted capitalization and return, respectively, are thus necessary to close the research gap. The following theories are put out in the report in an effort to fulfill the study's objectives: First hypothesis: There is a negative relationship between NPLs and the stability of the banking sector. An increase in NPLs is a sign that bank profitability and capital are being eroded. Consequently, decreasing capitalization, decreased profitability, and instability in the banking sector are implied by a surge in non-performing loans (Foglia, 2022; Konstantakis et al., 2016). NPLs adverselyThe foundation for identifying the literature gap is the current study's finding that using composite Z scores as a measure of the stability of the banking sector is inadequate and less beneficial for the purpose of policy creation. To address the research gap, decomposed Z scores are thus required. These scores will help policymakers understand the degree to which the banking industry is weakened through risk-adjusted capitalization and return, respectively. In an attempt to achieve the goals of the study, the report presents the following theories: First supposition: The stability of the banking industry is inversely correlated with non-performing loans (NPLs). An increase in non-performing loans (NPLs) indicates declining bank capital and profitability. As a result, there will be a decline in capitalization, profitability, and stability.Foglia, 2022; Konstantakis et al., 2016).

2.5 The Zimbabwean Scenario

A number of banks have failed and wound up operations in Zimbabwe over the past ten years, either voluntarily or as a result of forced litigation. Numerous issues have contributed to the failure of these banks, but the majority of the non-performing loans on their balance sheets may have been the primary cause. These bank failures include the following: Genesis Investment Bank, Tetrad Investment Bank, Capital Bank, Trust Bank Corporation Limited, AfrAsia Bank Zimbabwe Limited (previously Kingdom Bank), Allied Bank Limited (formerly ZABG), and Royal Bank of Zimbabwe Limited, which closed in 2012. The Century Discount House had closed in 2004 and Rapid Discount House had shuttered once again in 2004 in the two years prior to these bank closures.additionally, Sigit Finance House has shut down in 2006. Eleven financial institutions ultimately failed between 2004 and 2015, indicating a problem with their business practices.

Six banking institutions incurred losses in 2014, according to the RBZ bank supervision annual report. These losses were ascribed to high levels of non-performing loans, difficulties with liquidity, and a lack of critical mass in revenue to support operating expenses.

Among other weaknesses observed in the major banking institutions in this report, the high level of non-performing loans mainly arising from weak credit risk management systems was the major factor hindering the efficiency of Zimbabwean banks. The report also noted the abuse of depositors' funds through non-performing insider or related party exposures together with the noncompliance with laws, regulations, and guidelines as well as own policies and procedures.

Non-performing loans in Zimbabwe have been largely brought about lenient credit terms in the market. Most Zimbabwean banks have fallen victim to non-performing loans made to their shareholders and executives. In the first quarter of 2015, Zimbabwe's largest banking group, CBZ, reported a 43.7 decline in after-tax profit, weighed down by a

growing number of loans on which borrowers were not keeping up with interest and principal repayments.

Locally owned banks have felt the strongest pinch of non-performing loans because there is more activity of insider-related loans. Foreign owned banks like Barclays Bank and Standard Chartered had the lowest ratios of non-performing loans to total loans averaging about 4%. This is because these banks are managed internationally and hence professionalism and ethics are practiced in a large scale.

Capital Bank Corporation had its operating licence cancelled by the RBZ on 4 June 2014 following a resolution by its board to request a cancellation of the bank's registration.

According to the RBZ, the bank had been operating in an "unsafe and unsound financial condition epitomised by critical undercapitalisation, persistent losses, chronic liquidity challenges and inordinately high levels of non-performing loans".

Research into the collapse of Afrasia Kingdom bank show that at the time of its collapse, its loan book was highly dominated by non-performing loans. The bank was closed on the 24th of February 2014 after the shareholders of the bank surrendered the banking licence to the RBZ.

Non-performing loans in Zimbabwe are caused by a variety of factors. According to the RBZ, prior to the establishment of Credit Reference Bureaus (CRBs), Zimbabwean banking institutions were exposed to heightened credit risk because of the high level of information asymmetry and the lack of an effective credit information sharing mechanism. There were limited avenues for credit provision institutions to check and share the credit history of borrowers. It was against this backdrop that the central bank set about introducing regulatory frameworks which include the formation of private credit reference bureaus which are expected to access credit information from the credit registry housed at the RBZ and provide reports to their subscribers.

Insider loans also feature among the most prevalent causes of non-performing loans in Zimbabwe. Many locally owned banks have huge amounts of insider loans which in most cases are usually non-performing. In a move to curb this phenomenon, the RBZ in 2014 circulated a Banking Amendment Bill which made it mandatory for insider loans to be

approved by the institution's board and to be secured by acceptable collateral whilst insider loans will continue to be deducted from capital.

The corporate structures of some Zimbabwean banks, especially the domestically owned banks, have also resulted in the growth of non-performing loans in the industry. Many Zimbabwean banks fall under the holding company structures whereby the bank will be under a corporate holding company. For example, TN Bank was under TN holdings which had other subsidiary units or departments under it like TN Bakery, TN furnishers, TN fast Foods, TN supermarkets and many other divisions. The disadvantage of this structure is that when one division is not doing well, the profit generated from other performing divisions will be used to keep the ailing division afloat. Because of this practice, the management of TN holdings augmented their other activities with earnings from TN Bank. This structure also results in incestuous relationships between the business units. The other units under TN Holdings borrowed money from the Bank and when they failed to pay back, the bank could not take any action against them for they were under the same holding company. This practice results in the growth of nonperforming loans in the bank balance sheet.

Research Gap

A research gap is a question in a particular field of study that has not been adequately adresses through the research process. In this research ,all banks in Zimbabwe fall under this category and 1 chose 5 bqnks for my research.

2.6 Chapter Summary

This chapter focused on the review of literature related the question under study. This included the theoretical literature review and the empirical literature review together with the definition of key terms in this study. The next chapter ill focus on the methodology employed.

