THE EFFECT OF LOAN QUALITY ON THE FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN KENYA

BY

ABDIRISAK MUKHTAR ABDIRAHMAN

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DECLARATION

This research project is my original work and it has not been presented and submitted to any in university or college for examination.

Signed…… …… **Date**……13/11/2020……..

Abdirisak Mukhtar Abdirahman

D63/10414/2018

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

Signed…… …… **Date**……13 November 2020……

Prof. Cyrus Mwangi Iraya

Department of Finance and Accounting

School of Business, University of Nairobi

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DEDICATION

It is pleasure for me to announce that I dedicated this research my mother Safio Mumin who always encouraged me to work on this project and the entire course.

TABLE OF CONTENTS

DECLARATION ..... **ii**

ACKNOWLEDGEMENT ..... **iii**

DEDICATION ..... **iv**

LIST OF ABBREVIATIONS AND ACCRONYMS ..... **ix**

ABSTRACT ..... **x**

CHAPTER ONE: INTRODUCTION **1**

1.1 Background of the Study 1

1.1.1 Loan Quality 2

1.1.2 Financial Performance of Commercial Banks 4

1.1.3 Loan Quality and Financial Performance 5

1.1.4 Commercial Banks in Kenya 6

1.2 Research Problem 8

1.3 Research Objective 10

1.4 Value of the Study 11

CHAPTER TWO: LITERATURE REVIEW **13**

2.1 Introduction 13

2.2 Theoretical Background 13

2.2.1 Capital Asset Pricing Model 13

2.2.2 Information Asymmetry Theory 15

2.2.3 Credit Risk Theory 16

2.3 Determinants of Bank Financial Performance 18

2.3.1 Credit Risk 18

2.3.2 Capital Adequacy 19

2.3.3 Management Efficiency 19

2.3.4 Liquidity 21

2.3.5 Bank Size 22

2.4 Empirical Review 22

2.5 Conceptual Framework 25

2.6 Summary of Literature Review and Research Gaps 26

CHAPTER THREE: RESEARCH METHODOLOGY 28

3.1 Introduction 28

3.2 Research Design 28

3.3 Target Population 28

3.4 Data Collection 29

3.5 Data Analysis 29

3.5.1 Diagnostic Tests 30

3.5.2 The Model of Analysis 32

3.5.3 Tests of Significance 33

CHAPTER FOUR: DATA ANALYSIS, RESULTS, AND FINDINGS 34

4.1 Introduction 34

4.2 Response Rate 34

4.3 Diagnostic Tests 34

4.3.1 Normality Test 35

4.3.2 Homoscedacity Test 35

4.3.3 Test for Multicollinearity 36

4.3.4 Tests for Autocorrelation 37

4.3.5 Unit Root Test 37

4.3.6 Test for Random and Fixed Effects 42

4.4 Inferential Statistics 43
4.4.1 Correlation Analysis 43
4.3.2 Multiple Linear Regression 44
4.4 Interpretation and Discussion of Findings 47
CHAPTER FIVE: SUMMARY, DISCUSSIONS, CONCLUSIONS, AND RECOMMENDATIONS 51
5.1 Introduction 51
5.2 Summary of Findings 51
5.3 Conclusion 52
5.4 Recommendations 52
5.5 Recommendations for Further Study 53
5.6 Limitations of the Study 54
REFERENCES 55
APPENDICES 61
Appendix 1: List of Commercial Banks in Kenya as at 29th February, 2020 61
Appendix II: Data Collection Form 63
Appendix III: Research Data 64

LIST OF TABLES

Table 3.1: Operationalization of the Study Variables 33

Table 4.1: Shapiro-Francia Test for Normality 35

Table 4.2: Breusch-Pagan/Cook-Weisberg Test for Homoscedacity 35

Table 4.3: VIF Multicollinearity Statistics 36

Table 4.4: Unit Root Test for Financial Performance 37

Table 4.5: Unit Root Test for Non-Performing Loans 38

Table 4.6: Unit Root Test for Loan Loss Provision Coverage ratio 39

Table 4.7: Unit Root Test for Standard Risk Costs 40

Table 4.8: Unit Root Test for the Write-Off Ratio 40

Table 4.9: Unit Root Test for Liquidity 41

Table 4.10: Unit Root Test for Bank Size 42

Table 4.11: Hausman Test of Specification 43

Table 4.12: Correlation Analysis 44

Table 4.13: Panel Multiple Linear Regression 45

LIST OF ABBREVIATIONS AND ACCRONYMS

CAPM	Capital Asset Pricing Model
CBK	Central Bank of Kenya
FP	Financial Performance
GMM	Generalized Method of Moments
KES	Kenya Shillings
LLPC	Loan Loss Provision Coverage
NIM	Net Interest Margins
NPLs	Non-Performing Loans
PAR	Portfolio at Risk
RIMS	American Risk an Insurance Management Society
ROA	Returns on Assets
ROE	Returns on Equity
SRC	Standard Risk Costs
WO	Write-Off ratio

ABSTRACT

When commercial banks issue loans to their customers, there exists a risk of the client defaulting. On the other hand, when clients deposit funds in to their bank accounts and the banks issue loans, the banks may put clients' savings in jeopardy. Default by borrowers could lead to large damages for banks that might ultimately tip to massive economic anguish, which affects the whole economy. The main effect of poor-quality loans on banks is that they limit the profitability and bank financial growth. This is because poor quality loans deprive banks of the much-required liquidity that limits their capacity to make out loans to potentially viable businesses and advance credit-facilities to households. The objective of the study was to establish the effect of loan quality on the financial performance of commercial banks in Kenya. It also aimed at reviewing the increasing body of theoretical and empirical studies that have endeavoured to examine the range of magnitude and effects of loan quality on the financial performance of commercial banks. The target population was all the 42 licensed commercial banks. Secondary sources of data were employed. Panel data was utilized, data was collected for several units of analysis over a varying time periods. The research employed inferential statistics, which included correlation analysis and panel multiple linear regression equation with the technique of estimation being Ordinary Least Squares (OLS) so as to establish the relationship of the loan quality and by extension the control variables, loan loss provision coverage ratio, standard risk costs, write-off ratio, liquidity, and bank size and the financial performance of commercial banks. The study findings were that loan quality and bank size have a significant association and relationship with financial performance. Non-performing loans has a significant negative effect on financial performance whereas bank size has a significant positive effect on financial performance. Policy recommendations are made to the National Treasury and CBK to implement management control systems and adhere to a corporate governance code, as well as establishing credit risk mitigation frameworks like the Basel I and II so as to enhance loan quality and consequently financial performance of the financial institutions. Additionally, recommendations were made to commercial bank practitioners, and by extension other financial institutions practitioners and consultants to enhance loan quality and increase bank size in order to augment the financial institutions' financial performance. Further recommendations were made to the commercial bank practitioners, that the practitioners should mainly focus on loan quality and bank size in order to enhance financial performance.

CHAPTER ONE: INTRODUCTION

1.1 Background of the Study

According to Mugisha (2017), the banking sector is a major player in financial growth through financial services they offer to general public. Through the provision of financial services, banks ensure monetary and societal permanence and maintainable development of economy hence credit formation is an important role of banks. Credit creation and issuance being the core revenue generating activities for commercial banks, it however poses risks to both the bank and lender. When commercial banks issue loans to their customers, there exists a risk of loan default. Conversely, when bank customers deposit funds in to their bank accounts and the banks issue loans, the banks may put clients' savings at risk. Thus, default by borrowers could lead to huge repurcusions for banks, which may lead to bank failure and ultimately the failure the failure of the national financial system. (Bessis, 2003). The main effect of poor quality loans on banks is that they limit the profitability and bank financial growth (Karim, Chan & Hassan, 2010; Kuo et al., 2010). This is because poor quality loans deprive banks of the much-required liquidity that limits their capacity to make out loans to potentially viable businesses and advance credit-facilities to households. Karim, Chan, and Hassan (2010) argue that there are a lot of opportunities to finance viable ventures which the bank cannot exploit because its funds are held up in bad loans. As a result, the bank experiences decreased revenues, which translate to reduced financial performance (Karim, Chan & Hassan, 2010; Nawaz et al. 2012).

The study is anchored on the Capital Asset Pricing Model (CAPM) advocated by Sharpe (1964) together with Litner (1965) which demonstrates a person can attain same outcomes by getting the covariance of each asset with regards to overall market place index. This study is also anchored on the information theory developed by Akerlof (1970). The theory proposes

that there is an imbalance of information between buyers and sellers, which can lead to inefficient results in specific markets. The theory stipulates lenders ought to be checked mostly by banking organizations in terms of credit evaluation and acquisition of dependable data from potential lenders are vital in completing actual screening as showed by symmetric info theory. Finally, this study is guided by the credit risk theory, which was introduced by Merton (1974) and the theory states that a default event comes as a result of a bank's asset evolution modelled through a diffusion process containing constant parameters.

In Kenya, the banking sector has had its share of crisis in the years (1986, 1993, and 1998) which resulted to collapse of 37 commercial banks (Ngugi, 2001; Kithinji and Waweru, 2007). This crisis has been attributed by Muriuki (1998) to the big portfolio of Non-performing loans (NPLs) which was had been reported by the banks. This affected the banking sector in Kenya and more specifically the knowledge about loan quality management and it smoothened the way institutions responded to credit risk. Following the challenges encountered, the Central Bank of Kenya (CBK) came up with new measuring meant to lower the cases of loan default.

1.1.1 Loan Quality

Loan quality is denoted as the total risk associated with all the loans assets that a financial institution or an individual hold (Tsai & Huang, 1997). Banks usually use loan quality to establish the number of loans that are at financial risks and estimate the allowance to undertake for the possible losses. Loan is normally the assets that necessitate a stringent assessment of loan quality because when the borrower does not to make repayments of their obligations it can lead to rise in the non-performing assets (loans). To assess the loan quality, the risk managers mostly assigns a numerical ranking to the loans according to the level of

risk of the loans (Ombaba, 2013). Of the customers who borrow from the bank, some fail to pay back the funds. Some may make repayments for sometimes after which they default on either the interest or principal or even both. This therefore means that some loans that are advanced will become nonperforming. In reality, there is a portion of the bank's loans that becomes NPLs and it is definitely assured and an inherent risk and cost of lending (Zimmerman, 1996).

