EFFECT OF LOAN DEFAULT ON PROFITABILITY OF COMMERCIAL BANKS IN KENYA

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A RESEARCH PROJECT SUBMITTED IN PARTIAL FULFILLMENT OF THE REQUIREMENTS FOR THE AWARD OF MASTER OF BUSINESS ADMINISTRATION DEGREE, FACULTY OF BUSINESS AND MANAGEMENT SCIENCE, UNIVERSITY OF NAIROBI

2022

DECLARATION

This research project is my original work and has not been submitted or presented to any other institution of learning for any academic award.

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This research project has been submitted for examination with my approval as the university supervisor.

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ACKNOWLEDGEMENT

Firstly, is to thank God for the opportunity to start the journey and continuously walk ahead of me during my academic journey. Second, is to profusely thank my supervisor Mr. James Ng'ang'a who has been an inspiration and mentor during this project, and the corrections, encouragement and his wisdom went a long way to help complete this project.

I also thank my family for their constant encouragement during my academic journey through the years and I thank them for their unconditional love.

DEDICATION

This research project is dedicated to my lovely family who have been a source of great inspiration as I dedicated myself towards completion of this project and I remain forever thankful to them.

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LIST OF ABBREVIATIONS

CAR - Capital Adequacy Ratio

CBK - Central Bank of Kenya

NPLs - Nonperforming loans

NSE - Nairobi Securities Exchange

ROA - Return on Assets

ROE - Return on Equity

SACCOs - Savings and Credit Cooperative Societies

SPSS - Statistical Package for the Social Sciences

ABSTRACT

The loan portfolio is the principal operating and income factor for most banks entities. However, loans at times are idle or in default, thus negatively affecting the profitability of banks. Default is acknowledged as a key factor that affects the banks survival and profitability. Most banks cannot fail to be competitive due to high default rates. Thus, in the preceding 10 years, the worth and portfolio of credit in many of the world's economies was relatively stable until the financial crisis of 2007-08. Ever since, loan quality has declined rapidly owing to the world economic downturn and the Covid 19 pandemic. This study sought to investigate how loan default influences the profitability of commercial banks in Kenya. The independent variable for the research was loan default measured as the ratio of NPLs to total loans. Liquidity, firm size and capital adequacy were the control variables while the dependent variable was profitability measured using ROA. The study was guided by information asymmetry theory, financial intermediation theory as well as loanable funds theory. Descriptive research design was utilized in this research. The 39 commercial banks in Kenya as at December 2021 served as target population. The study collected secondary data for five years (2017-2021) on an annual basis from CBK and individual banks annual reports. Descriptive, correlation as well as regression analysis were undertaken and outcomes offered in tables followed by pertinent interpretation and discussion. The research conclusions yielded a 0.604 R square value implying that 60.4% of changes in banks ROA can be described by the four variables chosen for this research. The multivariate regression analysis further revealed that individually, loan default exhibited a negative effect on ROA of banks as shown by (β=-0.346, p=0.000). Liquidity has a positive and significant effect on ROA of banks (β=0.318, p=0.000). Firm size and capital adequacy exhibited a positive and significant influence on ROA of banks in Kenya as shown by (β=0.484, p=0.000) and (β=0.282, p=0.000) respectively. The study recommends the need for banks to ensure that loan default management policies are crafted based on appropriate strategies for profitability enhancement. The policy makers such as CBK should come up with policy guidelines to direct firms on ways to enhance their quality of assets without risking their profitability. The study recommends the need for further studies focusing on other financial institutions in Kenya such as microfinance banks and SACCOs.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

Banks get majority of their yields from charging interest to the credit they advance, which leads to enhanced institutional profits. In light of this, the financial strength of these banks will suffer when such loans go dormant (Opa & Tabe-Ebob, 2019). High default rates cause a decrease in confidence among both depositors and foreign investors, which can take an uncanny position on banks, which can lead to negative signals and liquidity problems (Akter & Roy, 2017). Defaults can lead to banking problems that could eventually lead to the insolvency of banking entities with unmatched bad loans, as confirmed by a number of prevailing literary articles (Jolevski, 2017). Non-performing loans also reduce the bank's asset quality, increase the cost of capital, decrease the bank's profitability and lower the bank's overall credit rating (Asantey & Tengey, 2014).

Theoretically, the information asymmetry theory states that credit markets are often affected by asymmetric information imperfections and lenders lack important information in determining loan prices that reflect the borrower's risk profile, thus increasing the probability of default (Merrill, 2017). Adverse selection theory suggests that credit market defaults occur the moment creditor fails to have full insights relating to debtor prior to sealing the credit agreement (Mensah et al., 2013). The portfolio theory states that the degree of risk and default rate in a loan portfolio depend on the risk of each loan, the resources allocated to each loan, and the nature of the relationship between each loan (Širůček & Křen, 2017).

In Kenya, banks and their viable growth are strictly related to industrial growth which arises due to the fact that the banking sector is one of the sector that contributes to the Kenyan economy in several ways (Maina & Waithaka, 2018). Kenyan banks have contributed to growth of the economy through job creation and payment of taxes. Bank further act as an anchor for growth for various economic and industrial sectors though credit provision. Offering loans to borrowers is one of the ways in which Kenyan banks enhance growth of the economy (Mwaura & Jagongo, 2017). In comparison to other EAC nations, the Kenya's financial industry is appreciated for its diversity and size (Ngware, Muturi, & Olweny, 2019).

1.1.1 Loan Default

Loan default is a state where the mortgagor is unable to repay a credit facility. It arises when a borrower is unable to repay a credit facility or when the banking entity no longer anticipates receiving any repayment (Mensah et al., 2013). Credit defaults, in practical terms, can be defined as doubtful receivables that the bank is not adept at earning, which is uncertain in determining whether the borrower will be repaid in relation to the borrower or the amount borrowed (Opa & Tabe-Ebob, 2019). In addition, default may be described as the debtor's inability to fulfill its loan obligations when they are due (Ntiamoah et al., 2014). Default loans result from the debtor's inability to pay his debt and interest within the specified time, which adversely affects the creditor's financial situation (Amoako, 2016).

Interest income from loans makes a significant contribution to the financial entities profitability. However, if a loan come due, serious negative effects occur on the health and performance of banks (Akter and Roy, 2017). Due to the debtor's inability to pay back

interest and credit within the stipulated period, bad loans, lead to negative influence on the creditor financial situation (Jolevski, 2017). In addition, both lenders and borrowers bear the cost of default. Lenders have outlays in default situations, such reduced interest, and opportunity costs among others. For borrowers, default is a balance between the reputational penalty for default and the foregone cost of continuing reserves due to existing loan processing (Abaidoo & Oppong, 2021).

The main effect of non-performing credits on banking entities is that a surge in non-performing loans limits banking entities financial growth (Mensah et al., 2013). Therefore, when a bank does not implement a good system of managing default risk, the bank will face many problems. Several interrelated issues may arise but the most basic ones are clear and related to profit making, solvents and liquids (Jolevski, 2017). Loan default is using the default loan ratio (NPL), which is a sum of substandard, doubtful and loss portfolios that make it difficult to collect returns. This measure is also considered as higher risk and is calculated by linking the constituents of aggregate loan portfolio (Asantey & Tengey, 2014).

1.1.2 Profitability

Profitability is the state under which the income obtained in a certain period surpasses the costs made in a similar period for the sole purpose of generating income (Fatihudin and Mochklas, 2018). Profitability also refers to the income earned by companies after deducting all the expenses incurred in a certain period from their sales (Al-Jafari & Samman, 2015). Profitability indicates an entity's ability to create income over a given period, given its level of assets, rate of sales along with capital stock (Odusanya, Yinusa,

& Ilo, 2018). Profitability also denotes an entity’s ability to generate funds from its core activities (Batchimeg, 2017).

Profitability is an important indicator of the business overall success (Nishantini & Nimalathasan, 2013). Profit maximization is undeniably vital for continued operations of a company besides fending off rivalry from establishments under the same line of business. While this is an important prerequisite for a company's long-term survival and success, it is an important prerequisite for a business to achieve its other financial goals (Odusanya, Yinusa, & Ilo, 2018). Changes in profitability make a significant contribution to economic progress through the impact of profits on firms' savings and investment decisions (Batchimeg, 2017).

Profitability is measured using different ratios that measure an entity’s ability to make profits and its security analysis, investment focus for shareholders and investors (Nishanthini & Nimalathasan, 2013). The most widely used profitability measurement method is to relate profit output to capital input and thus calculate the rate of return on invested capital (Odusanya, Yinusa & Ilo, 2018). As a result, ROA and ROE are the largely used profitability measures. While ROE measures how well a company's management creates value for its shareholders, ROA determines how assets are used by banks to generate profits over the years (Fatihudin & Mochklas, 2018).