CHAPTER III

RESEARCH METHODOLOGY

Introduction

This chapter provides a guideline on how this research was carried out. It lays out the research design and highlights the research approach and the research strategy employed, clearly stating the research instruments. This chapter also stipulates the population and sampling strategies targeted by the researcher as well as the data sources. The methods of insuring the validity and reliability of data employed by the researcher are also outlined together with the way the data is going to be presented, analysed and interpreted.

Research methodology, according to Kumar (2019), is the methodical approach and procedures taken to carry out research, collect data, analyze findings, and make conclusions in a scholarly or scientific project. It includes the general structure and methodology used to answer the goals or problems of the research.

3.1 Research Philosophy

.

Research philosophy is the umbrella term for a set of convictions, presumptions, and guidelines that direct a researcher's approach to gathering information and carrying out study. It provides a framework for understanding the nature of knowledge, the researcher's function, and the strategies and tactics used during the course of the investigation. When choosing the methodological aspects of a study, researchers can make more informed decisions with the help of research philosophy.

Research philosophy assist researchers in making informed choices regarding methodological dimensions of their study.

According to Zukauskas et al (2017), multiple research philosophies or paradigms exist, such as positivism, interpretivism, and critical theory. These philosophies vary in their fundamental assumptions concerning the nature of reality, the researcher-participant relationship, and the significance of values and subjectivity in the research process.

3.1.2 Discussion of the research philosophies (positivism and interpretivsm)

3.1.2.1 Positivism

Positivism is rooted in the natural sciences and emphasizes objectivity, empirical observation, and the use of quantitative methods in research. It assumes that there is an objective reality that can be studied and understood through systematic observation and measurement. According to Saunders et al (2012), positivism emphasizes the significance of objective and factual information, prioritizing the consideration of raw data without being influenced by human interpretation or biases.

Positivism is closely associated with the use of quantitative methods in research. Quantitative methods are characterized by their focus on numerical data and application of statistical analysis to draw conclusions. Commonly used quantitative methods within positivist research include, surveys, experiments, statistical analysis, content analysis and secondary data analysis.

3.1.2.2 Interpretivsm

Interpretivsm, also known as constructivism or social constructivism, is rooted in the social sciences and focuses on subjective meanings and interpretations, and social contexts. It recognizes that individuals and societies create their own meanings and realities, and these meanings shape their, behaviors and interactions. According to Alharahsheh (2020), interpretivism places a greater emphasis on delving deeply into understanding and differs from the approach taken in the natural sciences. It recognizes the significance of cultural variations, unique circumstances, and historical contexts in

shaping diverse social realities. Interpretivism diverges from positivism in that its goal is to comprehend the complexities of human experiences and meanings.

Qualitative methods are commonly employed in interpretivist research to capture the subjective meanings, interpretations, and social contexts of individuals and groups. Frequently used qualitative methods are, interviews, observations, focus groups, textual analysis and case studies.

However, I have chosen to adopt the positivism research approach for my study, because the aim of my research is to find out the relationship of non-performing loans and how they impact bank performance in a systematic and generalizable manner, positivism is more suitable than interpretivism. Positivism approach will involve collecting quantitative data on variables such as the number of individuals accessing microfin7uestions, Cooper and Schindler (2003). The research design may be classified into different types: exploratory, descriptive, and causal research design. This research is concerned with determining whether non-performing loans have an impact on the level of bank performance. Thus the thrust is finding out the relationship that exists between nonperforming loans and the level of bank performance as well as determining the causes of non-performing loans in Zimbabwe.

3.4.1 Exploratory research design

Merkus (2023) defines the explanatory research design as a research methodology that aims to explore and clarify the causal relationships between variables. It goes beyond simple observations or descriptions of occurrences and aims to understand the mechanisms and causes underlying the occurrence of particular relationships or events. Bringing light on the underlying mechanisms and processes that impact the variables of interest is the main goal of explanatory study.

This study used an exploratory research approach in order to gain insight into the several ways that the increase in non-performing loans on the balance sheets of Zimbabwean commercial banks has impacted them. The goal of this study design is to generate fresh concepts and recommendations that have never been investigated previously in terms of

bank performance. The researcher was able to determine the causes of the high rate of non-performing loans over the past ten years thanks to exploratory study. Questionnaires and interviews were used to collect this kind of information.

3.5 Research Population

Leedy (2001) postulates that a study population, then, relates to the whole sample of subjects with whom investigators desire to approximate the results of a survey, including people who did not take part in the study. While collecting data, the first task is to describe the population to be explored in terms of its geographical, demographic, and other limits to determine whether it has been permanently or temporarily covered, Howard and Sharp (2003). The population under scrutiny is the Zimbabwean banking sector which comprises of 19 operating bank institutions as at June 2023. In carrying out this research, the researcher targeted the following banks in Harare Central Business District; CBZ, Barclays bank, NMBZ ZB Bank and FBC Bank. These banks were targeted because according to the banking regulator in Zimbabwe, the RBZ, these banks command the largest market share in the country. These financial institutions also offer the advantage of accessibility to the researcher for they are located in the Harare CBD and they also have branches dotted across the capital.

3.5.1 Kinds of Sampling

3.5.1.1 Probability Sampling.

Probability sampling involves the selection of individuals from a population using random processes, ensuring that each element has a known and a non-zero chance of being selected, this allows researchers to estimate the sampling error and make statistical inferences about the population based on the sample. Commonly used probability sampling methods are, simple random sampling, systemic sampling, stratified sampling, and cluster sampling.

• Simple Random Sampling

In this sampling method, each individual in the population has an equal chance of being selected for the sample. For this research, will assign a unique identifier to each individual in the population of Harare, such as loan officers and then use a random number generator or table to select a random sample of participants.

• Systemic Sampling

This sampling involves selecting every kth element from a list or population after randomly selecting a starting point. This method provides a systematic approach and ensures randomness in the selection process.

• Stratified Sampling

This sampling involves dividing the population into subgroups or strata based on relevant characteristics. In the context of Harare, population will be stratified based on demographics, such as loan amount, the terms and conditions. Participants will be randomly selected from each stratum in proportion to their representation in population. This method will ensure that the sample represents the diversity of the population.