Both in the Kenyan banking sector and internationally, the issue of loan quality management is regarded to be very crucial. The Basle Committee on Banking Supervision (1997) developed a key document "Core Principles for Effective Banking Supervision", that has gained acceptance from several governors of the Central Banks of different countries, to date with twenty-five set of comprehensive core principles. A quarter of the principles are structured in way that they will address the pertinent issues of loan quality of the bank's assets. Tsai and Huang (1997) indicated that in every country across the globe, the issue of loan quality is a major worry for the financial supervisory authority. When the percentage of risk loans or risk transaction increases, this affects the loan quality, which includes earning assets such as plain loans. Loan quality is an area of bank management and it involves assessment of the bank's loans for the purpose of enabling quantifying of the size as well as the level of credit risk affiliated with its operations. It relates to the assets of a bank and concentrates on the loans quality that is the sources of earning for any bank (Khalid, 2012).

In line with the objective and the subject of the research, the study will utilize the measures of loan quality, which include; NPLs, Loan Loss Provision Coverage ratio (LLPC), Standard Risk Costs (SRC), and the Write-Off ratio (WO). Ahmad and Ariff (2007) refer to NPLs as the portion of loan values that are not serviced for ninety days and above. The LLPC ratio

indicates the banks level of protection against losses that might come in future. Thus, banks with a high ratio shows that they can be able to handle future losses in a better way, inclusive of those loses are unexpected exceeding the loan loss provision (Sangmi & Nazir, 2010). The SRC ratio is usually computed using historical data and represents long-term average real costs of the institution (Miljković, Filipović & Tanasković, 2013). The WO ratio provides the value of loans written off against the average gross loan portfolio lines (Scott & Arias, 2011).

1.1.2 Financial Performance of Commercial Banks

Financial performance (FP) is defined as the results of an organization strategies and procedures within a given time frame in economic relations. The outcomes are stated in terms of yield or losses (Heremans, 2007). Accordingly, the FP of banks is ration of degree of gains or loses of the bank in a given period (Murthy & Sree, 2003). The presentation of commercial banks is impacted by numerous factors like rivalry, financial risk, loan quality, the market share a bank controls, interest rates, the level of technology adopted by the bank, levels of regulation and the level of capital that the bank controls. The banks differ in size, capital and the quantity of branches with banks opening outlets and subsidiaries in additional nations (Alexandru et al., 2008).

The capacity of a bank attracting a clientele that can generate interest rates is fundamental to the sustainability of the firm. Thus, it is essential to determine the condition and the performance of the bank. FP of a firm is degree of organization's turnover or loses within a given time frame. It determines the capability of bank administration to make revenue by employing firm's capital at their discard. Furthermore, it displays how competently the loans of an organization are applied to make revenue. Moreover, it shows the efficacy of the

administration of an organization in making net revenue from loans of a firm (Khrawish, 2011).

Numerous approaches have been utilized to quantify FP of commercial banks. Functional and financial ratios are applied for finding the state and performance of an organization (Ogilo, 2012). Some of the ratios include; Return on Equity (ROE), Return on Assets (ROA), and Net Interest Margin. ROE entails to how much profit a firm makes equated to the whole sum of stockholder equity capitalized or established in the firm's capital structure. Khrawish (2011) states ROE is the ratio of Net Income after Taxes divided by Total Equity Capital. ROA ratio specifies the profitability of a bank, a ratio of income to its sum asset (Khrawish, 2011). Net Interest Margin measures the difference amongst interest revenue and interest cost compared the sum of their interest-bearing assets (Gul et al., 2011). The research will use ROA as a measure banks FP.

1.1.3 Loan Quality and Financial Performance

Angbazo (1997) opined that the risk of default (non-return) obligations affects the bank's net interest margins. The risk is high when the loans quality of a company is inferior compared to companies that have a stable quality. Inferior loans quality is likely to result to limitation of the potential growth in future, which will definitely affect the shareholders returns negatively. Yin (1999) stated that the bank loan quality not just influence the banks financial and operating performance yet it addition it further impacts the stability of the national financial system. Thus, the worsening of the quality of banks assets emanating from the unawareness of banks of the loan quality is the major reason that is attributed to the Asian Financial Crisis,

Zimmerman (1996) theoretically stressed on the importance of management decision more so decisions pertaining to the concentration of the loan portfolio in contributing to the performance of financial institutions. Zimmerman credited the good FP to quality management. The study measured management quality depending on the awareness and control of the senior officers of the policies and performance of the banks. Yin (1999) indicated that among the major reasons that lead to the Asian Financial Crisis was the deterioration emanating from a massive abandonment of the credit issuing evaluation. Tsai (1999) noted that as per a survey by Standard and Poor on the banking system of 61 nations across the globe, Taiwan's banking system was found to be fragile and that attention ought to be drawn to loan quality management when banking system is fragile and this would ensure that the banking industry is developed in sound manner

The subject of bank loan quality is quite popular in most literatures in banking as many scholars and researchers concur on the fact that amidst any bank being considered bankrupt, mostly there is large portion of loans that is non-performing exists as banks assets quality is and indicator for the liquidation of banks (Demirguc-Kunt, 1989; Whalen, 1991). Likewise, from an examination of financial institution production efficiency it has been established that in comparison to efficient financial institutions, normal financial institutions have relatively smaller profits and higher costs with noticeable signs of inefficient output such as brokerage problems, corporate governance issues, foreign ownership factors and acquisition (Berger et al., 1993).

1.1.4 Commercial Banks in Kenya

Companies Act, Banking Act, Central Bank of Kenya, and rules given by the CBK regulates the Banking sector in Kenya. CBK is accountable for making and execution of financial

policies and developing liquidity, creditworthiness and correct working of the monetary system. Banks are financial establishments that are licensed by the CBK to take deposits and give credit facilities to customers (Githaiga, 2015). There are 41 commercial banks and one mortgage monetary organization in Kenya as at 29th February, 2018. Twenty-nine of them are locally owned, while 13 are foreign owned.

In the quest of ensuring loan quality in the banking sector in Kenya, the government has indeed made substantial changes in the past decades to the Banking Act (Cap 488) as well as to the Prudential Guidelines so as to strengthen the provisions relating to licensing of banks, capital adequacy, classification of loans in terms of risks, risk management in general and even corporate governance (Thorsten et al, 2009). Because of the solid accentuation on the loan quality, going back in the year 2001 when the NPL ratio was at its peak at 22.6%, banks have been subjected to strict watch and requirements for the sake of making sure that ratios remain at the acceptable levels hence leading to enhance loan quality of the loan portfolio and even more the profitability levels (Oloo, 2013).

On the contrary, commercial banks in Kenya have continually reported impressive and improved FP over the last decade in spite of the NPLs levels increasing that has led to the worsening of the loans quality that largely entail loans and advances. This pattern is however conflict with the anticipated negative correlation. This area of research on the relationship between the loan quality and FP of commercial banks in Kenya has very little empirical research; thus justifying this study.

1.2 Research Problem

Provision of credit to clients is a vital undertaking of commercial banks hence the significance of loan quality management in these establishments. Weak loan quality administration is the main source of numerous banks' failure (Bhattacharya, 1993). Mc Menamin (1999) and Hempel et al. (1994) did a research on banks that were unsuccessful in the USA in the 1980s and established that the steady component in their failure was shortage of bank's loan quality management procedures in regulating of loan value. Financial risks encountered in businesses are as a result of the environment in which they operate in. The environment of operation is comprised of the infrastructure, the customer complexity not forgetting regulations. Even though credit risk originates from the composition of customers, the approach adopted by the institution in ensuring its successful management determines the complexity of the risk and the capability of managing it. Evidently, prudent administration of loan quality would enhance productivity of banks. In addition, since prudent loan quality management means fewer banks would collapse due to bad loans; clients with deposits in the banks would also benefit (Babbel & Fabozzi, 1999).

From the experience that Kenya have had with the financial reform process since the financial liberalization in 1993, the NPLS have been having continuously being growing which has acted as a barrier of the financial sector development and as a result contributing adversely on the growth of the Kenyan economy. Efforts by CBK through fiscal policies have played a big role in stabilizing the market though at times, these intervention results to unexpected developments in the banking sector. For example, the private sector credit annual growth seemed to stagnate at 20.47%, in January 2014 in comparison to 20.08% in December 2013 (FSD, 2014). As per the CBK supervision Report (2014) NPLs have been growing exponentially from KES 56 Billion in 1997, to KES 83 Billion in 1998 to KES 97 billion in

1999 and the latest figures stand at KES 329.7 billion in 2019. This issue of high level of NPLs remains a main supervisory challenge in Kenya.

The FP of Kenyan commercial banks have been increasing despite the fact that the level of NPLs has been increasing. Due to the theoretical foundation on effects that loan quality has on the commercial banks FP, it has been quite a task on the management of commercial bank to monitor loan quality closely. Several researchers have concurred that the high NPL ratios are frequently related with both failures of banks and financial crisis in not only developing countries but also developed countries (Caprio & Klingebiel, 2002). Thus, there is no doubt that loan quality is interrelated to FP, which generates the need to determine the nature and significance of the relationship.

Numerous studies have been undertaken both internationally and locally pertaining to loan quality and FP. Globally, Khalid (2012) investigated how loan quality related with operating performance of the private commercial banking sector in India. From the finding of the investigation, it was revealed that a deterioration of banks loans quality leads to utilization of additional resources from a bank in conducting non-value added activities that result to poor performance. This study concentrated on operating performance instead of FP thus presenting a contextual gap. Angbazo (1997), Athanasoglou et al. (2008) and De young and Rice (2004) established a positive relationship amongst loans quality which was measure by reduction in doubtful loans, reduction in impairment losses, reduction in NPLs and increment in receivable. Generally, a healthy balance sheet structure and the effectiveness of credit management inclines to enhancing the profitability of banks. These studies were not conducted in the Kenyan context thus presenting a conceptual gap.

Anjili (2014) did a study to establish the factors that affected assets and liability management of commercial banks in Kenya which are related to FP. It was indicated from the findings that a minimal decline in the operational efficiency might result to a huge decline in the profits and further it was revealed that growing income diversification translates to better FP holding other factors constant. Ongore and Kusa (2013) did a similar study of factors that influence the commercial banks of Kenya FP and revealed that asset quality significantly influence the banks performance. Finally, Gatuhu (2013) investigated factors associated with management of credit effects on finances performance on microfinance organizations in Kenya and discovered a strong positive correlation between credit risk control and collection, MFIs performance and client appraisal and concluded FP in MFIs is significantly influenced by policy client appraisal, credit risk control and collection. The studies did not focus on the effect of loan quality on FP thus presenting a contextual gap.