1.1.3 Loan Default and Profitability

Various theories have been presented supporting the link between loan default and firm profitability. For instance, the adverse selection theory suggests that lenders are unaware of the risk of borrowers, so higher interest rates will be charged from riskier borrowers to compensate for hiked risk of default, unlike the safer borrowers whose defaulting rate has

lower probability (Mensah et al., 2013). The portfolio theory argues that tracking safe borrowers plus applying an appropriate strategy of loan portfolio to ensure the borrower's correct credit value is critical to the borrower's performance (Atahau & Cronje, 2015). The information asymmetry theory supports that information asymmetry lead to moral hazard challenges in financial entities leading to significant accumulation of bad debts and thus negatively affects the profitability of financial institutions and banks (Ivashina, 2009).

Empirically, Mensah (2013) examined whether loan default affects MFIs performance and documented an insignificant interrelationship. Oteng, Ampomah, and Kyeremeh (2017) evaluated whether bad loan affects banks' profitability and stated that bad loans adversely and significantly affect banking entities interest revenue. Akter and Roy (2017) explored whether bad loans affect profitability and documented that defaults adversely influenced performance. Jolevski (2017) explored default rate and its effects on profitability rates and stated that an adverse link exists between the NPL ratio and bank profitability.

1.1.4 Commercial Banks in Kenya

In Kenya, banking segment is critical in enhancing economic development. Banking entities in Kenya have continuously expanded and increased their presence in several African states (Ngware, Muturi & Olweny, 2019). At the end of fiscal year 2021, Kenya has 39 commercial banks authorized to operate, among them 11 are listed on the NSE. Banks are accredited by a central bank, which oversees them to ensure they comply with regulations in their operations. Kenyan banks also operate under the Kenya Bankers Association and lobby for the benefit of their members (Maina & Waithaka, 2018).

The Kenyan banking sector has experienced significant expansion. These developments include branch growth, credit information exchange, correspondent banking adoption, market research and increased interest from global banking institutions. This development has the potential to shape the future outlook and direction of the industry (Wayiera, 2017). Regarding the share of technology adoption, large banks own more than 80% of the ATM network and mobile banking is 20% for small and medium-sized institutions (Mdoe, 2017). The Kenyan banking sector stands out for its high level of competition, fierce poaching, and attracting a skilled bank-to-bank workforce (Musau, Muathe & Mwangi, 2018).

Concerning the Kenyan banking entities profitability, the before tax profit of the industry augmented by 14.64% from Ksh 133.2b in 2019 to Ksh 1.527b in 2020. In terms of assets, total net assets increased from Ksh 4.0 to 10.14% to Ksh 4 billion in 2018 and Ksh 4,41 billion in 2019 (CBK, 2020). However, ROE fell from 27% in September 2016 to 24.8% in December 2016 (Oganda, Mogwambo & Otieno, 2018). The main problem facing Kenyan commercial banking institutions is the credit risk arising from non-repayable defaults. Failure to manage defaults has led to bankruptcies and losses among Kenyan banks, so most banks are facing challenges due to rising doubtful debts in most of their operations (Mwaura & Jagongo, 2017).

1.2 Research Problem

The loan portfolio is the principal functioning alongside revenue factor for most banks entities. Although, loans at times are idle or in default, thus negatively affecting the profitability of banks (Abaidoo & Oppong, 2021). Default is acknowledged as a key factor that affects the banks survival and profitability. Most banks cannot fail to be competitive due to high default rates (Amoako, 2016). Thus, in the preceding 10 years, the worth and

portfolio of credit in many of the world's economies was relatively stable until the financial crisis of 2007-08. Ever since, loan quality has declined rapidly owing to the world economic downturn and the Covid 19 pandemic (Opa & Tabe-Ebob, 2019).

The Kenyan banking industry undertakes an important role in growth and the sector delivers higher savings levels with funding investment requirements (Mujuka, 2018). Although Kenya's banking industry is the utmost developed in comparison to other East African states, the sector faces developmental challenges due loans defaults and corporate control errors (Mwaura & Jagongo, 2017). The banking industry regularly faces default problems (Musau, Muathe & Mwangi, 2018). For example, the bad debt balance (NPL) increased by 6.3% to Ksh 3.35.9 billion from Ksh 3.3167b in December 2020 to Ksh 3.359b in December 2021 and compared with 2.0% and 7.7% respectively in 2019 (CBK, 2022).

Empirically, several studies have been conducted on loan defaults and bank profitability. For example, Amoako (2016) assessed how bad loans affects Ghanaian banks profitability and found a mutually negative relationship, but the study focused on only one bank. Opa and Tabe-Ebob (2019) studied loan default and its effects on Cameroonian banks' profit-realization and unveiled a positive relationship although the study focused on a single bank. Ntiamoah et al. (2014) studied whether default rate affects profitability and noted a positive link between profitability and default rate, but the study’s context MFIs.

In Kenya, Jagongo and Mwaura (2017) explored whether credit policy affects banks performance and found a positive correlation, but the study focused on credit policy. Aseyo and Bichanga (2013) explored default among Kenyan MFIs and documented that default was due to not monitoring debtors, but the study did not evaluate the impact of default on profitability. Various studies exist on the interrelationship between loan default and bank

profitability. However, those studies provide conflicting results with some indicating a positive relationship and others a negative association. These conflicting results arise due to use of different methodologies, study contexts and different variables measurement. This leads to a research gap, hence this study intended to evaluate, what is the impact of loan default on profitability of Kenya's commercial banks?

1.3 Research Objective

To determine the effect of loan default on profitability of Kenya's commercial banks

1.4 Value of the Study

The research findings shall be of significance to bank executives who can use research to develop and implement the best collection and monitoring policies. The results will also be of great benefit to leaders of commercial banks in evaluating the manner in which bank productivity is impacted by the loan default.

Further, policy-making entities such as the CBK and CMA-Kenya that are tasked with creating effective policies to increase bank profitability. Policymakers can use the research recommendations to develop tactical plans for debt collection policies that are effective not only in commercial banks but also in financial institutions.

This article will complement and supplement the existing knowledge on default, profitability of banks in addition to the theoretical foundations of information asymmetry theory, risk theory and information asymmetry theory, moral risk and adverse selection theory. This article will also suggest areas that may require further research.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This segment presents the reviewed study theories, the various bank profitability predictors a review of previous studies. The conceptual model plus the summary of literature review is also covered in this section.

2.2 Theoretical Review

This survey reviewed the asymmetric information theory, the adverse selection theory and the portfolio theory as the key theories.

2.2.1 Information Asymmetry Theory

This model was authored by Akerlof (1970) and describes the relationships in which one agent possess certain information while another does not (Agarwal & Hauswald, 2006). This theory explicates that, an individual who obtains information on a specific transaction to be processed in the market (i.e. the debtor) can convey reasonable circumstances for the transaction than the other party (i.e. the creditor) (Merrill, 2017). Thus, a party who knows less about this issue may therefore make the right or wrong decision regarding the transaction (Bos, De Haas & Millone, 2016). The theory assumes that information asymmetry appears as an important limit to project financing if a single party to a funding contract less accurate information (Gadzo, Kportorgbi & Gatsi, 2019).

In the loans market, there is information asymmetry as borrowers are often better informed about the possible returns and risk of the projects to which finances are allocated. On the other hand, the lending institution may lack enough data about the debtor (Appiah-Konadu

et al., 2016). Advocates of the theory indicate that the theory thus supports that commercial banks that exchange information about their customers' creditworthiness can reduce loan repayment rates (Bos, De Haas & Millone, 2016). The main criticisms of this theory are that it was advanced based on efficient market assumptions between zero transaction cost, tax-free and rationality, some of which are controversial in the literature (Merrill, 2017).

From the banking point of view, the theory postulates that information asymmetry could result in unfavorable selection by customers and bank managers and the advancing loan to wrong clients leads to operational problems and ultimately affect banks performance (Agarwal & Hauswald, 2006). According to the theory, microfinance banks should perform an adequate credit assessment to gather sufficient and reliable information about the customer (Ivashina, 2009). In this study, the theory supports that commercial banks must apply qualitative and quantitative techniques when evaluating the borrower, even if some challenges can be discounted especially when using the qualitative approach to reduce the probability of loan default.