• Cluster Sampling

Cluster sampling involves dividing the population into clusters or groups and randomly select the clusters as the sampling units. In the case of Harare, the clusters will be identified based on geographical locations, such as streets location or area The clusters will be randomly selected, and then include all individuals within the selected clusters in the sample.

3.5.2 Sample Size

Kothari (2004) defined sample size as the total number of items to be selected from the cosmos to constitute a sample. The researcher strived to come up with an optimum sample that satisfies the requirements of efficiency, representativeness, reliability and flexibility. When determining the sample size, the researcher kept in mind the magnitude of the population discrepancy, the scope of the population, the parameters of interest and

budgetary constrictions. Having divided the population into three strata, the researcher was confronted with the question of how to apportion the sample size for each stratum.

The researcher followed the method of proportional allocation whereby, according to

Kothari (2004), the sizes of the samples from the three samples are kept proportional to the sizes of the strata. The researcher decided to take a sample size of 90 respondents to be drawn from a sample size of N = 790 which is divided which is divided into N1 = 440, N2 = 185 and N3 = 165

Where: N- the total population of the research (Loan officers, risk

managers and branch managers from the four banks)

N1- The total number of Loan officers from the four banks

N2- The total number of risk managers from the four banks

N3- The total number of branch managers from the four companies

The sample size of 90 is feasible in terms of data collection and analysis, considering factors such as time constraints, accessibility to participants, and the complexity of data collection methods. A sample size of 90 will have more manageable within the available timeframe and resources.

3.6 Research Instrument

According to Collins (2021), a research instruments refers to the tool or technique used to collect data in a research study. It is a standardized instrument designed to gather information and measure variables related to the research objectives. Research instruments are crucial for obtaining reliable and valid data that can be analysed to answer research questions and test hypothesis

The researcher employed questionnaires and interviews as the research instruments to collect the primary data.

3.6.1 Questionnaires

The questionnaire technique may be considered valid and reliable for the purpose of attaining such information as required in this research for it provides no unjustifiable influence on the part of the respondent while answering the questions. The questionnaire entailed of both closed questions and a few open-ended questions. Closed ended questions were preferred because their easiness in administer and may always elicit faster responses. Closed questions are also easier to analyse as opposed to open ended questions which are more suited for the generation of recommendations. Personal administration of the questionnaire was done that is, the researcher moved around with the questionnaires to the banks in Harare. The researcher also emailed some of the questionnaires and this helped in speeding up the research because emails eliminate the need for physically visiting the targeted organisations. This also helped in minimising the cost of the research. The disadvantage of this approach was that it compromised the anonymity of the researcher, however, had to promise to safeguard the respondents' anonymity upfront and not to reveal their identities without consent.

Questionnaires provided the researcher with the following advantages:

- Time saving benefit for they could be disseminated to all the respondents at the same time as opposed to interviews where one person has to be interviewed at a given time.
- There was flexibility to respondents in answering for they could take time thinking about the best response unlike in an interview.
- They proved to be cost effective especially those administered via emails.

3.6.2 Interviews

The researcher also used interviews as follow ups to the self-administered questionnaires. An interview as per Singh (2014)'s definition, is a personal interaction between an interviewer and an interviewee for the purpose of data collection. Semi-structured interviews were employed by the researcher where by the interviewer prepared a list of predetermined queries to be used as an interview guide but leaving a possibility to ask follow up questions for lucidity. Through the use of interviews as a follow up to questionnaires, the researcher was able to solicit for more information and that too, in greater depth. The researcher was also able to adapt the language of the interview to the educational level and aptitude of the interviewees thus hence doing away with some of the misinterpretations to questions experienced in the questionnaires. The researcher was, however, able to conduct very few interviews due to the fact that interviews are time consuming and expensive to carry out.

Secondary data collection differed from primary data collection and here the researcher made use of only published data available from government publications, publications of foreign governments and international bodies like IMF, trade and technical journals, newspapers, books and magazines, publications and reports by financial institutions and reports by other scholars

3.7 Pilot Research

A small-scale preliminary inquiry carried out prior to the main research study is referred to as a pilot study. It is intended to find and fix any problems or constraints as well as evaluate improved research techniques, protocols, and tools. Before completing the fullscale investigation, a pilot study is primarily used to acquire preliminary data, evaluate the viability and practicality of the research design, and make any necessary revisions.

Testing research methods and processes is one of the key reasons to perform a pilot study. It enables researchers to test the procedures, data collection methods, and research methods that will be used in the main study. It assists in locating any shortcomings, difficulties, or uncertainties in the research design, enabling scientists to make the required adjustments and enhancements. Refining research instruments, the pilot study provides an opportunity to evaluate the reliability and validity of research instruments, such as surveys, questionnaires, or interviews guides. Researchers can identify confusing or ambiguous items, assess the time required for completion, and gather feedback from participants to refine the instruments for better clarity and effectiveness.

Assessing feasibility. According to Arain et al (2010), conducting a pilot study helps researchers assess the feasibility of the research plan, including the availability of resources, time constrains, and logical considerations. It provides an opportunity to identify and address any potential barriers or challenges that may arise during the main study, allowing researchers to make necessary adjustments.

15 participants will be targeted for the pilot study on assessing the relationship between nonperforming loans and the level of bank performance. A pilot study typically involves a smaller sample size compared to the main study. Having 15 participants for the pilot study will allow the gathering of diverse range of perspectives and feedback while keeping the study manageable in terms of data collection and analysis.

3.8 Reliability and validity

Reliability and validity are two important concepts in research methodology and data analysis. These concepts are used to assess the quality and credibility of research findings.

3.8.1 Reliability

The consistency, stability, and reproducibility of measurements or observations are referred to as reliability. If a study is credible, it should produce consistent findings upon repeating the same observations or measurements in comparable circumstances. There are various varieties of dependability.