Numerous researches done pertaining to the relationship between loan quality and bank FPs focus on one aspect of loan quality; NPLs, while incorporating other firm, industry, and macro factors as control variables (Khalid, 2012; Athanasoglou et al., 2008; Angbazo, 1997; De Young & Rice, 2004; Anjili, 2014; Ongore, 2013; Gatuhu, 2013). Thus, the studies have not endeavoured to establish the effect of the differing loan quality measures on FP. Accordingly, there is a need for a study that includes all the loan quality measures. Consequently, this research seeks to fill the research gaps and answer the research question: what is the influence of loan quality on FP of commercial banks in Kenya?

1.3 Research Objective

The objective of this research was to establish the effect of loan quality on the financial performance of commercial banks in Kenya.

1.4 Value of the Study

Loan quality is of great significance to banking stakeholders, government as the industry regulator, investors and scholars. To the scholars; the study will provide a useful basis that future research on loan quality administration activities in the financial sector are done. The study's findings will make additions to the existing body of knowledge on FP as confronted by the impact of the introduction of aspects of loan quality. This study will advance both the researcher's knowledge of risk administration as well as the community henceforth gaining experience to the industry. The study findings will be applied as referral by later scholars' keen in research on credit risk administration and its impact on FP of banks. The research output will be a source of important literature amongst the variables under study on the policies and theories that inform them. The study methodology employing inferential statistics that involve correlation analysis and multiple linear regression will be useful to scholars that may be keen on analyzing complex relationships between the variables.

To officials and policy creators, this study provides ground for controlling strategy outline to alleviate financial system from economic crises and to recommend and count those credit threats arising from loan quality. The regulator of commercial banks, the CBK, the government, and policy makers would gain valuable information on effects of loan quality on banking sector revenue. The study would be beneficial to the government in policymaking pertaining financial regulation. Policy makers would as well learn the challenges and loopholes in their current regulatory framework and how it is affecting the operations of the banking sector. The findings will assist the regime in strategy formulation concerning taxation and other controlling necessities of the banks.

The study is important to banking sector shareholders, consultants, and commercial banks administration, it will provide an overview into correct loan quality management practices and how they can result to increase performance in the sector. The study will contribute to managerial practice on services offered by commercial banks, banks' loan quality aspects, and aligning banks to these aspects and managerial practices. Essentially all managerial practice should get to above average and lead to establishment of a proper link between loan quality and bank specific factors to ensure that banks do not end up in failure. It would be of importance to banking sector in Kenya and stakeholders in understanding the effects of loan quality on FP, thus enhancing implementation of the loan quality management process so as to enhance performance of the banks and service delivery hence maintain the bank as a going concern, enhance customer confidence, and most importantly increase revenue. The management would have the ability to make informed decisions regarding management of loan quality

CHAPTER TWO: LITERATURE REVIEW

2.1 Introduction

The section contains relevant literature relatable to this research. It entails theories that underpin the research, empirical evidence together with the determinants of financial performance. A conceptual framework is also presented in this chapter.

2.2 Theoretical Background

A theory is created to identify, elaborate, and comprehend certain phenomenon and in other instances, to challenge the present knowledge on this within the brackets of present bounding assumptions. A theory entails many concepts brought together and existing approaches used for a particular study. The theories to be utilized in the study are the; Capital Asset Pricing Model (CAPM), information asymmetry theory, and credit risk theory. CAPM demonstrates a person can attain same outcomes by getting the covariance of each possession with regards to overall marketplace index. The information asymmetry theory stipulates being an imbalance of information amongst buyers and sellers, which can propel to unproductive results in specific marketplaces and that lenders ought to be checked mostly by banking organizations in terms of credit evaluation and acquisition of dependable data from potential lenders are vital in completing actual screening. The credit risk theory states that a default event comes as a result of a bank's asset evolution modelled through a diffusion process containing constant parameters.

2.2.1 Capital Asset Pricing Model

The Capital Asset Pricing Model (CAPM), was advanced independently by Sharpe (1964) and Lintner (1965), is a model that depicts the link amongst the anticipated return together with risk inherent in a security. It exhibits that the anticipated yield of a security is equal to

the risk-free yield as well as a risk premium, which is established on the security's beta. CAPM is a model utilized to establish a theoretically suitable required rate of return of a security in order to decide on adding more assets to a well-diversified portfolio. It describes the link amongst risk that systematic together with expected return for assets, precisely equity securities. Thus, CAPM is broadly utilized throughout money for valuing risky securities together with generating expected returns for securities given their risk and the minimum required rate of return to investors.

Sharpe (1964) and Lintner (1965) resolved this problem when they highlighted how one could get equal outcomes by just calculating the statistical data of every asset about a standardized market indicator. By using required calculating power reduced to computing terminology, optimal portfolio selection became numerically viable. The CAPM shows the start of the theory of asset pricing. Before their breakthrough, no asset pricing frameworks started from first tenets, tastes, and investment ideas, and with precise, accessible predictions relating to risk and return. Forty years later, this model is still useful in apps, like evaluating the results of managed holdings and identifying the cost of equity for organizations. The strength of the framework lies in its simplicity and ease of use; its logic enables one to create accurate predictions that measure risk. It also displays the correlation amidst potential risk and anticipated gains. However, the model of the record is inferior because of its simplicity. It is so weak that it is not useful in many applications. These practical problems reflect the failings of the model. However, gaps of the actual tests, most notably, inaccurate speculations of the marketplace portfolio of capitalized assets, also play a part in the model's speculations. Despite this, it states, that if the securities' problems nullify trials of the framework, it in addition nullifies most apps, that mostly take the marketplace proxies used in observational tests as per Lintner (1965).

CAPM is relevant to this study because the framework can be able to relate loan quality and returns of commercial banks. The asset by asset method is an essential aspect of handling risk in credit. However, it fails in provision of a wholesome angle of framework credit review, where risk denotes the chance of real losses exceeding expected losses. To gain better knowledge of loan quality and FP, commercial; banks are progressively aiming on complementing this method with a quantitative framework evaluation while implementing a credit simulation as per Mason and Roger (1998). Commercial banks are progressively trying to counter the ineffectiveness of this approach in measuring unexpected losses by following a portfolio approach. The problem of this approach is that it creates hardship in establishing and measuring density. This risk denotes increased portfolio risk that results from enlarged credit postponement exposure, or to a group of other creditors as per Richardson (2002).

2.2.2 Information Asymmetry Theory

Akerlof (1970) propagated the theory of asymmetric information. This theory suggests that there is an imbalance of information amongst purchasers and sellers, which could result in incompetent results in specific marketplaces. In the landmark 1970 paper entitled "The Market for 'Lemons': Quality Uncertainty and the Market Mechanism", Akerlof (1970) opined that “buyers have a different set of information to sellers, thus providing the sellers with an incentive to put on the market less than average market quality products”. Akerlof (1970) utilizes the colloquial word ‘lemons’ as a reference to ‘faulty vehicles’, espousing a belief that “buyers cannot effectively set apart ‘lemons’ from good vehicles”. Therefore, “sellers of good vehicles cannot obtain above average market prices”. Spence (1973) made additions to the theory by “modelling workers as doubtful investments that enterprises make. The employer is uncertain of the productive capacities when hiring, akin to a lottery.” Spence (1973) identified info asymmetries amongst workers and the workforce, resulting in scenarios

where “low-paying occupations generate an unrelenting equilibrium trap, which dampen the raising of wages in specific markets”.

Stigler (1961) utilized the asymmetric information theory in the general…equilibrium models to illustrate negative externalities that price out the bottom of markets. Thus, the uncertain health insurance premium necessary for risky persons results in all premiums rising and consequently forcing less risky persons to move from their preferred insurance policies. Murphy suggested that government intervention can thwart prices from accurately depicting known information, thus resulting into market failure. However, Bond (1982), Cawley and Philipson (1999), Tabarrok (1994), and Ibrahimo and Barros (2010) found no evidence of asymmetric information problems causing market failure.

The theory is relevant to the current study because it involves information asymmetry between buyers of the loan service (banks) and sellers (borrowers), which may lead to less than average market quality products (loan quality) inefficient results in specific markets (declining bank financial performance). The banks are uncertain of the repayment capacities of borrowers when lending, thus causing a variance in loan quality, which consequently leads to, decreased financial performance.

2.2.3 Credit Risk Theory

Merton (1974) introduced the credit risk theory and the theory states that “a default event comes as a result of a bank’s asset evolution modelled through a diffusion process containing constant parameters”. The models are referred to as “structural models” which are based on “variables specific to a particular issuer”. An evolution of this category is represented by “asset of models where the loss conditional on default is exogenously specific”. There are

three quantitative techniques of analyzing credit risk, they include; structural approach, reduced form appraisal, and incomplete information approach (Crosbie et al., 2003). This theory is an advancement to traditional actuarial techniques of credit risk, whose key complexity was their absolute reliance on historical data.

One of the unrealistic assumptions in the original credit risk theory model was the assumption that the value of a corporation could increase to illogically high levels or decrease almost to zero without having a reorganization of the corporation's financial arrangements. This assumption generates smaller credit spreads than the actual ones (Black & Cox, 1976). This is not realistic because a default normally happens way before the firm value falls to zero, which could regularly occur before the debt maturity (Longstaff & Schwartz, 1995). Black and Cox (1976) considered the credit risk theory model with the eventuality that a financial restructuring would happen prior to maturity of the debt. The study suggested that, if the entity's value process attains a definite boundary, the securities of the firm would attain a particular value.

The theory links to the current study because the framework can be able to relate loan quality and returns of commercial banks. The theory stipulates that loss conditional on default is exogenously specific, thus conditions of the borrower, which are not specific the bank, can lead to deteriorating loan quality and consequently declining financial performance. The evolution of borrowers' characteristics is thus independent of the bank and can lead to decline in loan quality.

2.3 Determinants of Bank Financial Performance

This section will elaborate on the various determinants of bank financial performance. These are; credit risk, liquidity, capital adequacy, management efficiency, and bank size.