2.2.2 Adverse Selection Theory

Stiglitz and Weiss (1981) developed this model for explaining that lenders do not use interest rates solely as a classification tool because changes in interest rates can affect borrowers' risk appetite (Cressy and Toivanen, 2011). With respect to loans, the theory assumes that bank have a rate of interest that maximizes the anticipated loan returns and at such rate loan demand exceeds the amount the bank is keen to provide, resulting in a loan allocation (Crook, 2012). Thus, the adverse selection problem suggests that if financiers are incapable of differentiating unscrupulous and worthy borrowers, a normal rate of interest will be charged to all borrowers (Gadzo, Kportorgbi & Gatsi, 2019).

The theory argues that adverse selection occurs because the bank's expected return depends on repayment probability, so lenders want to ascertain mortgagors who are expected to pay back their loans (Conklin & Yoshida, 2014). The theory suggests that a loan agreement is structured to inform the debtor, as the bank cannot sway all the actions of the borrower due to expensive also incomplete details (Ivashina, 2009). The theory's main critique is that it makes no recommendations on how to distinguish bad debtors from good debtors (Agarwal and Hauswald, 2006).

The theory suggests that riskier borrowers have access to riskier, less successful, high-yielding projects if they prosper, while safer debtors may have higher returns investments, higher success probability, and lower profits (Gadzo, Kportorgbi & Gatsi, 2019). Therefore, for project type with the identical average compound yield but dissimilar risks, the interest rate is used for determining the degree of investment risk (Mehrteab, 2015). In the context of research, it has been theorized that identifying ineligible borrowers for lending is among the main causes of higher financial risk and thus higher credit defaults.

2.2.3 Portfolio Theory

Markowitz (1952) authored this model, which postulates that the ideal combination on investments for investors would ensure the utmost potential return for a particular risks level or the lowermost likely risk for a specified returns level. The theory entails mathematical formulas which depict how diversification through holding various combinations of loan products lean to a specific return level for a corresponding level of risk exposure (Atahau & Cronje, 2015). Portfolio theory models investment returns as a normally distributed portfolio while risk is known as the standard deviation of returns and the portfolio is denotes holding an array of various assets in weighted manner such that the

returns expected from the portfolio are a combination of different assets (Širůček & Křen, 2017).

According to the portfolio theory, investors are primarily rational, and therefore want more than less, are risks averse, ignore investors' bankruptcy risk when applying for investment loans, and assume the market is perfect (Kazan & Uludag, 2014). Portfolio theory assumes that the idiosyncratic risk premise and diversification eradicates the explicit (idiosyncratic) risks that permits financial institutions to decrease their monitoring efforts and thereby decrease costs of operations leading to higher cost-effectiveness (Atahau & Cronje, 2015). The theory is major critique is that it based on the mean variance rule and measures total risk using standard deviation however there are risks which cannot be diversified through holding an efficient frontier (Acharya, Hasan & Saunders, 2006).

According to the theory, the degree of risk and loan default in the bank's loan portfolio is reliant on the risk of different credit resource components allocated to each loan and the form of association amongst the loan yields that make up the portfolio (Stefanelli & Cotugno, 2012). In commercial banks, loans products donate the key assets combination thus the model is key as it expounds the importance of commercial in developing a portfolio covering all sectors and firms. Instead, this portfolio should be based on purpose, timeframe and industry. Therefore, commercial banks must diversify the type of loans they provide to clients to mitigate the probability of loan default.

2.3 Determinants of Profitability

Capital adequacy, bank size including liquidity will be discussed as the core factors influencing commercial banks' profitability**.**

2.3.1 Bank Size

Bank sizes reflects to the institutional strengths and the abilities of coping to problems associated with asymmetry information that could lead to reduced levels of the non-performing loans (Teshome, Debela & Sultan, 2018). This could be an indicator of increasing the diversification of opportunities which lowers the institutional risk (Fatihudin & Mochklas, 2018). Bigger institutions have reduced costs because they enjoy benefits of economies to scale; and they can also acquire finances with reduced costs (Batchimeg, 2017).

Size is considered a key determinant for institutional profitability. In generally, a growing bank size has positive influences on profitability to a definite point. Conversely, institutional size can as well negatively influence profitability in those institutions that become exceptionally large as a result of bureaucratic and bad motives (Garoui, Sessi & Jarboui, 2013). Larger banks generally generate their services and outputs in a more cheap and efficient manner than small institutions because of the economies of scale that they benefit as such, there is tendency for them to generate higher profits (Teshome, Debela & Sultan, 2018).

2.3.2 Liquidity

Liquidity indicates the potential of bank in paying off its liabilities when need arises for it to possess the cash and near cash equivalents that can meet-up with its financial liabilities particularly in the short-term aspect (Batchimeg, 2017). Institutions normally produce more money through the mobilization of short-term deposits at low interest rates and making long-term investments or lending money with increased rates hence the need for

good management of this assets/liability creation. Problems associated with liquidity influence the profitability and leads to solvency problems (Fatihudin & Mochklas, 2018).

Liquidity is part of the main indicators of financial stabilities provided that its deficiency in one institution leads to systemic problems in the banking sub-sector because of inter-connectedness (Mehta & Bhavani, 2017). This becomes essentially vital for the continued existence for all firms specifically financial entities whose key task involve deposits taking. As uncertainties lead the financing sources to dissolve, many institutions find themselves short of cash of covering their debts when they became payable (Batchimeg, 2017).

2.3.3 Capital Adequacy

This denotes the ability of existing bank funds to back the increased resources growth. It is capital level that institutions need so as to be able of withstanding the credit, financial, market, and operational risks that they are encountered with; and take up the potential losses; and to establish their growth into risky but profitable projects (Mehta & Bhavani, 2017). The availability and adequacy of capital determines the soundness of banks to take disturbances in their balance sheets (Batchimeg, 2017). A high capital level lowers the bankruptcy risks that the banks incur (Garoui, Sessi & Jarboui, 2013).

Banks having reduced levels of capital adequacies are taken to be highly risk, thus rendering it hard to acquire the cheaper funds, and raising the cost of capital this affecting their overall performance. The well capitalized institutions are faced with lower predictable costs of bankruptcy, and this advantage leads to improved performances (Teshome, Debela & Sultan, 2018). CAR ratio is the measure for capital adequacy and a high ratio shows reduced risks (Garoui, Sessi & Jarboui, 2013).

2.4 Empirical Review

2.4.1 International Studies

Abaidoo and Oppong (2021) studied how loan default affects Ghanaian banking entities performance. Questionnaires were employed for data collection from 120 participants. Research shows that the main cause of default is reduced rate of demand for services plus commodities sold by customers. The regression outcomes determined that default had an adverse influence on performance. The study however used primary data collected through questionnaires.

Ugoani (2019) examined the portfolio of credit defaults alongside its impact on profits of Nigeria's banks. The probe adopted an exploratory study model while linear regression equation aided in analyzing the data required. Research results show that an inefficient loan portfolio negatively influences bank performance. This study however focused on loan portfolio defaults and was undertaken in a different context.

Awan, Nadeem, and Malghani (2015) investigated the whether loan default affected Pakistan banks profitability. Data was collected from 100 participants using questionnaires. Research shows that the main causes of customer default included inadequate knowledge on business management, ineffectual auditing, deferred loan approval, lower credit ratings and customers' refusal to pay. The study also shows that defaults negatively influenced the banks interest earnings and profitability. Nonetheless, questionnaires were the source of primary data necessary during the research.

Li and Zou (2014) studied whether defaults affected European banks profitability. Data were collected from 47 banking entities in Europe between 2007 and 2012. The regression

equation was employed for examining the interrelationships. Research results show that default adversely affected the entity's profitability. This study was cross-country in nature and was undertaken among banks in different states thus the findings may not generalized to a single country.

Trujillo (2013) explored Spanish banks profitability determinants between 1999 and 2009. The author used a systematic estimator-GMM to analyze data collected from Spanish banks. Research results showed that high bank profitability is associated with high default rate, high customer deposit rate, good performance and low credit risk. In addition, research shows that an increase in capital ratio improves the bank's return. The study focused more on bank profitability determinants as opposed to the direct link between loan default and bank profitability.

2.2.4 Local Studies

Oganda, Mogwambo and Otieno (2019) studied whether bad loans affects Kenyan banking entities productivity. The authors uses a correlational research approach and obtained data from two banking entities between 2007 and 2016 and primary data through interview programs. Research outcomes prove that unproductive loans have notable negative effects on performance. This study used primary data gathered via questionnaires while the current study intends to use secondary data hence a methodological gap.

Mitai (2017) examined whether bad loans affected Kenyan banks performance. The study collected data from 11 banking entities quoted at NSE from 2009 to 2014 (5-year period). Fixed effects regression was adopted for analysis. The study found an adverse link between loan default and ROA, ratifying that bad loans adversely affect the bank's profitability.

Nevertheless, all the focus was on Kenyan based commercial banks that are quoted leaving out the non-listed banking entities.