Test-retest reliability evaluates the consistency of measurements over a period of time. The questionnaire will be given to a sample of participants twice, and the degree of agreement between the participants will be analyzed. A high degree of consistency in the responses suggests good reliability contrasting the outcomes. Strong correlation between the scores suggests great test-retest reliability.

The internal consistency reliability criterion assesses how well the questionnaire items measure the same construct over time. To guarantee dependability and internal consistency.

3.8.2 Validity

It is crucial to take validity criteria into account while creating a questionnaire for a study on the correlation between nonperforming loans and bank performance in Zimbabwe. The degree to which a questionnaire should successfully gather data about the connection between non-performing loans (NPLs) and bank performance is referred to as validity.

The degree to which the questionnaire accurately measures the underlying constructs or concepts of interest is assessed by construct validity. The non-performing loan and bank performance level will be among the constructs.

Content validity guarantees that every pertinent facet of the study issue is covered by the questionnaire.

Determine the questionnaire's criterion validity by comparing its results to other accepted metrics or standards. This can be accomplished by comparing the results of the surveys with the available data or indicators related to non performing loans and level of bank performance.

3.9 Data Analysis
This is a procedure where we gather information to understand a specific event better. To make sense of the data, we carefully analyse it to ensure we captured all the important details from the field.

3.9 Descriptive and Inferential Statistics

Descriptive and inferential statistics are two branches of statistics that serve distinct purposes in analysing and interpreting data. Descriptive statistics focuses on providing a clear and concise summary of the data, typically through measures of central tendencies, variability, and graphical representations. Inferential statistics involves drawing conclusions, making predictions, and generalizing findings from a sample to a larger population.

3.9.1 Descriptive Statistics

Descriptive statistics is a useful technique for analysing and summarizing data in research studies. Descriptive statistics can help in presenting a clear over view of the data. This involves calculating the measures of central tendencies such as the mean, mode and median. These measures can provide information about the average or typical level of non-performing loans and how they affect bank performance.

Furthermore, descriptive statistics can be used to examine the dispersion or variability of the data. Measures such as standard deviation, range and interquartile range can provide insights into the spread of the data points. These measures can help determine the level of bank performance, which can be indicative of the relationship between non-performing loans and bank performance

3.10 Research Ethics

According to Bless et al. (2006), research ethics improve researchers' comprehension of their duties as moral academics and help to prevent study abuses. Furthermore, Bless et al. (2006) point out that research ethics lay a strong emphasis on treating research

participants humanely and sensitively, as they may be exposed to varied degrees of risk simply by virtue of their participation in studies.

- confirming that permission was provided voluntarily and consciously. One of the most important ethical requirements for any research involving human subjects is getting the participants' informed consent. O'Doherty et al. (2016) highlighted that obtaining informed permission guarantees that participants are aware of the goals of the study, its methods, any possible risks or benefits, and their rights. O'Doherty et al. (2016) underlined again how important it is for researchers to make sure that individuals give their informed consent willingly. In this study, participants will have the freedom to leave the study at any moment without facing repercussions, and voluntary participation will be guaranteed.
- Ensuring no harm comes to participants. Protecting the well-being and minimizing harm to research participants is a critical ethical consideration. According to Emanuel et al (2000), researchers must carefully assess potential risks and benefits associated with the study and take appropriate measures to ensure participant safety. For this study on assessing the relationship between non-performing loans and the level of bank performance in Zimbabwe a case study of Zimbabwean banks, a thorough risk assessment before the study will be conducted to identify potential physical or social risks associated with participating in the research.
- Ensuring confidentiality and anonymity, researchers must protect the confidentiality and anonymity of participants to maintain their privacy and minimize potential harm. Dixon et al (2007), stated that data should be securely stored, and identifying information should be kept separate from research findings. Anonymizing data during analysis and reporting can further protect participant's identities. Maintaining confidentiality is crucial to protect participant's privacy and identity, for this study, the collected data will be stored in a secured storage, utilizing password-protected storage thus limiting access to only authorized personnel.

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• Ensuring that permission is obtained, according to Littman (2013), researchers should obtain appropriate permissions and approvals before conducting the study. This may involve seeking consent from relevant authorities, in this case permission will be obtained from microfinance institutions and from Bindura University.

CHAPTER IV

DATA PRESENTATION, INTERPRETATION AND ANALYSIS

4.1 INTRODUCTION

The presentation, analysis, and interpretation of the researcher's data collection will be the main topics of this chapter. Analysis of the secondary data will take place apart from that of the primary data. The examination of secondary data will be the main focus of the first section, which will also address how non-performing loans affect bank performance. Therefore, the goal of the analysis which will be carried out using PCA and ANFIS will be to ascertain whether there is any relationship at all between NPLs and the technical efficiency of the banks. In light of the findings, the previously proposed theories will likewise be put to the test and either accepted or rejected. Tables and graphs will be utilized to display the data. The examination of the main data, or the information gathered from the questionnaires and interviews, will be covered in the second section. In this case, the emphasis will be on identifying the reasons behind non-performing loans in the targeted organizations and extrapolating those findings to the general public. Tables and graphs will be used to display the data.

4.2 Secondary Data Analysis

The data being analysed in this section was collected from the financial statements of the targeted firms and from the RBZ publications. Data relating to the financial performance of the targeted banks was subjected to the statistical analysis and presented below.

Table 1 statistical characteristics of the applied variables

Variable	Mean	Standard	Minimum	Maximum
		Deviation		
INPUTS				
Number of	28.97	15.01	10	56
branches				
Deposits	\$372098389.30	\$430429174.60	\$23649725.00	\$1684277828.00
Costs	\$45662321.23	\$25258695.61	\$7385212.00	\$117856789.00
Bad loans	\$19649760.27	\$23624748.27	\$106105.00	\$87094321.00
OUTPUTS		1	I	
Profit	\$9705480.27	\$13491120.51	(\$9806816.00)	\$45024987.00
Loans	\$151257311.90	\$101367990.04	\$12509344.00	\$355480541.00

Source: Primary data

4.2.1 Performance Assessment: Principal Component Analysis Results

The PCA efficiency scores and ranking for each bank-year were calculated by SPSS and are presented the table below.