2.3.1 Credit Risk

In any lending business, default risk is eminent where either the whole or part of the amount of loan granted is not repaid according to the loan terms. The Basel Committee on Banking Supervision (2006) describes default risk as an investor's likelihood of suffering losses due to a borrower not making payments as promised. The committee further defines default risk as the possibility that a borrower or counterparty could default on his or her commitments according to the terms agreed on. Generally, default risk may alternatively be referred as the chance that the actual return on an investment or credit advanced may vary from the expected return (Conford, 2000). Also, Coyle (2000) refers to default risk as losses incurred as a result of the refusal or inability of borrowers to make full and timely payments of amounts owed, thus making the disbursed loan to be attributed as non-performing.

According to IMF (2009); a NPL is any credit advancement that interest and principal payments are in arrears for a period greater than three months, or more than three months' worth of interest has been refinanced, capitalized, or deferred by agreement or on the other hand installments are not yet three months past due however are not, at this point foreseen. IMF (2009) further defines an NPL as a loan whose maturity date has passed, but there is still part of the amount lent that is overdue. Ahmad and Ariff (2007) refer to NPLs as the proportion of loan values that have not been repaid for ninety days and more.

2.3.2 Capital Adequacy

Athanasoglou, Brismiss, and Delis (2013) define this as quantity of funds that can sustain the banks whenever required, and act as a security in bad situations that may occur. The ratio of capital adequacy determines internal capacity and stability of the bank to survive losses in a bad period. It also assesses the assets of the banks, which are owner-funded. It also measures certain ratios. Well-capitalized banks are in a better position of meeting the capital requirements as stipulated by the central bank. This provides an avenue for any excess capital to be issued as loans. In cases of a general financial crisis, banks with a high capital ratio tend to face a relatively lower financial difficulty (Dang, 2011).

According to CBK (2013) Prudential Guideline, the minimum adequate capital regulatory required, is calculated as the Core Capital and Total Capital to Total Risk-weighted Assets ratio and is 8.0% and 12.0% correspondingly. This is the amount that is needed by banks to survive loss in credit; market and operational losses that they are exposed to and absorb the potential loses while protecting debtors.

As stated by Dang (2011), availability of funds is weighted on the how much capital is adequate. Capital adequacy ratio showcases the internal ability of the bank to perservere losses during in a low-season. The rate is correlated to the strength of the bank in disasters. It also affects how banks profit by assessing its growth to other risky areas (Sangmi & Tabassum, 2010).

2.3.3 Management Efficiency

This is a core factor which influence how the performance of commercial banks is perceived. It is shown by financial ratios like loan growth rate, rate of growth of assets, and rate of

growth of earnings. Management efficiency, also which in turn reflects commercial banks' performance, is often expressed qualitatively, by assessing the control systems, management of operations, quality of staff, and organizational discipline. Ratios are useful for measuring management efficiency since it is only the operating expense that can be directly associated with the outcome of bank management (Athanasoglou, Brismiss & Delis, 2013). Where there is improved management, the efficiency level tends to increase, leading to more profits hence improved performance (Ireland, 2016).

Commercial banks incur some expenses when advancing loans, as well as while undertaking their various other operations. The interests charged on loans are intended to allow the banks to recoup these costs, along with the profits (Ireland, 2016). A bank that has high operational costs, which can be attributed to management inefficiency, may choose to increase the interest charged on its loans. Such an approach, however, could end up pushing away potential borrowers who would then consider alternative financing options (Muiruri, 2014).

The measure of management efficiency is a subjective process and is usually qualitative. An evaluation of the control systems, management systems, and the culture of the organization can quickly help determine the efficiency of the management (Nampewo, 2015). Calculation of critical financial ratios can also help gauge the effectiveness of the administration. The ratios include the growth of assets, growth of loans as well as earnings rates (Nampewo, 2015). Ratios are used as a proxy for measuring the capacity of administration of deploying the bank's assets resourcefully to maximize income.

An increase in any of the above ratios signifies the management's ability to deploy resources effectively to the benefit of shareholders. Shareholders are in a better position to appraise

their agents on the above parameters since they are bank specific and are not subject to influence by any external factors. The above metrics are considered objective in analyzing and appraising the bank's managers. According to Muiruri (2014), recent trends in the country have seen commercial bank executives being dropped due to perceived non-performance after the board of directors used the above metrics to appraise their performance.

2.3.4 Liquidity

According to CBK (2007), liquidity is an entity's ability to meet its duties when it is expected. It is evaluated by the ratio of deposits to net liquid assets and short-term liabilities. Liquidity is how commercial banks to meet their duties as and when it is required. Consequently, banks with relatively high levels of liquidity are in a better position of financing their daily operations such as lending to borrowers and offering cash for withdrawals. Liquidity is measured in various ratios such as client deposits to combined assets, and the cash to deposit ratio (Nyanga, 2012). The liquidity in the banking sector remained strong as in the previous years. Averagely, financial institutions in Kenya had a liquidity ratio of 41%, which is more than the minimum required (CBK, 2007).

Thus, liquidity is a critical factor in determining how a bank performs. The bank can fulfill its duties, mainly by bank depositors. As stated by Dang (2011), the depth of liquidity is positively related to profitability of the bank. One of the economic rates that reflects the liquidity position is client deposit to combined asset and total loan to client deposits. Liquidity is also measured using various economic rates. Ilhomovich (2009), for instance, employed the cash to deposit ratio in measuring Malaysian banks liquidity levels. Conversely, a study done in China and Malaysia revealed that there was no correlation between the liquidity level of banks and their performances (Said & Tumin, 2011).

2.3.5 Bank Size

The size of the bank determines how the bank would perform. Large banks are at a better position of undertaking considerable investments in technology, which can increase the efficiency levels of banks. The customer base also improves, resulting in increased deposits which provide banks the capacity to offer more loans. This leads to better performance compared to small banks (Bakker, Schaveling, & Nijhof, 2014). Bakker, Schaveling, and Nijhof, (2014) further stated that big banks attract low-priced sources of finance and competitively advance to debtors at significant margins whereas lesser banks were required to extravagantly pay for credits due to acuity that creditors are threats thus needful a high return for the risk undertaken.

2.4 Empirical Review

Khalid (2012) investigated how asset quality related with operating performance of private commercial banking sector in India. From the finding of the investigation, it was revealed that a deterioration of banks assets quality leads to utilization of additional resources from a bank in conducting non-value added activities that result to poor performance. The study was done for the period 2006-07 and 2010-11 where the collected actual data of sample banks. Regression analysis was done where they got the score which revealed a negative relationship of quality of assets and profitability. It was also expounded that because of the numerous banks in India that led to declining profit level, huge appetite for risks and worsening assets quality triggered by pernicious competition, it resulted to banks runs. Asset quality was found to not just to have an influence on a banks operating results and financial condition yet in addition the stability of the banking system in whole.

Louzis, Vouldis, and Metaxas (2010) aimed on examining the determinant of NPLs in the Greek banking sector. To accomplish this, they utilized dynamic panel data method separately for each loan category, which include business loans, consumer loans and mortgage loans. The study established that both macroeconomic factors and specific factors of individual banks impacted the credit quality and that the impact was different amongst the various loan categories.

Klein (2013) likewise examined specific determinant which influence the loan quality at the bank's individual level, Industry level and macroeconomic level. The study was done in the timeframe 1998-2011, covered the region Central, Eastern and South-Eastern Europe (CESEE), and associated the Levels of NPLs to both individual bank specific factors and macroeconomic conditions. Some of the macroeconomic conditions which influences the NPLs level includes growth in GDP, inflation, unemployment among others. Additionally, the investigation showed that solid criticism impacts from the banking system on the actual economy, which is apparent from the CESEE nations that experience high NPL levels contrarily, sway the speed of economic recovery.

Athanasoglou et al., (2005), utilized Generalized Method of Moments (GMM) approach to a panel data, which was collected for the time frame 1985-2001. It was discovered from the findings that the profits of banks in Greek for the period of study declined as the credit risk exposure increased. In another study by Staikouras and Wood (2004), multiple regression was utilized. Descriptive statistics and correlation coefficients were also used. The study findings revealed than loans loss provisions to total loans significantly and negatively influence the profitability of Europeans banks.

Angbazo (1997) examined whether banks that had loans that are riskier and greater interest rate exposures determines the choice of either passive or active interest rate in order to attain greater Net Interest Margins (NIM). The study period was between 1989-1993. The findings of analysis the various bank classes, depending on the bank size revealed that default risk of loans and the premium interest rate risk is reflected in the NIM of banks. In the case of the big banks, NIM is affected by the default risk only which is in line with a higher number of their investment in a diversified portfolio of security and off balance hedging instruments. Contrary to the big banks, regional banks are affected by the interest rate risk as opposed to default risk. From the data it is shown that off balance hedging instruments advantage investment which are both more profitable and diversified than deposit and capital financing what's more the variance amongst the different bank classes in the interest rate risk varies and the liquidity risks are in reality related to the variance in exposure to off-balance hedging instruments.

Adeolu (2014) did an investigation of bank performance and asset quality on Nigerian commercial banks. With the aid of SPSS, he analysed the data using Pearson correlation and regression analysis and discovered a strong positive relationship and effect of quality of assets on the FP of the banks.

Locally, only little research work has been done on impacts on profitability caused by asset quality, which is why this study endeavour to bridge the gap. Kiganda (2013) investigated impacts on profitability of commercial banks concentrating on Equity Bank Limited in Kenya caused by macroeconomic factors. The study established that FP on most commercial banks are affected by the management and the board‘s decision. Gatuhu (2013) investigated the impact on FP by credit management on microfinance organizations in Kenya. The study

discovered a strong correlation between credit risk control and collection policy, FP of MFIs and customer appraisal. Conclusions were that FP of MFI are influenced by appraisal of client, credit risk control and the collection policy.

Anjili (2014) did a study to establish the factors that affected assets and liability management of commercial banks in Kenya, which are related to FP. It was indicated from the findings that a minimal decline in the operational efficiency might result to a huge decline in the profits and further it was revealed that growing income diversification translates to better FP holding other factors constant. Ongore and Kusa (2013) did a research aimed at determining the bank specific as well as macro economic factors affecting the financial performance of commercial banks operating in the Kenyan market. The research analyzed a panel data for 37 commercial banks for the period of 2001 to 2010, the panel data was analyzed by utilizing the multiple linear regression model. The study exhibited that the financial performance of Kenyan commercial banks is significantly impacted by asset quality. The findings further establish that they had a negative relationship.