Kirui (2014) examined how bad loans affect Kenyan banking entities profitability. Data was gathered from all banking institutions within Kenya from 2004 to 2013 (10-year period). A multi-linear regression model was employed for analysis. The author documented an adverse link between bad debt ratio and return on assets.

Keitany (2013) studied whether debt default affects Kenyan Sacco's productivity. The author employed a descriptive approach and data were collected from 45 SACCOs in Nairobi County. Data were reviewed and analyzed using a regression model. Research results documented an adverse and significant link between debt default and the SACCOS productivity. This research's context was on SACCOs.

Chelagat (2012) evaluated the predicting elements of SME default in Kenyan commercial banks. The author adopted data collection using a questionnaire where the data was analyzed through regression. The author documented that defaults of SMEs increased significantly, and that several factors influenced the defaults. This study used primary data gathered via questionnaires while the current study intends to use secondary data hence a methodological gap.

2.5 Conceptual Framework

The probe's conceptual model entails loan default as the explanatory variable whilst profitability was the response variable. Included as control predictors were; capital adequacy, bank size alongside liquidity. The conceptual model was formulated as shown below.

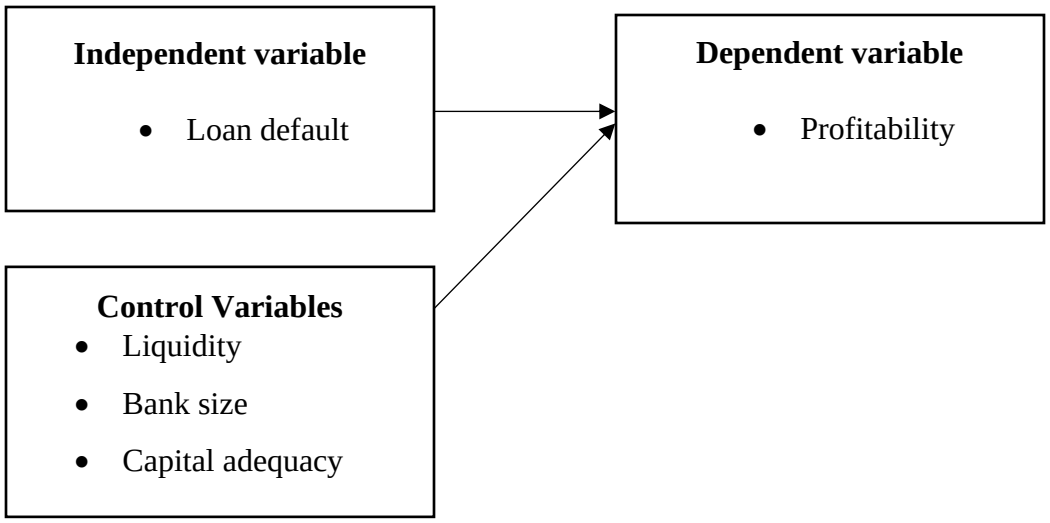

Figure 2.1: Conceptual Framework

Source: Authors (2022)

2.6 Summary of Literature Review

This study reviewed several studies which had been undertaken by various author in Kenya and across the globe from a number of gaps were observed. For instance, Oganda et al., (2019); Abaidoo and Oppong (2021); Awan, Nadeem and Malghani (2015) and Chelagat (2012) used primary data collected through questionnaires for data analysis. Mitai (2017) only focused on listed banks in Kenya while Zou and Li (2014) carried out cross country study which focused on several countries whereas Keitany (2013) focused on loan default among SACCOs. Other studies documented conflicting findings among them Trujillo-Ponce (2013) who found an insignificant link while Kirui (2014) and Ugoani (2016) found a negative interrelationship. It's evident that several studies exist on effect of loan default on profitability. The studies however have been carried out in different context, used varying research methods and also documented conflicting results. This necessitates a review of loan default impacts on profitability of Kenyan commercial banks.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

In this section, research design, research population and data collection techniques are explained. This section also includes data analysis and significance testing describing the analytical model.

3.2 Research Design

A study design incorporates the strategies plus processes of the survey which extends to broad decision assumptions besides datum collation plus analyses mechanisms (Cooper & Schindler, 2014). This study adopted a descriptive research model. The technique aimed at describing or defining a theme by use of data assembled which helps to profile a group of individuals, events besides aspects and displaying the research variables or their interaction in tables (Saunders, Lewis & Thornhill, 2009). The descriptive survey was accepted as it provides quantifiable information that can be used to analyze statistical conclusions.

3.3 Population of the Study

A population is a specific group with study-relevant characteristics (Kumar, 2011). This study's population entailed the 39 Kenyan banking entities as of 31st December 2021 (See Appendix I). This study undertook a census. A census design was considered since the population was small, finite and easily accessible. The census method entail exhaustive enumeration the exact units that make up the target audience.

3.4 Data Collection

Collection of data is a means of obtaining information from selected subjects of the survey (Saunders, Lewis & Thornhill, 2009). In this research, secondary data was used and it was obtained from the banking entities yearly accounting reports. The statements were obtained from the banking entities websites and from the NSE handbooks. The data was retrieved for a 5-year period from 2017 to 2021.

3.5 Data Analysis

This study used descriptive as well as inferential statistical tools to analyze the collected data by use of SPSS statistical software. In descriptive statistics, central measures, such as average, maximum, minimum, and standard deviation, were adopted in the organizing along with the summarizing of the gathered data. The inferential statistics entailed regression, which was adopted to document the link connecting the dependent to the explanatory variables.

3.5.1 Analytical Model

The analytical model formulated as follows

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \varepsilon$$

Where;

Y = Profitability measured using ROA ratio

X_1 = Loan default measured using the nonperforming loans (NPLR) ratio

X_2 = Liquidity measured using liquidity ratio

X_3 = Bank size measured using the natural log of total bank assets

X_4 = Capital adequacy measured using the capital adequacy ratio

β_0 = Constant

β_1- β_4 = Regression coefficients

ε = Error term

3.5.2 Diagnostic Tests

This study undertook multicollinearity, homoscedasticity, autocorrelation, normality and stationarity tests. The assumption of normality determines how likely it is that the data set is distributed normally and was evaluated via Kolmogorov-Smirnov test. Multicollinearity is the occurrence of high correlations between two or several explanatory variables in a regression model, and VIF was utilized in examining the multicollinearity. The assumption of homoscedasticity states that the errors in the term defects should be the same for the values of the independent variables and that the Breusch-Pagan test was used to check for similarity. Absence of variable variance is reflected by p value that is greater than 0.05 whereas a p-value that is less than 0.05 indicates the presence of variable variance. Autocorrelation occurs when the error members of a pair of observations are not independent and are evaluated using Durbin-Watson test. The stability test, which evaluates whether a time series data set is not stationary and has a square root, was evaluated using the Levin Lin Chu test.

3.5.3 Test of Significance

The T-test alongside the F-test were utilized in appraising the substantiality of the explanatory variables and the response variable respectively. The statistical significance test was done at 5% significance level. Additionally, the r square was utilized in assessing the explained variation from total variation.

CHAPTER FOUR: DATA ANALYSIS RESULTS AND FINDINGS

4.1 Introduction

This section covers descriptive statistics and the outcomes alongside interpretations of various tests namely; test of normality, Multicollinearity, heteroskedasticity tests, autocorrelation and stationarity test. The chapter also presents the results of Pearson correlation and regression analysis.

4.2 Descriptive Statistics

The segment presents the descriptive findings from the collected data. The descriptive output include mean plus standard deviation for each of the survey elements. The analyzed data was obtained from yearly records of CBK besides individual Banks covering a 5 years duration (2017 to 2021). The number of observations is 175 (35*5) as 35 Banks provided complete data for the 5 year period. Table 4.1 below represents the findings

Table 4.1: Descriptive Results

	N	Minimum	Maximum	Mean	Std. Deviation
ROA	175	-.246	.074	.01109	.039835
Loan default	175	.001	.762	.17231	.137518
Liquidity	175	.002	2.865	.33524	.333243
Firm size	175	8.540	13.539	10.80026	1.349468
Capital adequacy	175	-.550	1.095	.19711	.131961
Valid N (listwise)	175				

Source: Field Data (2022)

4.3 Diagnostic Tests

The most suitable linear fair estimators were sampled before undertaking linear regression (BLUE). This study employed normality, homoscedasticity, multiple-collinearity, and autocorrelation tests. The Kolmogorov-Smirnov test was used to estimate the normality of datum utilized in the analysis. The Breusch-Pagan test for homoscedasticity was employed to decide if the independent variables employed in the study have constant variance, while to establish multi-collinearity, Variance Inflation Factors (VIF) statistics were embraced. Durbin-Watson d statistic evaluated the autocorrelation while Levin-Lin Chu unit root test aided in undertaking the Stationarity test.