Bank	Year	Technical	Rank	Profit (US\$)	Costs (US\$)	Bad loans
		efficiency				(US\$)
NMBZ	2018	0.9982718162	15	2278287.00	7385212.00	106105.00
	2019	0.9999408779	4	692234.00	15365768.00	5939359.00
	2020	0.9999996839	2	4538456.00	16979741.00	8983037.00
	2021	0.9949067000	26	7570502	21452714.00	23996312.00
	2022	0.9979876516	17	(3321823.00)	25232756.00	38730878.00
	2023	0.9991288573	11	5490068.00	26872649.00	32092184.00
ZB	2018	0.9995725254	6	(2888611.00)	23216696.00	569166.00
	2019	0.994936414	25	2315349.00	33884950.00	4055751.00
	2020	0.997304929	21	9165446.00	50775186.00	9016315.00
	2021	0.996858738	23	10220182.00	59931478.00	27390294.00
	2022	0.977943222	30	(326656.00)	57782301.00	28892239.00
	2023	0.997082657	22	8935958.00	46321502.00	23948042.00
CBZ	2018	0.9871452977	29	18776869.00	54389661.00	1744826.00
	2019	0.997763731	18	30343301.00	69556084.00	48022911.00
	2020	0.990829025	28	45024987.00	83299535.00	41861695.00
	2021	0.997477481	20	36652342.00	88813016.00	46985692.00
	2022	0.998102942	16	33031383.00	98662955.00	87094321.00
	2023	0.995410635	24	35237325.00	117856789.00	76071314.00
FBC	2018	0.9989194820	13	1691061.00	43349059.00	652832.00
	2019	0.99748061	19	1681061.00	33349059.00	653832.00
	2020	0.999158072	9	12506510.00	37487980.00	3717144.00
	2021	0.9999999979	1	15636852.00	44894036.00	9788364.00
	2022	0.998592802	14	14087777.00	46522750.00	14221173.00
	2023	0.999882546	5	18098243.00	5934409.00	19525047.00
FIRST	2018	0.9932734041	27	(1275538.00)	33987832.00	160875.00
CAPITAL	2019	0.999149993	10	1404105.00	37569273.00	164648.00
	2020	0.999097601	12	2124913.00	34044957.00	990734.00

Table 2 PCA technical efficiency scores and ANFIS data

2021	0.999240315	8	2952031.00	33890735.00	1094997.00
2022	0.999999072	3	6588520.00	37502251.00	2470924.00
2023	0.999300757	7	3880000.00	38521000.00	2542000.00

Source: Primary Data

In terms of technical efficiency, the top ranked bank is FBC which recorded the highest technical efficiency in 2021 followed by NMB in 2020. In 2023, the best performing bank was FBC followed by Barclays bank of Zimbabwe. The worst performing bank in terms of technical efficiency in the last 5 years was ZB followed by CBZ. The performance trend is shown in fig.2 below. It can be seen that ZB's performance as not stable. Only Barclays and FBC have had stable performance trends in the last 5 years.

Figure 3 bank performance in terms of technical efficiency from 2018 (year 1) to 2023(year 6)



Source: Primary Data

4.2.2 Anfis Analysis Results

The researcher examined the relationship between technical efficiency and NPLs, profit, and cost using ANFIS in order to draw reliable conclusions. A graph showing a non-linear relationship between technical efficiency and NPLs was the final product of this investigation. The framework of the ANFIS analysis is attempted to be illustrated in Fig. 4, where technical efficiency is taken into consideration as the output and NPLS, expenses, and profit for the entire industry are given in as inputs. Using the sugeno kind of neuro-fuzzy inference system, the researcher was able to describe the kind of link that exists between technological efficiency and NPLS.

Figure 4 ANFIS modelling



Source:

Source: MATLAB Software from MathWorks

The data attained from the SPSS analysis of the performance figures was used to run ANFIS and all variables had to be scaled between 0.5 and 1 in order to eliminate the variable scales effect thus we will be assured of accurate results. Before the analysis, the input variables (NPLs, profit and cost) were embodied in linguistic variables through the use of a subtractive clustering algorithm. The researcher used the *Genfis2* function of MATLAB to come up with an initial fuzzy inference system (FIS). This initial FIS was then trained by the *ANFIS* function to give a final fuzzy inference system called ANFIS.

The results generated by ANFIS are shown below in Fig. 5.





Source: Primary Data

The impact of two model inputs on technical efficiency is depicted in the 3D graphs in Figure 5. The combined impact of NPLS and profit is displayed on the left-hand surface. According to the ANFIS data, a rise in NPLs will lead to a decline in technical efficiency if profit is high. An increase in non-performing loans (NPLs) will result in higher technical efficiency when profits are low. Technical efficiency was modeled in relation to NPLs and expenses in the diagram on the right. Technical efficiency declines with a rise in NPLs, particularly in high-cost scenarios. To demonstrate the impact of non-performing loans on bank efficiency, the pure effect must be extracted as shown below: Figure 6 the pure effect of NPLS



Source: Primary Data

Fig. 6 above, together with fig. 5, shows the pure effect of non-performing loans as generated by ANFIS and the following observations can be drawn from the two diagrams:

- Technical efficiency is negatively impacted by non-performing loans during a bank's high profit and expense period. As a result, the bank's performance will decline as the number of non-performing loans rises.
- Non-performing loans will have a favourable effect on the bank's performance when both profit and costs are low.
- ANFIS proposes that the pure effect of NPLs on the level of bank technical efficiency is nonlinear with the relationship monotonically declining.

This relationship can further be strengthened by looking at the spearman's rank correlation coefficient generated by SPSS showing the relationship between NPLs and technical efficiency as shown in table.3 below.