2.5 Conceptual Framework

Rocco and Plakhotnik (2009) stipulate that a conceptual framework lays the foundation for research objectives and questions by grounding a study in the right knowledge constructs. The independent variables in this study were measures of asset quality, which include; Non-Performing Loans Ratio (NPLs), Loan Loss Provision Coverage ratio (LLPC), Standard Risk Costs (SRC), and the Write-Off ratio (WO). The bank FP will be the dependent variable.

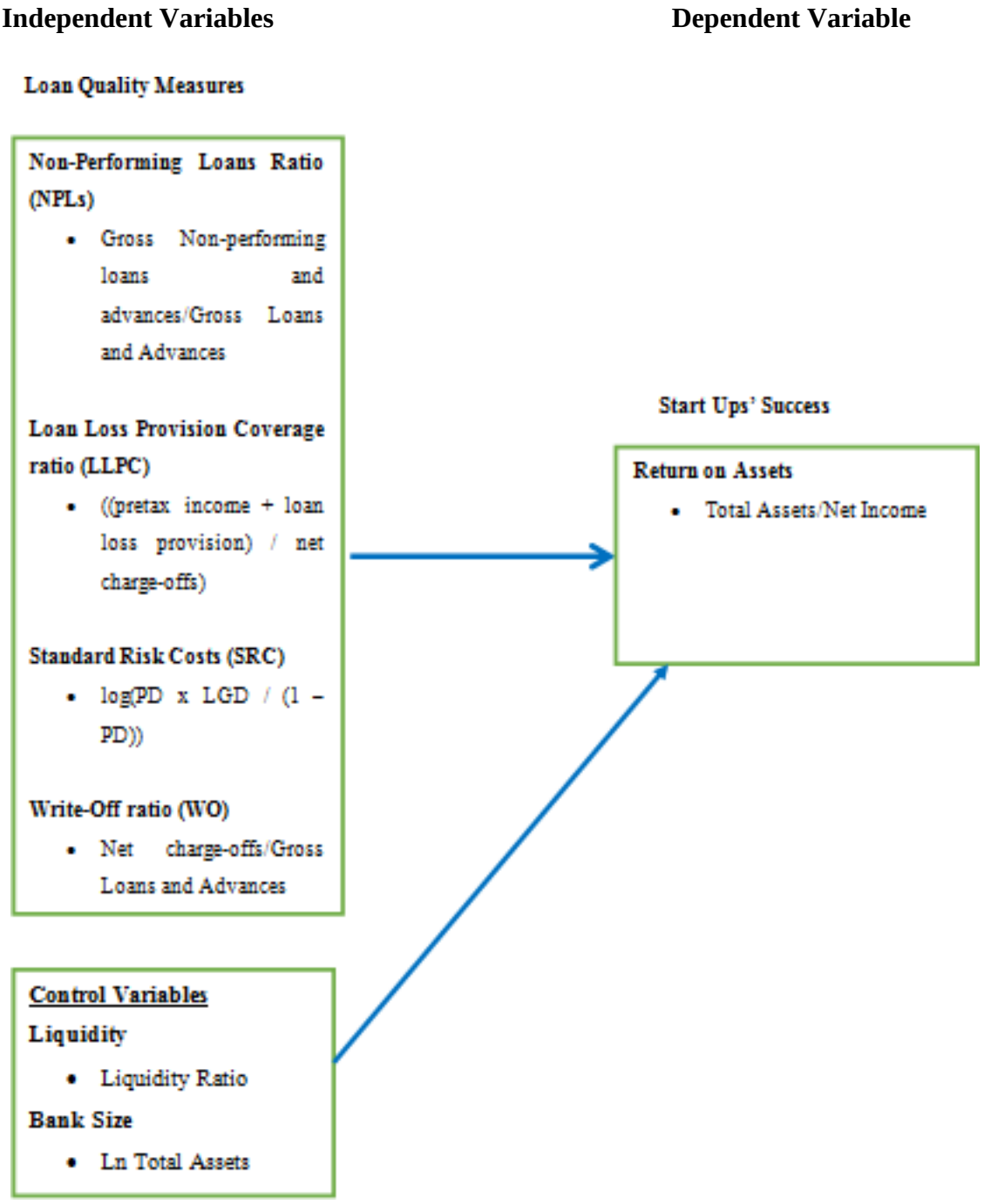

Figure 2.1: Conceptual Framework

2.6 Summary of Literature Review and Research Gaps

In general, in almost all the literature that have been reviewed, it is clear that loan quality is a key aspect in optimizing the profits of financial institutions. Additionally, effective loan quality assessment procedures entail creating a conducive environment and operations

framework to measure and evaluate credit risk. It would ensure that credit risk is well handled and a proper structure for credit granting is in place. It involves risk identification, analysis and evaluation processes to create the right controls over risk.

In terms of gaps, several gaps were unearthed, which warranted this study. There is a conceptual gap in all the studies reviewed in this research because they did not analyze the various measures of loan quality and how they impact on bank profitability. There is a conceptual gap in the studies conducted by Louzis, Vouldis, and Metaxas (2010) and Klein (2013) because it analyzed the determinants of NPLs and it did not investigate the effect of loan quality on bank profitability.

There is a contextual gap in the studies conducted by Khalid (2012), Louzis, Vouldis, and Metaxas (2010), Klein (2013), Athanasoglou et al., (2005), Staikouras and Wood (2004), Angbazo (1997), and Adeolu (2014) because they were not conducted in the Kenyan context. There is also a contextual gap in the study conducted by Gatuhu (2013) which investigated the impact on FP by credit management on microfinance organizations in Kenya. The current study will focus on commercial banks and not microfinance institutions. There is a methodological gap in the study conducted by Athanasoglou et al., (2005), which applied GMM. The current study will apply correlation and multiple linear regression analysis.

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction

This chapter will discuss the study methodology that will be used. This chapter contains several sections, which includes research design explaining the design applied, data collection to explain procedure for gathering data, the population, and the data analysis methods to be applied.

3.2 Research Design

The research applied a causal research design because it sought to find out the cause and effect association amongst variables. Thus, this design was utilized because it addressed the aim of research in examining the association amongst variables of the research. The study was a formal study because it employed relevant theories and literature to guide it. It was also an ex post facto study because the variables were not manipulated but simply measured. It was a field setting with the unit of analysis being the country. This design took into account aspects like method of analysis, the variables used in the research, and data gathering methods (Polit & Beck, 2013).

3.3 Target Population

Zikmund et al. (2010) describe population as all the elements in a study. The population tends to have similar characteristics. Grabich (2012) posits that a set of people, events or elements that are studied with an aim of giving a response to the research questions is referred to as a study population. All the 42 licensed commercial banks, whose list is provided in Appendix I, formed the population in this study. The study is a census because the whole population was examined.

3.4 Data Collection

The process of gathering data is critical as it ultimately impacts on the authenticity of the results. In this regard, the researcher will utilize secondary data. In particular, the investigator relied on data provided by CBK, which highlights quarterly data, as well as bank supervision reports, for banks in Kenya. The researcher also supplemented the information with that obtained in the published individual bank's financial accounts. The study gathered annual data for a five-year period, from 2015 to 2019. Information on net income, total assets, gross non-performing loans, gross loans advances, net charge-offs, loan loss provisions, and liquidity was collected for the period. The data was obtained from CBK reports and the published financial statements of the individual banks.

3.5 Data Analysis

Data that was gathered was organized, tabulated and simplified so as to make it easier to analyze, interpret and understand. Because panel data was employed for the study, STATA version 13 was the statistical analysis program utilized for the study because it is able to perform panel linear regression. Correlation analysis was used to show whether and how strongly changes in loan quality is related to FP while regression analysis was employed to determine the association amongst loan quality and FP. The quantitative reports obtained from the investigation was presented using tabulations.

The study adopted a confidence interval of 95%. The results were set to be statistically significant at the level of 0.05, which indicates that the significance figure should be less than 0.05. A statistical inference technique was used in making conclusions relating to the accuracy of the model in predicting the loan volumes. The model significance was tested using the significance values at 95% confidence. The meaning of the association amongst

every predictor variable to the response variable was determined by the significance values. T-test was also done in establishing the significance of individual co-efficient while F-test was likewise done in establishing the noteworthy of the overall model.

3.5.1 Diagnostic Tests

For the validity of regression analysis, a number of assumptions are done in conducting linear regression models. These are; no multi-collinearity, observations are sampled randomly, conditional mean ought to be zero, linear regression model is "linear in parameters", spherical errors: they include homoscedasticity together with no auto-correlation, and the optional assumption: error terms ought to be distributed normally. According to the Gauss-Markov Theorem, the first 5 assumptions of the linear regression model, the regression OLS estimators, are the Best Linear Unbiased Estimators (Grewal *et al*., 2004).

The aforementioned assumptions are of great importance since when any of them is violated would mean the regression estimates will be incorrect and unreliable. Particularly, a violation would bring about incorrect signs of the regression estimates or the difference of the estimates would not be reliable, resulting to confidence intervals that are either too narrow or very wide (Gall et al., 2006).

The diagnostic tests are conducted so as to guarantee that the assumptions are met to attain the Best Linear Unbiased Estimators. Regression diagnostics assess the model assumptions and probe if there are interpretations with a great, unwarranted effect on the examination or not. Diagnostic examinations on normality, linearity, multicollinearity, and autocorrelation were done on the collected data to establish its suitability in the formulation of linear regression model. Normality was tested by the Shapiro-Francia test, which is suitable for testing distributions of Gaussian nature which have specific mean and variance. Linearity

indicates a direct proportionate association amongst dependent and independent variable such that variation in independent variable is followed by a correspondent variation in dependent variable (Gall et al., 2006). Linearity was tested by determining homoscedasticy, which was determined by the Breusch-Pagan Cook-Weisberg Test for Homoscedacity.

Tests for multicollinearity of data was carried out using variance inflation factors (VIF) to determine whether the predictor variables considered in the research are significantly correlated with each other. According to Grewal *et al*. (2004) the main sources of multicollinearity are small sample sizes, low explained variable and low measure reliability in the independent variables. Auto-correlation test was carried out through the Durbin-Watson Statistic.