4.3.1 Normality Test

Multiple techniques are usable in examining the normality of data. The most commonly utilized approaches include the Kolmogorov–Smirnov test, Shapiro–Wilk test, kurtosis, skewness, P–P Plot, histogram, Q–Q Plot, box plot, mean and standard deviation. Kolmogorov–Smirnov along with Shapiro–Wilk test tops the normality tests widely used. The Shapiro–Wilk test is better for small sample sizes ($n < 50$ samples), while it can also be utilized on more extensive samples selections, whereas the Kolmogorov–Smirnov test is better for $n > 50$ samples. As a result, this investigation made use of Kolmogorov–Smirnov test as the numerical method of determining normality. According to the null hypothesis, the data collated should be from a normally distributed population, this applies to both of the above tests. A P-value of less than 0.05 leads to rejection of the null hypothesis concluding that data assembled was from an abnormal distributed population.

Table 4.2: Test for Normality

	Kolmogorov-Smirnov	P-value
ROA	7.303	0.401
Loan default	5.428	0.504
Liquidity	3.763	0.515
Firm size	4.153	0.427
Capital adequacy	5.239	0.500

Source: Research Findings (2022)

As the outcomes in Table 4.2 indicate, all the study variables have a p-value more than 0.05 and therefore were normally distributed.

4.3.2 Multicollinearity Test

The result of substantial association amongst independent variables in a regression model is Multicollinearity. Multicollinearity was assessed using the VIF and tolerance indices. When the VIF value is higher than ten whereas tolerance score is below 0.2, multicollinearity is present, and the assumption is broken. Multicollinearity has problems if the VIF values are above 10.

Table 4.3: Multicollinearity

	Collinearity Statistics	
Variable	**Tolerance**	**VIF**
Loan default	0.697	1.434
Liquidity	0.703	1.422
Firm size	0.661	1.513
Capital adequacy	0.677	1.477

Source: Research Findings (2022)

4.3.3 Heteroskedasticity Test

The residual variance from the model must be constant and unrelated to the independent variable in linear regression models calculated using the Ordinary Least Squares (OLS) approach (es). Homoskedasticity refers to constant variance, whereas heteroscedasticity refers to non-constant variance (Field, 2009). The probe made use of the Breusch-Pagan/Cook-Weisberg test to verify if the variation was heteroskedastic. The null hypothesis implies constant variance, indicating that the data is homoscedastic. The outcomes are tabulated as follows:

Table 4.4: Heteroskedasticity Results

Breusch-Pagan / Cook-Weisberg test for heteroscedasticity		
chi2(1)	=	0.3413
Prob > chi2	=	0.1641

Source: Research Findings (2022)

Table 4.4 reveals the acceptance of the null hypothesis because the p-value was 0.1641, which was statistically significant (p>0.05). This confirms that dataset had homoskedastic variances. Since the P-values of Breusch-Pagan's test for homogeneity of variances were above 0.05. Thus, the test confirmed homogeneity of variance. The data can therefore be used to conduct panel regression analysis.

4.3.4 Autocorrelation Test

Serial correlation, also known as autocorrelation, makes the standard errors of coefficients appear to be less than in linear panel data models, resulting in higher R-squared and erroneous hypothesis testing Autocorrelation was done with the help of Durbin-Watson test. Regression variables error terms are not correlated when Durbin-Watson test is

equivalent to 2 (i.e. between 1 and 3). The results gets better with more closely the value is to 2. Below is the tabulation of the findings:

Table 4.5: Test of Autocorrelation

Durbin Watson Statistic
1.863

Source: Research Findings (2022)

Table 4.7 above shows 1.863 being the Durbin-Watson statistic. Thus, this proves the non-correlation of the error terms of regression elements since the Durbin-Watson statistic was close to 2.

4.3.5 Stationarity Test

The research variables were subjected to a panel data unit-root test to establish if the data was stationary. Levin-Lin Chu unit root test being the unit root test. At a standard statistical significance level of 5%, the test was compared to their corresponding p-values. In this test, the null hypothesis is that every panel has a unit root, and the alternative hypothesis is that at least one panel is stationary. Below is the tabulated Levin-Lin Chu unit root test findings:

Table 4.6: Levin-Lin Chu unit-root test

Levin-Lin Chu unit-root test			
Variable	**Hypothesis**	**p value**	**Verdict**
ROA	Ho: Panels contain unit roots	0.0000	Reject Ho
Loan default	Ho: Panels contain unit roots	0.0000	Reject Ho
Liquidity	Ho: Panels contain unit roots	0.0000	Reject Ho
Firm size	Ho: Panels contain unit roots	0.0000	Reject Ho
Capital adequacy	Ho: Panels contain unit roots	0.0000	Reject Ho

Source: Research Findings (2022)

As demonstrated in Table 4.6, this test affirms the stationarity of the data with statistical significance level of 5% because the p-values all fall below 0.05.

4.4 Correlation Results

To determine the degree also direction of link amidst each predicting variable alongside responding variable, correlation analysis was carried out. The correlation findings in Table 4.7 display correlation nature amid the survey variables in relation to direction besides magnitude. The correlation outcomes disclose that loan default and ROA have a negative as well as significant correlation (r=-0.572) at 5% significance level. The relationship between liquidity and ROA was positive and significant (r=0.154) at 5 % significance level. Additionally, the findings disclose that firm size has a moderate positive besides substantial link with ROA of banks in Kenya (r=0.533) with a significance level of 5%. A notable nexus amid capital adequacy plus ROA is detected (r=0.352) with a significance level of five percent.

Table 4.7: Correlation Results

		ROA	Loan default	Liquidity	Firm size	Capital adequacy
ROA	Pearson Correlation	1				
	Sig. (2-tailed)					
Loan default	Pearson Correlation	-.572**	1			
	Sig. (2-tailed)	.000				
Liquidity	Pearson Correlation	.154*	-.210**	1		
	Sig. (2-tailed)	.042	.005			
Firm size	Pearson Correlation	.533**	-.381**	.165*	1	
	Sig. (2-tailed)	.000	.000	.029		
Capital adequacy	Pearson Correlation	.352**	-.385**	.038	-.106	1
	Sig. (2-tailed)	.000	.000	.621	.163	

**. Correlation is significant at the 0.01 level (2-tailed).
*. Correlation is significant at the 0.05 level (2-tailed).
c. Listwise N=175

Source: Research Findings (2022)

4.5 Regression Results

A regression analysis was undertook for purposes of identifying the magnitude at which the selected variables explains ROA. In Table 4.8, the regression's findings are displayed.

Table 4.8: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.777[a]	.604	.595	.025356

a. Predictors: (Constant), Capital adequacy, Liquidity, Firm size, Loan default

Source: Research Findings (2022)

From the conclusions as epitomized by the R^2, the studied predictor variables described variations of 0.604 in ROA among Kenyan banks. This suggests that additional features

not incorporated during the current research account for 39.6% of the variability in ROA among Kenyan banks, while the four factors account for 60.4% of the variations.

Table 4.9: ANOVA Analysis

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.167	4	.042	64.864	.000[b]
	Residual	.109	170	.001		
	Total	.276	174			

a. Dependent Variable: ROA

b. Predictors: (Constant), Capital adequacy, Liquidity, Firm size, Loan default

Source: Research Findings (2022)

The data had a 0.000 significance level, according to Table 4.9's ANOVA results, which implies that the model is the best choice for making conclusions regarding the factors.

Table 4.9: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	T	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.129	.020		-6.355	.000
	Loan default	-.100	.017	-.346	-5.804	.000
	Liquidity	.038	.006	.318	6.404	.000
	Firm size	.014	.002	.484	8.832	.000
	Capital adequacy	.085	.017	.282	5.149	.000

a. Dependent Variable: ROA

Source: Research Findings (2022)

Below is the equation for coefficient of regression;

$$\mathbf{Y = -0.129 - 0.346X_1 + 0.318X_2 + 0.484X_3 + 0.282X_4}$$

Where:

Y = ROA; X_1 = Loan default; X_2 = liquidity; X_3= Firm size X_4= Capital adequacy

4.6 Discussion of Research Findings

The research's main agenda was in establishing how ROA of Kenyan based banks is influenced by loan default. The survey population entailed the 39 Kenyan banks which was analyzed using a descriptive design. Complete datum was sourced from 35 banks in Kenya and which were considered adequate for regression analysis. The research utilized yearly records of individual banks also CBK as sources of secondary data. The actual attribute of loan default factored in was NPLs to total loans. The control variables were liquidity, firm size and capital adequacy. Both descriptive plus inferential statistics were useful during data analyses. The outcomes are extensively elaborated in this segment.