Correlations				
			Technical	Non-
			Efficiency	performing
				Loans
Spearman's	Technical	Correlation	1.000	289
rho	Efficiency	Coefficient		
		Sig. (2-tailed)		.122
		Ν	30	30
	Non-performing	Correlation	289	1.000
	Loans	Coefficient		
		Sig. (2-tailed)	.122	
		Ν	30	30

Table 3 correlation analysis between technical efficiency and non-performing loans

Source: Primary data

As can be deduced from the table above, there is a negative linear relationship between non-performing loans and technical efficiency which is given by a Spearman's rho coefficient of -0.289. The coefficient was calculated through the use of a two tailed test where the sample population was 30 bank years or DMUs. Singh (2007) put forward that the Spearman's Rho computes correlation between two ordered sets of variables by predicting one set from the other. Thus 28.9 % of the variance in technical efficiency is accounted for by non-performing loans. An increase in non-performing loans will therefore result in a 28.9% proportionate decrease in technical efficiency of a bank. The results from the Spearman's Rank Correlations and the PCA-ANFIS algorithm therefore conclude that a significant relationship exists between non-performing loans and the level of bank performance and the researcher will reject the null hypothesis and accept the alternative hypothesis. Having done that, there is now need to determine the causes of non-performing loans.

4.3 Primary Data Analysis

4.3.1 Questionnaire data analysis

The researcher distributed questionnaires to FBC; ZB; Barclays bank of Zimbabwe; CBZ and NMBZ. Most of the questionnaires were distributed electronically through emails.

The researcher managed to get most of the email addresses from the firms' corporate websites and some of them were obtained from their head offices. Out of 100 questionnaires, 87 were returned representing a response rate of 87% which is considered high enough in research circles.

4.3.1.1 Background of the respondents

Prior to delving into the analysis of the qualitative data, it's critical to comprehend the research participants. In order to guarantee the accuracy of the data, the researcher selected the respondents' occupations and length of employment with the current company. The occupation of the respondent is significant because, before the questionnaires were sent, the researcher stratified the sample based on the jobs held by potential respondents. As a result, the researcher was able to obtain pertinent data from the company. The people participating in the loan issuing process include the targeted responders, branch managers, risk managers, and loan officers.

Figure 7 response rate by occupation



Source: Primary data

The researcher got more audience from the loan officers as shown from their response rate of 92.72% followed by the risk managers who had a response rate of 91.67%. The

branch managers had the lowest response rate which was 66.67%.

4.3.1.2 Preferred Method of Loan Review

Fig. 8 shows that most of the loan officers in the target sample have worked in their respective organisations for less than 4 years whilst most of the branch managers have worked for more than 4 years in their respective organisations.

Figure 8 Period Spend In Current Organisation



Source: Primary data

The preferred method of loan review was analysed because it provided the researcher with a basis for determining the reasons of non-performing loans in the industry. Fig. 9 below shows an overview of the most preferred methods by occupation in the industry

Figure 9 loan review methods

From fig. 9, we can deduce that most loan officers prefer software packages for reviewing loans as compared to the branch managers who preferred paper-based manual loan review methods. Risk managers were more balanced in their preferences going for both excel spreadsheets and software packages.





4.3.1.3 Credit Terms to employees

The credit conditions granted to non-employee consumers were compared with those granted to workers. The question of whether the loan terms are more lax, more strict, or the same as those offered to non-employee consumers was posed to the respondents. Figure 10 presents their responses, illustrating that all three groups of respondents believed that employee credit terms were more forgiving than those granted to other non-employee customers.

Only a small portion of 15 out of 87 respondents thought that there was no difference between credit terms given to employees and the terms given to nonemployee customers.



Source: Primary Data

4.3.1.4 Factors causing Non-performing Loans

The respondents were asked to indicate whether their views on the following factors in relation to the occurrence of non-performing loans in their organisations.

Table 4 factors causing npls

Inadequate attention to borrowers	Lenient legal framework
Poor credit rating tools	Political reasons
Insider Loans	Management incompetency
Liquidity crisis	Lenient credit terms
Poor credit control systems	Understaffing in the loan department
Poorly trained staff	Lack of a National Credit Rating Bureau
Poor follow up of loans	Incompetence of credit rating agencies

The respondents' opinions about what leads to non-performing loans (NPLs) at their organizations are displayed in Fig. 11 below. The replies were divided into five classes, each of which was further divided into three categories based on the respondents' agreement, disagreement, or neutrality toward the proposed causal factor. Based on the amount of respondents who agreed—37 out of 87 strongly agreed, 25 agreed, and just 15 disagreed—in general, insider loans were thought to be the most common cause of nonperforming loans. It has also been suggested that one factor contributing to the industry's NPL increase is the absence of a central credit reference bureau. Along with the use of subpar credit rating instruments, understaffing in the crucial areas was thought to be one of the contributing factors in the industry. The respondents' opinions about what leads to non-performing loans (NPLs) at their organizations are displayed in Fig. 11 below. The replies were divided into five classes, each of which was further divided into three categories based on the respondents' agreement, disagreement, or neutrality toward the proposed causal factor. Based on the amount of respondents who agreed—37 out of 87 strongly agreed, 25 agreed, and just 15 disagreed—in general, insider loans were thought to be the most common cause of nonperforming loans. It has also been suggested that one factor contributing to the industry's NPL increase is the absence of a central credit reference bureau. Along with the use of subpar credit rating instruments, understaffing in the crucial areas was thought to be one of the contributing factors.



Source: Primary Data

4.4 Interview Data

The researcher also conducted interviews to supplement questionnaires as a primary data collection tool. The interviews were mainly aimed at finding the causes of nonperforming loans in the Zimbabwean banking industry. Almost all of the interviewees concurred with the questionnaire respondents on the factors causing the rise of NPLs in Zimbabwe. Interviewees blamed the adverse economic conditions the banks are performing in and cited them as the major causes of non-performing loans. Policy inconsistencies were also mentioned as causing uncertainty and thereby incapacitating the banks from formulating long term strategies for curbing the upsurge of NPLs.