Additionally, to avoid spurious regression results unit root test was carried out on the panel data. The aim of conducting unit root test is to check whether the macroeconomic variables under study are integrated of order on (1, 1) or not before estimation procedure can be proceeded into. Unit root test was carried out through the test of Fisher-type unit root. The study also utilized the Hausman requirement test to ascertain if the factors used in the study posses fixed effect overtime or if they have changing together with random effect over time. The null hypothesis is that that the variables have a random influence and the alternate hypothesis is that the variables have a fixed effect. If the significance figure is less than α (0.05), the null hypothesis will consequently be rejected and if the significance value is greater than α (0.05), the null hypothesis will not be rejected.

3.5.2 The Model of Analysis

The objectives of the research were attained through use of a multiple linear regression analysis, which tested whether predictor variables have any effect on loan volume. The statistical tests were conducted at 95% significance level meaning that the study allowed for an error of up to 5%. The model is illustrated as shown;

$$Y = \alpha + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + \epsilon$$

Where:

Y = Financial Performance of Commercial banks denoted by ROA

α = Constant

$\beta_1 - \beta_4$ = Beta coefficients

X_1 = Non-Performing Loans Ratio

X_2 = Loan Loss Provision Coverage Ratio

X_3 = Standard Risk Costs

X_4 = Write-Off Ratio

X_5 = Liquidity Ratio

X_6 = Logarithm of Total Assets

ϵ = error term

Table 3.1: Operationalization of the Study Variables

Variable	Measurement
Return on Assets	Return on assets is calculated as; Net Income/Total Assets (Khrawish, 2011).
Non-Performing Loans Ratio	Gross Non-performing loans and advances/Gross Loans and Advances (Conford, 2000).
Loan Loss Provision Coverage ratio	((pre-tax income + loan loss provision) / net charge-offs) (Sangmi & Tabassum, 2010).
Standard Risk Costs	Log (PD x LGD / (1 – PD)) (Lin, & Gou, 2006). where; PD is a default probability (Non-Performing Loans/Total Loans) LGD is a loss-given default (Provision for Loan Loss/Total Loans)
Write-Off Ratio	Net charge-offs/Gross Loans and Advances (Daumont et al., 2004).
Liquidity	Current ratio defined by Central bank as; (liquid assets / (deposit liabilities, matured and short-term liabilities) will measure this (Tariq et al., 2014).
Bank Size	Natural logarithm of average book value of entire assets of a bank during the period (Munyambonera, 2011).

3.5.3 Tests of Significance

The study adopted a confidence interval of 95%. The results were set to be statistically significant at the level of 0.05 , which indicated that the significance figure should be less than 0.05. A statistical inference technique was used in making conclusions relating to the accuracy of the model in predicting the market capitalization. The model significance was tested using the significance values at 95% confidence. The meaning of the association amongst every predictor variable plus response variable were also reliant by the significance values, which illustrates how much standard error indicated that the sample deviates from the value that were tested.

CHAPTER FOUR: DATA ANALYSIS, RESULTS, AND FINDINGS

4.1 Introduction

This section outlines information with regards to data analysis, data interpretation together with the discussions of the results and findings. The chapter is divided into four sub sections, which entail diagnostic tests, inferential statistics, and interpretation and the arguments regarding the research findings. Specifically, this section reviews the platform for information presentations, analysis, interpretations, together with discussions.

4.2 Response Rate

All the 42 licensed commercial banks, whose list is provided in Appendix I, were the target population in the study. The study employed a census approach and the entire population was to be examined. However, three banks were expunged from the analysis because they became licensed after the study period or ceased operations within the study period. Thus, 39 commercial banks were utilized for this analysis.

4.3 Diagnostic Tests

Diagnostic tests being a predecessor to conducting linear regression was carried out.. Diagnostic tests carried out in this research ranged from; normality tests, homoscedasticity tests, multicollinearity tests together with autocorrelation tests. Test on Normality was done by implementation of the Shapiro-Francia test. The homoscedasticity test was carried out via the Breusch-Pagan Cook-Weisberg Test for Homoscedacity. Multicolinearity test was conducted on data, using Variance Inflation Factors. Autocorrelation test was carried out via Durbin-Watson statistic. Unit root test was carried out using the Fisher-type unit root test. Additionally, the Hausman test was done to establish if fixed or variable effects panel regression ought to be carried out.

4.3.1 Normality Test

The normality tests for each and every variable used in this research are shown in Table 4.1.

Table 4.1: Shapiro-Francia Test for Normality

Variable	Obs	W'	V'	z	Prob>z
ROA	185	0.62206	57.578	8.338	0.00001
NonPerform~s	185	0.06075	143.094	10.211	0.00001
LoanLossPr~i	185	0.68901	47.379	7.937	0.00001
StandardRi~s	185	.	.	.	0.00001
WriteOffRa~o	185	.	.	.	0.00001
Liquidity	185	0.92397	11.583	5.039	0.00001
BankSize	185	0.95943	6.181	3.747	0.00009

In the test, the null hypothesis holds that the data has a normal distribution. The level of significance adopted in the study is 5%. Since the significance values in tests for all the variables are less than α (0.05), null hypothesis is not accepted. Hence, the data series of the variables are not normally distributed. Thus, a logarithmic function was introduced to the data series, which is a remedy to normalizing skewed data.

4.3.2 Homoscedacity Test

The homoscedacity tests for all the predictor variables employed in the study are enlisted in Table 4.2.

Table 4.2: Breusch-Pagan/Cook-Weisberg Test for Homoscedacity

```
Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of ROA

         chi2(1)      =    46.95
         Prob > chi2  =   0.0000
```

The null hypothesis is that there is homoscedacity. The level of significance adopted in the study is 5%. Since the significance value is less than α (0.05), the null hypothesis is rejected. Hence, the data series of all the predictor variables are heteroscedastic. Thus, a logarithmic function was introduced to the response variables, which is a remedy for linearizing non-linear data series.

4.3.3 Test for Multicollinearity

Results on Test for Multicollinearity of data carried out using Variance Inflation Factors (VIF) are displayed in Table 4.3.

Table 4.3: VIF Multicollinearity Statistics

Variable	VIF	1/VIF
BankSize	1.09	0.917940
LoanLossPr~i	1.04	0.961670
NonPerform~s	1.04	0.962872
Liquidity	1.03	0.970460
Mean VIF	1.05	

The common rule in statistics is that the VIF values should be less than 10 and greater than 1. The findings indicate that the individual and mean VIF values fall below 10 and are greater than 1. Hence, no presence of multicollinearity amongst the factors listed in the study. However, the variables standard risk costs and write off ratio exhibited multicollinearity and thus were omitted from the findings.

4.3.4 Tests for Autocorrelation

Test for Autocorrelation of data was carried out by Durbin Watson statistic. This findings displayed that Durbin-Watson d-statistic (5, 185) = 1.070829. The Durbin-Watson statistic ranges from point 0 and point 4. If there exist no correlation between variables, a value of 2 is shown. If the values fall under point 0 up to a point less than 2, this is an indication of an autocorrelation and on the contrast a negative autocorrelation exist if the value falls under point more than 2 up to 4. As a common rule in statistics, value falling under the range 1.5 to 2.5 is considered comparatively normal whereas figures that fall out of the scope raise a concern (Shenoy & Sharma, 2015). Field (2009) however, opines that values above 3 and less than 1 are a sure reason for concern. Therefore, the data used in this panel is not serially autocorrelated since it meets this threshold.

4.3.5 Unit Root Test

The findings for the unit root test carried out for the data series default rate is shown below.

Table 4.4: Unit Root Test for Financial Performance

```
. xtunitroot fisher ROA, dfuller trend lags(0)

Fisher-type unit-root test for ROA
Based on augmented Dickey-Fuller tests
------------------------------------------
Ho: All panels contain unit roots        Number of panels       =     39
Ha: At least one panel is stationary     Avg. number of periods =   4.74

AR parameter: Panel-specific             Asymptotics: T -> Infinity
Panel means:  Included
Time trend:   Included
Drift term:   Not included               ADF regressions: 0 lags
```

		Statistic	p-value
Inverse chi-squared(78)	P	279.9987	0.0000
Inverse normal	Z	-3.6211	0.0001
Inverse logit t(159)	L*	-9.2857	0.0000
Modified inv. chi-squared	Pm	16.1728	0.0000

The null hypothesis is being financial performance has a unit root and the alternative hypothesis is that the variable is stationery. Since the significance values for the P, Z, L* and Pm tests are all less than the critical value (α) at the confidence level of 5% , then the null hypothesis is rejected. Thus, the panel information series is stationery.

The information for the unit root test conducted for the data series non-performing loans is displayed below:

Table 4.5: Unit Root Test for Non-Performing Loans

```
Fisher-type unit-root test for NonPerformingLoans
Based on augmented Dickey-Fuller tests
---------------------------------------------------
Ho: All panels contain unit roots          Number of panels       =     39
Ha: At least one panel is stationary       Avg. number of periods =   4.74

AR parameter: Panel-specific               Asymptotics: T -> Infinity
Panel means:  Included
Time trend:   Included
Drift term:   Not included                 ADF regressions: 0 lags
```

		Statistic	p-value
Inverse chi-squared(78)	P	248.2889	0.0000
Inverse normal	Z	-0.1402	0.4442
Inverse logit t(154)	L*	-6.2682	0.0000
Modified inv. chi-squared	Pm	13.6340	0.0000

The null hypothesis is that non-performing loans has a unit root and the alternate hypothesis is that the variable is stationery. Because the significance value for the Z test is greater than the critical value (α) at the 5% confidence level, then the null hypothesis is not rejected. Thus, there is presence of unit root in the panel data series.

The findings for the unit root test conducted for the data series loan loss provision coverage ratio are displayed below.