Multivariate regression outcomes unveiled that the R square was 0.604 implying 60.4% of changes in ROA of banks are due to four variables alterations selected for the current study. Hence, variables not considered is the result of the 39.6% changes in ROA. The p-value was 0.000 which is below the significance level of 0.05 thus the entire model was statistically notable. This implies that the overall model had the required goodness of fit.

The multivariate regression analysis further revealed that individually, loan default affected adversely the ROA of banks as shown by (β=-0.346, p=0.000). Liquidity has a positive plus substantial impact on commercial banks' ROA (β=0.318, p=0.000). Firm size and capital adequacy showed a positive and substantial influence on ROA of Kenyan banks as shown by (β=0.484, p=0.000) and (β=0.282, p=0.000) respectively.

These conclusions concur with those of Awan, Nadeem, and Malghani (2015) who investigated the whether loan default affected Pakistan banks profitability. Data was

collected from 100 participants using questionnaires. Research shows that the main causes of customer default included inadequate knowledge on business management, ineffectual auditing, deferred loan approval, lower credit ratings and customers' refusal to pay. The study also shows that defaults negatively influenced the banks interest earnings and profitability.

The research findings also concur with Oganda, Mogwambo and Otieno (2019) studied whether bad loans affects Kenyan banking entities productivity. The authors uses a correlational research approach and obtained data from two banking entities between 2007 and 2016 and primary data through interview programs. Research outcomes illustrate that unproductive loans significantly influence the performance negatively.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

The key aim of the survey was determining loan default influence on the profitability of Kenyan based banks. This section includes summarized findings from the previous chapter along with conclusions plus the study limitations. Additionally, it makes recommendations for potential policy measures. The chapter has recommendations for purposes of future studies.

5.2 Summary

The research's objective was in determining the magnitude at which the ROA of Kenyan banks is affected by loan default. A descriptive design was utilized during the survey whereas the 39 Kenyan banks formed the population of the study. Complete details were gathered from 35 banks in Kenya and which were considered adequate for regression analysis. The research utilized yearly records from individual banks also CBK to as sources of secondary data. The particular attribute of loan default factored in was NPLs to total loans. The control variables were liquidity, firm size and capital adequacy. Both descriptive besides inferential statistics were useful during data analyses. The outcomes are summarized in this section.

The correlation results disclose that loan default and ROA have a negative as well as significant correlation at 5% significance level. The relationship between liquidity and ROA was positive and significant at 5 % significance level. Moreover, the findings disclose that firm size has a moderate positive as well as significant link with ROA of banks in

Kenya with significance level of 5%. Capital adequacy exhibited positive as well as significant relation with ROA.

The results of multivariate regression unveiled that the R square was 0.604 explaining 60.4% of changes in ROA of banks are due to four variables alterations selected for this investigation. Therefore, the variables not considered causes the 39.6% changes in ROA. The p-value was 0.000 which below the significance level of 0.05 hence, the entire model was statistically notable. This implies that the overall model had the required goodness of fit.

The multivariate regression analysis further revealed that individually, loan default adversely influenced the ROA of banks as shown by (β=-0.346, p=0.000). Liquidity has a positive also substantial impact on banks' ROA (β=0.318, p=0.000). Firm size and capital adequacy affected the ROA of Kenyan based banks significantly in addition to positively as shown by (β=0.484, p=0.000) and (β=0.282, p=0.000) respectively.

5.3 Conclusions

This survey aimed mainly at finding out the degree at which loan default correlates with ROA of Kenyan based banks. According to the outcomes, loan default exhibited a negative in addition to notable impact on ROA. This may imply that banks with high loan default have low levels of ROA. Loan default management is therefore necessarily to achieve the targeted performance. The study concludes that loan default affects ROA among banks in Kenya in a negative manner.

Additionally, the outcomes revealed that liquidity exhibits a substantial positive influence on profitability. This highlights that entities with low levels of liquid assets compared to

their assets end up having a lower ROA. This can be explained by the inability of illiquid firms to benefit from investment opportunities as they occur.

It was established that the impact of firm size on ROA among Kenyan commercial banks was positive & statistically significant. The results therefore imply that bigger banks are likely to have higher returns compared to small banks. This can be explained by the fact that bigger banks have more developed structures that help them to manage operations better while at the same time they are able to enjoy the goodwill that comes with size.

The study conclusions revealed that capital adequacy influenced the ROA substantially and the effect was positive. This may imply that financial institutions whose capital is ample are in a position of fulfilling their financial liabilities without defaulting in addition to having potential of taking advantage of emerging investment opportunities during the course of doing business and therefore high levels of ROA compared with firms that has less capital adequacy.

5.4 Recommendations for Policy and Practice

According to the outcomes, the commercial banks profitability was influenced by loan default significantly but negatively. Due to this, the survey advised the banks' management on introducing measures which works towards minimizing the size of non-performing loans. This can be accomplished through introduction of effective loan default management methods which the bank can apply when issuing loans to differentiate bad borrowers from good ones.

Moreover, liquidity was discovered to possess a positive as well as notable impact on ROA. The research hence commends that management of banks within Kenya should ensure that

they do not over commit their assets by giving excess loans as this will likely lead to reduced ROA. The banks should come up with effective liquidity management strategies. Regulators should ensure that the banks do not led beyond a certain set limit of their asset base.

The research findings revealed that the size of the entity influences positively alongside significantly the profitability of a bank. The study recommends the need for leaders of the commercial banks and policy makers in the banking industry should come up with policies guiding the banks on how to manage their assets as this will go a long way in enhancing their profitability.

From the study findings, capital adequacy was found to enhance the banks' ROA, as a result the survey recommended banks' management on maintaining adequate capital levels to sustain their obligations when they fall due whereas simultaneously time enjoying short term investment chances which may arise. The policy makers should set a limit of the capital adequacy level that banks should have as too much capital adequacy is also disadvantageous as it comes with opportunity costs.

5.5 Limitations of the Study

The focus was on various aspects which are thought to have effects on profitability of Kenyan banks. The research focused on four explanatory variables in particular. However, in certainty, there is presence of other variables probable to influence ROA of banks including internal like corporate governance attributes and management efficiency whereas others are beyond the control of the firm like interest rates as well as political stability.

In this study, a five-year period from 2017 to 2021 was selected. There is no proof that comparable results will remain the same across a longer time frame. Moreover, it is impossible to predict if the same outcomes would persist until 2021. Given that additional time contains instances of big economic transitions like recessions and booms, it is more dependable.

The quality of the data was the main restriction for this study. It is not possible to conclusively conclude that the study's findings accurately reflect the current reality. It has been presumed that the data utilized in the study are accurate. Due to the current conditions, there has also been a great deal of incoherence in the data measurement. The probe preferred secondary data rather than primary data. Due to the limited availability of data, only some of the ROA drivers have been considered.

The data analysis was performed using regression models. Due to shortcomings associated with using the model, for instance inaccurate or erroneous findings which are caused by variations in the variable value, it would not be able to generalize the conclusions precisely.

5.6 Suggestions for Further Research

This study’s main focus was Kenyan banks. More researches can focus on a wide scope by covering other financial institutions in Kenya to back or contradict the results of the current study. Further, this study focused on NPLs to total loans as a measure of loan default. Future studies should focus on other loan default measures that were not considered in this study.

The current research scope was restricted to 5 years; more surveys can capture a longer duration than 5 years to determine whether the results might persist. Hence, inherent future

studies may use a wider time span that can either support or criticize the current research conclusions. The scope of the study was additionally constrained in terms of context where banks were examined. Further studies can be extended to other financial firms to establish if they complement or contradict the current study findings. Researchers in the East African region, the rest of Africa, including other universal sections can too perform the research in these jurisdictions to ascertain whether the current research conclusions would persist.

The research only used secondary data; alternate research may use primary data sources like structured interviews besides in-depth questionnaires given to practitioners and stakeholders. These can then affirm or criticize the results of the current research. Multiple linear regression & correlation analysis were utilized; future research could use other analytic techniques such cluster analysis, granger causality, discriminant analysis, factor analysis, and descriptive statistics, among others.