The researcher also noted from the interviews that even though data collected from the questionnaires indicated that the recruitment rationale in most organisations was based on academic qualifications, most of the interviewees hinted that they also leaned heavily on experience and other factors. The researcher also noted that most of the interviewees blamed long litigation procedures for the failure to recover their non-performing assets.

4.5 Summary

This chapter contained the research findings. The data was analyzed using a variety of techniques by the researcher to produce trustworthy findings. To analyze and model the relationship between non-performing loans, the PCA-ANFIS algorithm was used. Correlation analysis confirmed the existence of a negative association that was discovered. Descriptive statistics were utilized by the researcher to analyze the primary data obtained via questionnaires. The main goal in this case was to identify the reasons behind non-performing loans and ask industry players for answers. The results and suggestions will be covered in detail in the upcoming chapter.

CHAPTER V

CONCLUSIONS AND RECOMMENDATIONS

5.0 Introduction

The research findings, the inference to be made, and the recommendations will all be covered in detail in this chapter. The researcher will make an effort to evaluate whether the goals of the study have been reached and whether the findings are consistent with the body of knowledge already available on the topic of nonperforming loans. Additionally, the researcher will offer suggestions to the sector on how to handle the problem of non-performing loans.

Conclusions

The goal of the study was to determine the correlation between non-performing loans and bank performance, with a focus on the banks located in the Central Business District of Harare. The study focused on the performance of the top five banks in Zimbabwe, namely CBZ, FBC, ZB, NMBZ, and Barclays Bank of Zimbabwe, over the previous three years (2020–2023). In order to provide solid suggestions for resolving the NPL issue, the researcher first ascertained the nature of the relationship that existed between NPLs and the Banks' efficiency. Next, the researcher looked for the reasons behind non-performing loans.

The relationship between non-performing loans and bank technical efficiency was modeled by the adaptive network-based inference system (ANFIS), which captured the fuzziness and non-linearity present in the modeling environment. The overall finding showed that the relationship is continuously declining in a nonlinear manner and that the pure effect of nonperforming loans on technical efficiency, across the five banks, is represented by an equation whose components are not of the first degree. According to the ANFIS statistics, non-performing loans have a detrimental impact on technical efficiency. Prior to the research, the researcher had set the research hypothesis with the Null hypothesis and the alternative hypothesis as follows:

H0: There is no significant relationship between the level of non-performing loans and the level of bank performance.

*H*1: There is a significant relationship between the level of non-performing loans and the level of bank performance.

Results from the PCA-ANFIS algorithm and the correlation analysis show that there in negative nonlinear relationship between the level on non-performing loans and the level of non-performing loans at a 0.05 level of significance. Thus basing on the SPSS analysis, the researcher rejected the null hypothesis and concluded that nonperforming loans do affect the level of a bank's performance.

Having determined that non-performing loans do affect the performance level of a bank negatively, the research went on to determine the causes of NPLs in the Zimbabwean banking industry. Results from the questionnaires show that the respondents concurred on several factors. One of the major causes is undoubtedly insider loans. These are loans given to the bank's executive, top management and employee loans. 71% of the respondents agreed that this was a dominant factor in their organisation. This was supported by the data collected from interviews where the interviewees noted that it can be very difficult for an organisation to instigate litigation procedures on an organisation's employees especially the top executives when they default on their loan repayment obligations. This opinion is backed by the literature, as stated by Mabvarure et al. (2012), who point out that occasionally the bank may also owe its employees back pay. As a result, the court might not be willing to allow the bank to seize the property of the party in default until the bank fulfills its responsibilities. The issue of insider loans was again brought up in the 2014 RBZ bank supervision annual report. The central bank suggested that insider loans have board approval in order to prevent depositor money from being misused through nonperforming insider or related party exposures.

Respondents also concurred that the lack of a central credit reference bureau was also making it difficult for banks to identify repeat defaulters thus culminating in an increase in NPLs. Information asymmetry problems have always caused problems in any banking industry. This view is in agreement with literature where various authors have written on the subject. Auronen (2003) put forward that the moral hazard and

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adverse selection problems arise from the fact that it may be difficult to distinguish good borrowers from bad borrowers. Where there is a central credit reference bureau, information asymmetry problems are lessened.

The unfavorable economic climate of the past ten years, in which talk of bank runs, liquidity crises, global deflation, and rising unemployment has been commonplace, was also mentioned by respondents as a significant contributing factor to the nation's non-performing loan problem. Deflationary conditions have hammered the global economy, with emerging nations bearing the brunt of this. As per the Country Reports of the European Central Bank, even the economies with the greatest growth rates globally, such as China, have encountered a downturn in the last three years. Since 2011, bank customers in Zimbabwe have not been immune to the country's economic woes, which are mostly related to liquidity issues. The researcher's target respondents blamed the increase in loan defaults on the economy's cash shortage, which has crippled even the government.

Zimbabwe's legal framework was also criticised by various respondents who claimed that the loan recovery process was too long and expensive as there are many court procedures to be followed before attachment and disposal of a defaulter's assets. Respondents also mentioned some other factors which include poor corporate governance practices in some of the banks which allows top executives to create personal credit lines with the banks. Poor credit management practices were also blamed for the upsurge of non-performing loans.

In accordance with the above mentioned factors, the researcher drew the conclusion that non-performing loans do affect performance of banks in Zimbabwe and they are caused by various factors which can either be external or internal to an organisation. The problem of NPLs is therefore a critical factor that needs to be taken care of by the combined efforts of both the individual banks and the industry regulators.

5.3 Recommendations

The researcher has developed a number of recommendations for reducing nonperforming loans and their effect, which are directed at both the banks in their individual capacities and the regulators, such as the Reserve Bank of Zimbabwe and the Deposit Protection Corporation. Given that non-performing loans have a negative impact on a bank's performance, banks should therefore strive to manage their loan book so the NPL levels remain low. The central bank should implement various measures to discourage banks from taking risky positions.

To begin with, banks should hire competent staff in their loan and risk management departments such that they will take justifiable positions in the market. The banks should also make sure that they keep abreast of the latest technology such that they make use of the latest and most efficient loan review packages. Staff training is also important so that the banks makes sure that their staff is adequately qualified to handle their positions.