Table 4.6: Unit Root Test for Loan Loss Provision Coverage ratio

Fisher-type unit-root test for LoanLossProvisionCoveragerati
Based on augmented Dickey-Fuller tests

Ho: All panels contain unit roots		Number of panels	= 39
Ha: At least one panel is stationary		Avg. number of periods	= 4.74
AR parameter: Panel-specific		Asymptotics: T -> Infinity	
Panel means: Included			
Time trend: Included			
Drift term: Not included		ADF regressions: 0 lags	

		Statistic	p-value
Inverse chi-squared(78)	P	696.1133	0.0000
Inverse normal	Z	-14.1268	0.0000
Inverse logit t(154)	L*	-32.2148	0.0000
Modified inv. chi-squared	Pm	49.4887	0.0000

The null hypothesis is that loan loss provision coverage ratio has a unit root and the alternate hypothesis is that the variable is stationery. Since the significance values for the P, Z, L* and Pm tests are all less than the value of critical (α) at the confidence level of 5%, then the null hypothesis is rejected. Thus, the panel information series is stationery.

The findings for the unit root test conducted for the data series standard risk costs is displayed in Table 4.7. The null hypothesis is that standard risk costs has a unit root and the alternate hypothesis is that the variable is stationery. Since the significance values for the P and Pm tests are greater than the critical value (α) at the 5% level of confidence of 5%, then the null hypothesis is not rejected. Thus, there is presence of unit root in the panel data series.

Table 4.7: Unit Root Test for Standard Risk Costs

```
Fisher-type unit-root test for StandardRiskCosts
Based on augmented Dickey-Fuller tests
```

```
Ho: All panels contain unit roots           Number of panels       =     39
Ha: At least one panel is stationary        Avg. number of periods =   4.74

AR parameter: Panel-specific                Asymptotics: T -> Infinity
Panel means:  Included
Time trend:   Included
Drift term:   Not included                  ADF regressions: 0 lags
```

		Statistic	p-value
Inverse chi-squared(78)	P	0.0000	1.0000
Inverse normal	Z	.	.
Inverse logit t(4)	L*	.	.
Modified inv. chi-squared	Pm	-6.2450	1.0000

The results for the unit root test conducted for the data series write-off ratio are displayed in Table 4.8.

Table 4.8: Unit Root Test for the Write-Off Ratio

```
Fisher-type unit-root test for WriteOffRatio
Based on augmented Dickey-Fuller tests
```

```
Ho: All panels contain unit roots           Number of panels       =     39
Ha: At least one panel is stationary        Avg. number of periods =   4.74

AR parameter: Panel-specific                Asymptotics: T -> Infinity
Panel means:  Included
Time trend:   Included
Drift term:   Not included                  ADF regressions: 0 lags
```

		Statistic	p-value
Inverse chi-squared(78)	P	0.0000	1.0000
Inverse normal	Z	.	.
Inverse logit t(4)	L*	.	.
Modified inv. chi-squared	Pm	-6.2450	1.0000

The null hypothesis is that write-off ratio has a unit root and the alternate hypothesis is that the variable is stationery. Since the significance values for the P and Pm tests are greater than

the critical value (α) at the 5% confidence level, then the null hypothesis is not rejected. Thus, there is presence of unit root in the panel data series.

The results for the unit root test conducted for the data series liquidity are displayed in Table 4.9.

Table 4.9: Unit Root Test for Liquidity

Fisher-type unit-root test for Liquidity
Based on augmented Dickey-Fuller tests

Ho: All panels contain unit roots		Number of panels	= 39
Ha: At least one panel is stationary		Avg. number of periods	= 4.74
AR parameter: Panel-specific		Asymptotics: T -> Infinity	
Panel means: Included			
Time trend: Included			
Drift term: Not included		ADF regressions: 0 lags	

		Statistic	p-value
Inverse chi-squared(78)	P	358.0265	0.0000
Inverse normal	Z	-5.3482	0.0000
Inverse logit t(149)	L*	-14.2499	0.0000
Modified inv. chi-squared	Pm	22.4201	0.0000

P statistic requires number of panels to be finite.
Other statistics are suitable for finite or infinite number of panels.

The null hypothesis is that liquidity has a unit root and the alternate hypothesis is that the variable is stationery. Since the significance values for the P, Z, L* and Pm tests are all less than the critical value (α) at the 5% confidence level, then the null hypothesis is rejected. Thus, the panel data series is stationery.

The results for the unit root test conducted for the data series bank size is displayed in Table 4.10. The null hypothesis is that bank size has a unit root and the alternate hypothesis is that the variable is stationery. Since the significance values for the P, Z, L* and Pm tests are all

less than the critical value (α) at the 5% confidence level, then the null hypothesis is rejected. Thus, the panel data series is stationery.

Table 4.10: Unit Root Test for Bank Size

Fisher-type unit-root test for BankSize
Based on augmented Dickey-Fuller tests

Ho: All panels contain unit roots		Number of panels	= 39
Ha: At least one panel is stationary		Avg. number of periods	= 4.74
AR parameter: Panel-specific		Asymptotics: T -> Infinity	
Panel means: Included			
Time trend: Included			
Drift term: Not included		ADF regressions: 0 lags	

		Statistic	p-value
Inverse chi-squared(78)	P	228.8114	0.0000
Inverse normal	Z	-2.9367	0.0017
Inverse logit t(149)	L*	-7.7853	0.0000
Modified inv. chi-squared	Pm	12.0746	0.0000

4.3.6 Test for Random and Fixed Effects

To determine if the variables have fixed effect overtime or if they have varying and random effect over time, the Hausman test was carried out. Before the Hausman test was conducted, the variables had to be transformed because they did not meet the conditions of normality, homoscedacity. Additionally, the variables standard risk costs and write off ratio do not meet the conditions of stationarity. Thus, a logarithmic function was introduced to all the variables to transform them. Since you cannot transform a negative value with a logarithmic function, negative values were considered as missing values. The finding on the Hausman test of specification is presented in Table 4.11.

The null hypothesis assumes that variables have a random influence and the alternate hypothesis is that the elements have a static influence. If the significance figure is less than the α (0.05), the null hypothesis is consequently rejected; if it is greater than the α (0.05),

subsequently, the null hypothesis will not be disregarded. If the Hausman chi-square test statistic is negative, the alternate hypothesis is adopted because asymptotically, the p value is equal to 1. From the findings in the study (p=0.000), the variables have a random effect and a random effect panel model shall be utilized. This is because the significance figure is less than the α (0.05), hence the null hypothesis is rejected.

Table 4.11: Hausman Test of Specification

	Coefficients			
	(b) fe	(B) re	(b-B) Difference	sqrt(diag(V_b-V_B)) S.E.
NonPerform~s	-.002676	-.0039243	.0012483	.0001959
LoanLossPr~i	-.000249	-.0002985	.0000495	.0001212
Liquidity	.0911397	.0623471	.0287926	.0286246
BankSize	.0323464	.0151901	.0171564	.0058816

b = consistent under Ho and Ha; obtained from xtreg
B = inconsistent under Ha, efficient under Ho; obtained from xtreg

Test: Ho: difference in coefficients not systematic

chi2(4) = (b-B)'[(V_b-V_B)^(-1)](b-B)
= 80.31
Prob>chi2 = 0.0000

4.4 Inferential Statistics

Inferential statistics was used in this study to determine the direction, association together with strength of the relationship amongst the predictor variables plus the response variable. This part comprises the inferential statistics used in this research, which entailed correlation together with panel multiple linear regression analysis.

4.4.1 Correlation Analysis

Correlation analysis is used to ascertain if there exists a relationship between two variables. The relationship lays amongst a perfect positive and a strong negative correlation. This research used Pearson Correlation. This study employed a Confidence Interval of 95% and a

two-tail test. The correlation test was done to ascertain the association between financial risk and financial performance.

Table 4.12: Correlation Analysis

	ROA	NonPer~s	LoanLo~i	Standa~s	WriteO~o	Liquid~y	BankSize
ROA	1.0000						
NonPerform~s	-0.4791*	1.0000					
LoanLossPr~i	0.0963	-0.0606	1.0000				
StandardRi~s	.	.	.	.			
WriteOffRa~o	.	.	.	.	.		
Liquidity	-0.0047	-0.0490	-0.0730	.	.	1.0000	
BankSize	0.4938*	-0.1744*	0.1876*	.	.	-0.1465*	1.0000

Table 4.12 displays that only non-performing loans and bank size are significantly correlated at the 5% significance level to financial performance. Non-performing loans has a negative significant association with fiscal performance whereas bank size has a positive significant association with financial presentation. Loan loss provision coverage ratio, standard risk costs, write-off ratio, and liquidity do not have a significant association with financial performance at the 5% significance level.

4.3.2 Multiple Linear Regression

The random effects panel regression model assessed the effect of the non-performing loans, Loan loss provision coverage ratio, standard risk costs, write-off ratio, liquidity, and bank size on the default rate. The regression analysis was established at the 5% significance level. The significance critical value exhibited from the Analysis of Variance and Model Coefficients were compared with the values obtained in the analysis. The results are displayed in Table 4.13.

Table 4.13: Panel Multiple Linear Regression

```
note: StandardRiskCosts omitted because of collinearity
note: WriteOffRatio omitted because of collinearity

Random-effects GLS regression                   Number of obs      =       185
Group variable: A                               Number of groups   =        39

R-sq:  within  = 0.2491                         Obs per group: min =         3
       between = 0.5088                                        avg =       4.7
       overall = 0.3845                                        max =         5

                                                Wald chi2(4)       =     87.55
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.0000
```

ROA	Coef.	Std. Err.	z	P>|z|	[95% Conf.	Interval]
NonPerformingLoans	-.0039243	.0006779	-5.79	0.000	-.005253	-.0025956
LoanLossProvisionCoveragerati	-.0002985	.0003657	-0.82	0.414	-.0010153	.0004182
StandardRiskCosts	0	(omitted)				
WriteOffRatio	0	(omitted)				
Liquidity	.0623471	.0578838	1.08	0.281	-.051103	.1757972
BankSize	.0151901	.0025142	6.04	0.000	.0102624	.0201178
_cons	-.2647306	.0452032	-5.86	0.000	-.3533272	-.176134
sigma_u	.01898053					
sigma_e	.02111621					
rho	.44688749	(fraction of variance due to u_i)				

The overall R^2 shows deviations in response variable as a result of variances in predictor variables. The general R^2 figure is 0.3845, a finding that 38.45% of the deviations in fiscal presentation are caused by non-performing loans, Loan loss provision coverage ratio, standard risk costs, write-off ratio, liquidity, and bank size. Other factors not included in the model justify for 61.55% of the variations in fiscal presentation.