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APPENDICES

Appendix I: List of Banks in Kenya

1. ABSA
2. Access Bank
3. ABC Bank
4. BOA
5. Baroda
6. Bank of India
7. Charterhouse Bank
8. Citibank N.A Kenya
9. NCBA
10. Consolidated Bank
11. Co-operative Bank
12. Credit Bank
13. Development Bank
14. DTB
15. DIB Bank
16. Ecobank
17. Equity
18. Family
19. FCB
20. Guaranty Trust Bank
21. Guardian Bank
22. Gulf African Bank
23. Habib Bank A.G Zurich
24. HFC
25. I & M Bank
26. KCB Bank Kenya
27. Kingdom Bank
28. Mayfair Bank
29. Middle East Bank
30. M-Oriental Bank
31. Paramount Bank
32. Prime Bank
33. SBM Bank
34. Sidian
35. Spire
36. Stanbic
37. StanChart Bank
38. UBA Kenya Bank
39. Victoria

APPENDIX II: Research Data

Bank	Year	ROA	Loan default	Liquidity	Firm size	Capital adequacy
African Banking Corporation Ltd	2021	0.005	0.156	0.088	10.393	0.093
Bank of Africa Kenya Ltd	2021	-0.015	0.398	0.300	10.713	0.080
Bank of Baroda (K) Ltd	2021	0.035	0.124	0.715	12.022	0.198
Bank of India	2021	0.036	0.047	0.729	11.227	0.351
Absa Bank Kenya Ltd	2021	0.022	0.074	0.247	12.842	0.172
Citibank N.A Kenya	2021	0.052	0.028	0.622	11.575	0.228
NCBA Bank Kenya PLC	2021	0.014	0.139	0.169	13.105	0.156
Consolidated Bank of Kenya Ltd	2021	-0.020	0.240	0.205	9.464	0.090
Credit Bank Ltd	2021	0.000	0.115	0.005	10.050	0.163
Co-operative Bank of Kenya Ltd	2021	0.034	0.168	0.334	13.116	0.191
Development Bank of Kenya Ltd	2021	0.001	0.337	0.041	9.754	0.386
Diamond Trust Bank (K) Ltd	2021	0.013	0.119	0.244	12.651	0.229
Ecobank Kenya Ltd	2021	0.000	0.163	0.002	11.456	0.072
Equity Bank Ltd	2021	0.021	0.120	0.223	13.412	0.141
Family Bank Ltd	2021	0.015	0.149	0.149	11.414	0.162
First Community Bank Ltd	2021	0.011	0.361	0.234	9.996	0.044
Guaranty Trust Bank (Kenya) Ltd	2021	0.016	0.208	0.246	10.350	0.254
Guardian Bank Ltd	2021	0.005	0.128	0.086	9.733	0.201
Gulf African Bank Ltd	2021	0.015	0.176	0.194	10.536	0.155
Habib Bank A.G Zurich	2021	0.017	0.122	0.359	10.211	0.130
I & M Bank Ltd	2021	0.036	0.126	0.555	12.555	0.193
Jamii Bora Bank (Kingdom Bank)	2021	-0.004	0.762	0.077	10.329	0.202
KCB Bank Kenya Ltd	2021	0.031	0.123	0.311	13.539	0.173
Middle East Bank (K) Ltd	2021	0.010	0.103	0.187	9.308	0.127

Bank	Year	ROA	Loan default	Liquidity	Firm size	Capital adequacy
National Bank of Kenya Ltd	2021	0.003	0.354	0.035	11.751	0.066
M Oriental Bank Ltd	2021	0.003	0.234	0.051	9.472	0.261
Paramount Bank Ltd	2021	0.009	0.171	0.175	9.339	0.189
Prime Bank Ltd	2021	0.016	0.109	0.321	11.663	0.255
Standard Chartered Bank (K) Ltd	2021	0.022	0.146	0.262	12.694	0.153
Spire Bank Ltd	2021	-0.246	0.708	0.278	8.540	-0.550
Sidian Bank Ltd	2021	0.003	0.115	0.047	10.419	0.154
Stanbic Bank Kenya Ltd	2021	0.020	0.142	0.284	12.673	0.189
Trans-National (Access Bank Plc)	2021	-0.198	0.046	2.413	9.225	0.180
UBA Kenya Bank Ltd	2021	0.003	0.407	0.053	9.839	0.291
Victoria Commercial Bank Ltd	2021	0.013	0.066	0.223	10.542	0.216
African Banking Corporation Ltd	2020	0.006	0.177	0.101	10.264	0.107
Bank of Africa Kenya Ltd	2020	-0.067	0.399	0.229	10.692	0.041
Bank of Baroda (K) Ltd	2020	0.038	0.084	0.705	11.873	0.193
Bank of India	2020	0.045	0.089	0.798	11.044	0.318
Absa Bank Kenya Ltd	2020	0.032	0.066	0.358	12.832	0.188
Citibank N.A Kenya	2020	0.058	0.041	0.602	11.478	0.253
NCBA Bank Kenya PLC	2020	0.020	0.125	0.354	13.050	0.177
Consolidated Bank of Kenya Ltd	2020	-0.044	0.295	0.423	9.381	0.131
Credit Bank Ltd	2020	0.014	0.101	0.169	9.978	0.169
Co-operative Bank of Kenya Ltd	2020	0.045	0.111	0.439	13.016	0.190
Development Bank of Kenya Ltd	2020	0.074	0.341	0.734	9.639	0.509
Diamond Trust Bank (K) Ltd	2020	0.032	0.083	0.581	12.568	0.223
Ecobank Kenya Ltd	2020	0.003	0.198	0.080	11.230	0.109
Equity Bank Ltd	2020	0.051	0.090	0.471	13.137	0.164
Family Bank Ltd	2020	0.017	0.152	0.176	11.275	0.193

Bank	Year	ROA	Loan default	Liquidity	Firm size	Capital adequacy
First Community Bank Ltd	2020	0.010	0.397	0.185	9.840	0.038
Guaranty Trust Bank (Kenya) Ltd	2020	0.017	0.185	0.267	10.278	0.311
Guardian Bank Ltd	2020	0.015	0.095	0.269	9.704	0.193
Gulf African Bank Ltd	2020	0.006	0.147	0.081	10.467	0.153
Habib Bank A.G Zurich	2020	0.016	0.112	0.321	10.120	0.184
I & M Bank Ltd	2020	0.047	0.123	0.648	12.446	0.193
Jamii Bora Bank Ltd	2020	-0.133	0.565	0.293	9.124	0.142
KCB Bank Kenya Ltd	2020	0.049	0.074	0.458	13.421	0.170
Middle East Bank (K) Ltd	2020	0.007	0.141	0.114	9.044	0.161
National Bank of Kenya Ltd	2020	-0.007	0.415	0.098	11.627	0.072
M Oriental Bank Ltd	2020	0.005	0.189	0.101	9.425	0.284
Paramount Bank Ltd	2020	0.008	0.176	0.185	9.254	0.196
Prime Bank Ltd	2020	0.023	0.117	0.449	11.597	0.264
Standard Chartered Bank (K) Ltd	2020	0.042	0.139	0.440	12.619	0.156
Spire Bank Ltd	2020	-0.066	0.515	0.092	8.833	-0.310
Sidian Bank Ltd	2020	0.002	0.206	0.027	10.183	0.214
Stanbic Bank Kenya Ltd	2020	0.028	0.118	0.350	12.587	0.184
Trans-National Bank Ltd	2020	-0.006	0.300	0.063	9.140	0.232
UBA Kenya Bank Ltd	2020	0.007	0.230	0.115	9.686	0.323
Victoria Commercial Bank Ltd	2020	0.019	0.049	0.321	10.493	0.221
African Banking Corporation Ltd	2019	0.006	0.227	0.093	10.211	0.137
Bank of Africa Kenya Ltd	2019	0.004	0.362	0.072	10.801	0.114
Bank of Baroda (K) Ltd	2019	0.042	0.090	0.750	11.720	0.197
Bank of India	2019	0.039	0.070	0.726	11.046	0.307
Barclays Bank of Kenya Ltd	2019	0.032	0.074	0.376	12.694	0.182
Citibank N.A Kenya	2019	0.066	0.030	0.615	11.358	0.341