To enhance corporate governance procedures within businesses, Zimbabwean banks should also conduct regular corporate governance audits. Over the past ten years, a number of Zimbabwean businesses have been affected by controversies involving corporate governance and compliance. Following revelations that the board and upper management were misusing depositor money, banks such as Renaissance Merchant Bank went out of business. Because the banking sector is based on trust, banks must cultivate and preserve investor confidence if they hope to prevent banking crises.

Additionally, the central bank must to move more quickly to establish a central Credit Reference Bureau (CRB). Currently, financial institutions can only discuss and verify potential borrowers' credit histories in limited ways. Many multi-banked clients have thus turned into serial defaulters with NPLs at numerous institutions. It is recommended that the credit registry be established as soon as possible, with the aim of establishing a databank whose main duty will be to gather credit data from all lending institutions. Private credit rating organizations would have access to this data, enabling them to provide trustworthy ratings and lessen information asymmetry issues.

Another factor that has been demonstrated to contribute to Zimbabwe's rising NPL rate is liquidity issues. The Reserve Bank of Zimbabwe should promote the use of plastic money and the development of an electronic economy in order to alleviate liquidity issues. This will lessen the economy's cash scarcity. To further enhance the national payment system and make it real-time based, the Reserve Bank of Zimbabwe (RBZ) should lead the way in financial inclusion initiatives and infrastructure

upgrades.

5.4 Conclusion

The conclusions to be made from this research investigation were the focus of this chapter. After the hypothesis test revealed a substantial correlation between non-performing loans (NPLs) and bank performance, the researcher rejected the null hypothesis. After that, the researcher looked into the reasons for NPLs in Zimbabwe and made suggestions for reducing these problematic loans.

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QUESTIONNAIRE

Could you please kindly complete the questionnaire below produced by a Banking and Finance student at the Bindura University Of science Education? This will assist the student in his research work on *the relationship between non-performing loans and the level of bank performance and the causes of non-performing loans in Zimbabwe*.

Please tick and answer where appropriate and or indicated.

 Occupation of Respondent (e.g. Branch Manager, Loan Officer, Risk Manager

Etc.)

□ Loan Officers □ Risk Manager □ Branch Manager	
□ Other (Please Specify)	
2. How long have you worked in your organisation?	
\Box Less than 1 year \Box 1 – 3 years \Box 3 – 6 Years \Box 7 years and above	
3. Under which category does your institution fall?	
Commercial Bank	
Merchant Bank	
Investment Bank	
Building Society □	
4. Please list the major products and/ or services that are offered by your organisation.	
a)	
b)c))

d)

•••	•••	•	••	• •	••	•	•	•••	•	•	• •	• •	•	•	•	•	•••		•	•	•	•••		•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	•	• •	••	•	•	•	•	• •	•••	•	•	• •	•	•	•	•••	•	•	•	•	• •	• •	••	•	•	•	•	•	•••	• •	•••	•••	•
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	5.	What is your	organisatio	on's major s	source of con	npetition?
□ Other Ban	ks [☐ Microfinand	e Instituti	ons 🗆	Other Finan	icial Institutions
□ Other (Pleas	e spec	ify)		•••••		
	6. organ	What is the ra	tionale use	ed for recru	iting employ	ees in your
□ Academic q	ualific	ations \Box Ex	perience			
□Other (Please	e speci	fy)				
	7.	How often do	you revie	w loans in y	our organisa	ution?
□ Weekly		Monthly		Quarterly [□ Semi-A	Annually
	8.	What method	of loan re	view are yo	u most comf	ortable with?
□ Manual (pap	er-bas	ed) 🗆 Ex	cel Spread	lsheets [] Softwa	are packages
□ Other (Pleas	e spec	ify)				
	9.	(a) Does your	organisati	on give out	loans to emp	ployees?

 \Box Yes \Box No

(b) If your answer question 9 (a) above was 'yes', how would you rate the credit terms in comparison with other non-employee customers?

□ Lenient

\Box No difference

□ Strict

10. Does your organisation's top management have access to personal credit lines from your firm?

 \Box Yes

 \Box No

 Indicate whether or not following factors cause the occurrence of non-performing loans in your organisation. (Please Note: SDA-Strongly Disagree; DA- Disagree;

N- Neutral; A- Agree; SA- Strongly Agree)

		Disagree	e	Neutr	Agree	
				al		
	Factor	1(SDA)	2(DA)	3 (N)	4 (A)	5 (SA)
1	Inadequate Attention to borrowers					
2	Poor credit rating tools					
3	Insider loans					
4	Liquidity crisis					
5	Poor credit control systems					
6	Poorly trained staff					
7	Poor follow up of loans					

8	Lenient legal framework			
9	Political reasons			
10	Management incompetency			
11	Lenient credit terms			
12	Understaffing in the loan department			
13	Lack of a National Credit Reference Bureau			
14	Incompetence of credit rating agencies			

12. What other factors are causing the occurrence of non-

performing loans in your organisation?

13. In your own opinion, do you think non-performing loans affect the level of your organisation's performance?

Mark one only

 \Box 5 Very much

	□ 3 Neutral
	□ 1 Not at all
	14. What other factors are affecting the level of your organisations performance?
	••••••
	15. What can be done to reduce the level of non-performing loans in your organisation?
•••••	

Thank you for your cooperation.
APPENDIX 2

Interview guide

1. Does your organisation practice only commercial banking, merchant banking, investment banking or a combination of these?

2. What are the major types of loans offered by your organisation?

3. Does your organisation offer loans to executives, top management and employees?

4. How do you rate the credit terms offered to employees as compared to those offered to other customers?

5. Does your organisation experience insider-related nonperforming loans?

6. How big is your non-performing loan portfolio?

7. How are loan officers recruited in your organisation?

8. What are the factor that cause the occurrence of nonperforming loans in your organisation?

9. What can you recommend in the fight against the accumulation of nonperforming loans?