Bank	Year	ROA	Loan default	Liquidity	Firm size	Capital adequacy
NCBA Bank Kenya PLC	2019	0.034	0.078	0.421	12.356	0.007
Consolidated Bank of Kenya Ltd	2019	-0.027	0.253	0.251	9.464	0.182
Credit Bank Ltd	2019	0.019	0.083	0.193	9.787	0.200
Co-operative Bank of Kenya Ltd	2019	0.043	0.112	0.423	12.920	0.138
Development Bank of Kenya Ltd	2019	0.011	0.287	0.316	9.637	0.309
Diamond Trust Bank (K) Ltd	2019	0.033	0.072	0.537	12.559	0.194
Ecobank Kenya Ltd	2019	0.003	0.217	0.049	10.905	0.126
Equity Bank Ltd	2019	0.056	0.074	0.494	12.991	0.164
Family Bank Ltd	2019	0.006	0.173	0.062	11.111	0.220
First Community Bank Ltd	2019	-0.016	0.462	0.281	9.791	0.053
Guaranty Trust Bank (Kenya) Ltd	2019	0.012	0.189	0.178	10.139	0.316
Guardian Bank Ltd	2019	0.022	0.099	0.318	9.692	0.181
Gulf African Bank Ltd	2019	0.009	0.109	0.098	10.414	0.163
Habib Bank A.G Zurich	2019	0.017	0.090	0.331	9.977	0.183
I & M Bank Ltd	2019	0.038	0.146	0.489	12.342	0.193
Jamii Bora Bank Ltd	2019	-0.038	0.696	0.685	9.211	0.305
KCB Bank Kenya Ltd	2019	0.050	0.069	0.499	13.340	0.185
Middle East Bank (K) Ltd	2019	0.000	0.400	0.003	8.587	0.348
National Bank of Kenya Ltd	2019	0.005	0.476	0.072	11.654	0.021
M Oriental Bank Ltd	2019	0.010	0.096	0.150	9.261	0.182
Paramount Bank Ltd	2019	0.015	0.173	0.315	9.199	0.194
Prime Bank Ltd	2019	0.021	0.074	0.449	11.498	0.270
Standard Chartered Bank (K) Ltd	2019	0.040	0.163	0.413	12.559	0.158
Spire Bank Ltd	2019	-0.033	0.440	0.253	9.129	-0.251
Sidian Bank Ltd	2019	-0.022	0.209	0.267	10.140	0.228
Stanbic Bank Kenya Ltd	2019	0.031	0.107	0.416	12.546	0.168
Trans-National Bank Ltd	2019	-0.010	0.242	0.118	9.234	0.205

Bank	Year	ROA	Loan default	Liquidity	Firm size	Capital adequacy
UBA Kenya Bank Ltd	2019	0.002	0.128	0.034	9.638	0.360
Victoria Commercial Bank Ltd	2019	0.017	0.031	0.328	10.384	0.238
African Banking Corporation Ltd	2018	0.008	0.216	0.127	10.119	0.124
Bank of Africa Kenya Ltd	2018	0.001	0.315	0.010	10.900	0.148
Bank of Baroda (K) Ltd	2018	0.053	0.061	0.771	11.473	0.209
Bank of India	2018	0.047	0.021	0.801	10.944	0.238
Barclays Bank of Kenya Ltd	2018	0.037	0.071	0.375	12.512	0.205
Citibank N.A Kenya	2018	0.065	0.045	0.670	11.495	0.291
NCBA Bank Kenya PLC	2018	0.031	0.061	0.533	12.344	0.109
Consolidated Bank of Kenya Ltd	2018	-0.033	0.251	0.344	9.507	0.040
Credit Bank Ltd	2018	0.012	0.086	0.131	9.579	0.226
Co-operative Bank of Kenya Ltd	2018	0.043	0.071	0.413	12.855	0.206
Development Bank of Kenya Ltd	2018	0.004	0.216	0.115	9.700	0.211
Diamond Trust Bank (K) Ltd	2018	0.031	0.076	0.466	12.506	0.169
Ecobank Kenya Ltd	2018	-0.027	0.386	0.488	10.887	0.126
Equity Bank Ltd	2018	0.057	0.067	0.484	12.915	0.198
Family Bank Ltd	2018	-0.020	0.202	0.212	11.143	0.227
First Community Bank Ltd	2018	0.013	0.400	0.207	9.762	0.095
Guaranty Trust Bank (Kenya) Ltd	2018	0.009	0.103	0.129	10.227	0.317
Guardian Bank Ltd	2018	0.014	0.109	0.235	9.668	0.176
Gulf African Bank Ltd	2018	0.008	0.080	0.097	10.352	0.163
Habib Bank A.G Zurich	2018	0.022	0.104	0.393	9.837	0.201
I & M Bank Ltd	2018	0.041	0.139	0.454	12.122	0.222
Jamii Bora Bank Ltd	2018	-0.059	0.212	0.571	9.461	0.407
KCB Bank Kenya Ltd	2018	0.049	0.083	0.450	13.228	0.162

Bank	Year	ROA	Loan default	Liquidity	Firm size	Capital adequacy
Middle East Bank (K) Ltd	2018	-0.008	0.444	0.143	8.541	0.292
National Bank of Kenya Ltd	2018	0.007	0.406	0.081	11.608	0.035
M Oriental Bank Ltd	2018	0.011	0.105	0.146	9.266	0.373
Paramount Bank Ltd	2018	0.010	0.123	0.204	9.163	0.201
Prime Bank Ltd	2018	0.026	0.057	0.426	11.244	0.190
Standard Chartered Bank (K) Ltd	2018	0.033	0.126	0.359	12.561	0.158
Spire Bank Ltd	2018	-0.141	0.342	2.865	9.319	0.145
Sidian Bank Ltd	2018	-0.033	0.211	0.372	9.868	0.235
Stanbic Bank Kenya Ltd	2018	0.023	0.076	0.300	12.386	0.182
Trans-National Bank Ltd	2018	0.005	0.217	0.056	9.239	0.237
UBA Kenya Bank Ltd	2018	0.002	0.046	0.023	8.780	0.515
Victoria Commercial Bank Ltd	2018	0.033	0.001	0.517	10.165	0.284
African Banking Corporation Ltd	2017	0.010	0.189	0.146	10.018	0.147
Bank of Africa Kenya Ltd	2017	0.000	0.288	0.004	10.933	0.162
Bank of Baroda (K) Ltd	2017	0.047	0.089	0.958	11.325	0.208
Bank of India	2017	0.046	0.014	0.794	10.775	0.321
Barclays Bank of Kenya Ltd	2017	0.040	0.065	0.335	12.467	0.211
Citibank N.A Kenya	2017	0.058	0.029	0.672	11.546	0.296
NCBA Bank Kenya PLC	2017	0.036	0.071	0.615	12.259	0.120
Consolidated Bank of Kenya Ltd	2017	-0.020	0.198	0.193	9.541	0.079
Credit Bank Ltd	2017	0.013	0.081	0.128	9.409	0.265
Co-operative Bank of Kenya Ltd	2017	0.052	0.047	0.439	12.766	0.200
Development Bank of Kenya Ltd	2017	0.006	0.257	0.157	9.706	0.300
Diamond Trust Bank (K) Ltd	2017	0.036	0.039	0.526	12.405	0.175
Ecobank Kenya Ltd	2017	-0.061	0.196	0.245	10.761	0.216
Equity Bank Ltd	2017	0.060	0.070	0.453	12.847	0.185

Bank	Year	ROA	Loan default	Liquidity	Firm size	Capital adequacy
Family Bank Ltd	2017	0.009	0.131	0.070	11.148	0.289
First Community Bank Ltd	2017	-0.003	0.323	0.032	9.613	0.116
Guaranty Trust Bank (Kenya) Ltd	2017	0.022	0.074	0.067	10.296	0.330
Guardian Bank Ltd	2017	0.021	0.082	0.245	9.596	0.175
Gulf African Bank Ltd	2017	0.028	0.097	0.308	10.209	0.195
Habib Bank A.G Zurich	2017	0.037	0.029	0.524	9.743	0.247
I & M Bank Ltd	2017	0.053	0.049	0.532	12.008	0.238
Jamii Bora Bank Ltd	2017	-0.031	0.204	0.118	9.663	0.332
KCB Bank Kenya Ltd	2017	0.056	0.076	0.490	13.132	0.188
Middle East Bank (K) Ltd	2017	-0.019	0.297	0.375	8.563	0.294
National Bank of Kenya Ltd	2017	0.001	0.437	0.015	11.626	0.103
M Oriental Bank Ltd	2017	0.004	0.120	0.048	9.202	0.389
Paramount Bank Ltd	2017	0.011	0.125	0.220	9.151	0.203
Prime Bank Ltd	2017	0.036	0.046	0.522	11.087	0.198
Standard Chartered Bank (K) Ltd	2017	0.051	0.113	0.467	12.430	0.189
Spire Bank Ltd	2017	-0.070	0.159	1.150	9.533	0.184
Sidian Bank Ltd	2017	0.003	0.170	0.025	9.946	0.277
Stanbic Bank Kenya Ltd	2017	0.034	0.059	0.396	12.230	0.237
Trans-National Bank Ltd	2017	0.015	0.127	0.147	9.256	0.246
UBA Kenya Bank Ltd	2017	0.009	0.022	0.085	8.631	1.095
Victoria Commercial Bank Ltd	2017	0.036	0.022	0.562	10.017	0.309

EFFECT OF LOAN DEFAULT ON PROFITABILITY OF COMMERCIAL BANKS IN KENYA

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