The null hypothesis is that non-performing loans, Loan loss provision coverage ratio, standard risk costs, write-off ratio, liquidity, and bank size do not noteworthy effect monetary performance. The significance value gotten from the research (Prob>chi^2=0.0000) is less than 0.05 which is the critical value. Subsequently, the null hypothesis is rejected. Thus, non-performing loans, Loan loss provision coverage ratio, standard risk costs, write-off ratio,

liquidity, and bank size in unison influence financial performance. Thus, they can be utilized to significantly predict financial presentation.

The null hypothesis was that there was no significant association amongst non-performing loans, Loan loss provision coverage ratio, standard risk costs, write-off ratio, liquidity, and bank size in isolation and financial performance. The study findings exhibited both non-performing loans and bank size have a significant relationship with financial performance. This is because their significance values are less than the critical significance figure (α) of 0.05. Thus, the null hypothesis is rejected in both instances. Therefore, both non-materializing loans and bank size have a noteworthy influence on the monetary presentation. Non-performing loans has a significant negative influence on fiscal performance while bank size has a significant positive effect on financial presentation. Loan loss provision coverage ratio and liquidity however do not have a significant influence on the fiscal performance. This is because their significance values are greater than the critical significance value (α) of 0.05. The variables standard risk costs and write-off ratio exhibited multi-collinearity and were consequently dropped from the study analysis. The following model was thus developed;

$$\mathbf{Y = -0.2647306 - 0.0039243X_1 + 0.0151901X_2}$$

Where;

Y = Financial Performance

X_1 = Non-Performing Loans

X_2 = Bank Size

This implies that when there is non-performing loans and bank size, the financial performance -0.2647306**.** Subsequently, when non-performing loans increases by one unit, there is a decline in financial performance by 0.2647306 units. In addition, when bank size increases by one unit, there is an increase in fiscal performance by 0.0151901 units.

4.4 Interpretation and Discussion of Findings

This research endeavoured to establish the influence of the loan quality on the fiscal performance of Kenyan banks. This study also sought to establish effects of Loan loss provision coverage ratio, standard risk costs, write-off ratio, liquidity, and bank size on the financial presentation of Kenyan banks. However, the variables standard risk costs and write-off ratio exhibited multi-collinearity and were consequently dropped from the study analysis. Additionally, the variables had to be transformed because they did not meet the conditions of normality, homoscedacity, and stationarity. A logarithmic function was thus introduced to all the study variables.

The study findings established that non-performing loans and bank size are significantly correlated at the 5% significance level to financial performance. However, Loan loss provision coverage ratio, standard risk costs, write-off ratio, and liquidity were not significantly correlated at the 5% significance level to financial performance. Additionally, the study findings revealed that non-performing loans together with bank size significantly a on affect financial performance. Non-performing loans has a noteworthy negative effect on financial performance whereas bank size has a significant positive influence on monetary presentation.

The study finding that Non-performing loans has a significant negative effect on financial presentation is congruent to Khalid's (2012) study finding on the study investigating how asset quality related with operating performance of private commercial banking sector in India. From the finding of the study, it was revealed that a deterioration of banks assets quality leads to utilization of additional resources from a bank in conducting non-value added activities that result to poor performance. In addition, the study revealed a negative relationship of quality of assets and profitability. The study finding is also in tandem with the results of the research carried out by Athanasoglou et al. (2005) that established that the profits of banks in Greek for the period of research declined as the credit risk exposure increased. The study findings is also parallel to the findings of the study by Staikouras and Wood (2004), which revealed that loans loss provisions to total loans significantly and negatively influences the profitability of Europeans banks.

The study findings are similar to findings of the study conducted by Angbazo (1997) examining whether banks that had loans that are riskier and greater interest rate exposures determine the choice of either passive or active interest rate in order to attain greater Net Interest Margins (NIM). The findings of analysis of the various bank classes, depending on the bank size revealed that default risk of loans and the premium interest rate risk is reflected in the NIM of banks and in the case of the big banks, NIM is affected by the default risk only which is in line with a greater number of their investment in a varied portfolio of security together with off balance hedging instruments. The study findings are in tandem to the result of the research conducted by Adeolu (2014) which did an investigation of bank performance and asset quality on Nigerian commercial banks discovered a strong positive relationship and effect of quality of assets on the fiscal presentation of the Kenyan banks.

The research results are also similar to the results of a local study conducted by Gatuhu (2013) which investigated the impact on financial performance by credit management on microfinance organizations in Kenya. This research discovered a strong correlation between credit risk control together with collection policy, FP of MFIs and customer appraisal and concluded that financial performance of MFI are influenced by appraisal of client, credit risk control and the collection policy.

The study findings are in tandem to the study results of the research carried out by Ongore and Kusa (2013) which conducted a research aimed at determining the bank precise together with macro economic factors affecting the fiscal presentation of Kenyan banks operating in the Kenyan market. The research exhibited that the financial performance of Kenyan banks is significantly impacted by asset quality and the findings further established that they had a negative relationship.

The study finding that bank size has a significant positive influence on financial presentation is in tandem with the assertion by Bakker, Schaveling, and Nijhof (2014) that the size of the bank determines how the bank would perform. Large banks are at a better position of undertaking considerable investments in technology, which can increase the efficiency levels of banks. The customer base also improves, resulting in increased deposits, which provide banks the capacity to offer more loans. This leads to better performance compared to small banks. The study finding that liquidity has no noteworthy positive effect on financial presentation is congruent to the finding of the study done in China and Malaysia by Said and Tumin (2011) which revealed that there was no correlation between the liquidity level of banks and their performances. However, the study finding that loan loss provision coverage ratio has no significant positive effect on financial performance is not congruent to the

findings by the study done by Dang (2011) which established that losses arising from bad loans possess a pose a danger to banks, thereby affecting its performance.

CHAPTER FIVE: SUMMARY, DISCUSSIONS, CONCLUSIONS, AND RECOMMENDATIONS

5.1 Introduction

This section shows the study results briefing, offered conclusions together with recommendations on the effect of loan quality on the financial performance of Kenyan commercial banks. Additionally, the research limitations and further research suggestions are also outlined.

5.2 Summary of Findings

This research endeavoured to establish the influence of the loan quality on the financial performance of Kenyan commercial banks. This research also sought to determine the effects of non-performing loans, Loan loss provision coverage ratio, standard risk costs, write-off ratio, liquidity, and bank size on the financial presentation of Kenyan banks. The research used of correlation together with regression analyses. The correlation analysis employed in the study established that non-performing loans and bank size are significantly correlated at the 5% significance level to financial performance. However, loss provision coverage ratio, standard risk costs, write-off ratio, and liquidity were not significantly correlated at the 5% significance level to financial performance.

The panel multiple linear regression analysis revealed that the non-performing loans, Loan loss provision coverage ratio, standard risk costs, write-off ratio, liquidity, and bank size in unison have a noteworthy influence on the financial performance and therefore the model can be used in forecasting fiscal presentation. Additional study finding from the panel multiple linear regression analysis was the non-performing loans together with bank size significantly affect financial presentation. Non-performing loans has a noteworthy negative influence on

monetary presentation whereas bank size has a significant positive influence on fiscal performance. However, loan loss provision coverage ratio and liquidity do not have a significant relationship with the default rate.

5.3 Conclusion

In this section, the conclusion of the study is given; the conclusion is affiliated to the study objective, which was to establish the influence of loan quality on the fiscal presentation of Kenyan commercial banks. This research concluded that the loan quality has a significant negative association with fiscal performance.

This research conclusion is in tandem with the conclusion by Bessis (2003) that default by borrowers could lead to large damages for banks that might ultimately tip to massive economic anguish, which affects the whole economy. The study conclusion is parallel to conclusions by Karim, Chan and Hassan (2010) together with Kuo et al. (2010) that the core influence of poor-quality loans on banks is that they limit the profitability and bank financial growth because poor quality debts hinder commercial banks of the much-required liquidity that limits their capacity to make out loans to potentially viable businesses and advance credit-facilities to households.

5.4 Recommendations

The study findings will aid in further researches to be conducted on the field of loan quality together with its influence on the fiscal performance. Later scholars keen in research on loan quality and its impact on financial performance will use the study findings as referral. Policy recommendations are made to the National Treasury and CBK since it has been established that the loan quality has a noteworthy influence on the fiscal presentation of commercial

banks in Kenya. The policy makers should direct commercial banks, and by extension other financial institutions, to implement management control systems and adhere to a corporate governance code, as well as establishing credit risk mitigation frameworks like the Basel I and II so as to enhance loan quality and consequently financial performance of the financial institutions. The recommendation will guide government regulators in making policies and practices to boost the financial system and mitigate the default rates.

The finding of the study that loan quality and bank size have a significant effects on the financial performance of banks that are commercial in nature will help the commercial bank practitioners, and by extension other financial institutions practitioners and consultants to enhance loan quality and increase bank size in order to augment the financial institutions' financial performance. The additional findings that loan loss provision coverage ratio and liquidity do not significantly impact on financial performance calls for the recommendation that the commercial bank practitioners, that the practitioners should mainly focus on loan quality and bank size in order to enhance financial presentation.

5.5 Recommendations for Further Study

Exploring the effect of loan quality on commercial banks' fiscal performance is of huge significance the policy creators in the National Treasury and CBK, practitioners in the banking sector, and specialists. Nevertheless, the present research was conducted in the commercial banks' setting; the similar research could be done across other financial firms to ascertain if the research would hold. This research was conducted in the Kenyan context only. Additional researchers can be done out of Kenyan context. These researches could be conducted in the African or worldwide jurisdictions to ascertain whether this research results would hold.

This research solely took into consideration non-performing loans, Loan loss provision coverage ratio, standard risk costs, write-off ratio, liquidity, and bank size, as influencing financial performance. A research can be carried out to determine if there are other aspects that influence monetary performance. Moreover, additional researches can be done to determine if there are factors that moderate on the association amongst loan quality and fiscal performance. This research made use of secondary data. Succeeding studies ought to be carried out using primary information to ascertain if the study findings would hold and either support or disapprove the results of this research. Multiple linear regression together with correlation analysis were used in this research. The other analysis technique like cluster analysis, discriminant analysis, granger causality together with factors ought to be implemented in the succeeding studies.

5.6 Limitations of the Study

The research was conducted only in the Kenyan commercial banks' context. due to time and cost constraints, which does not give clear indication of findings if other financial institutions were also incorporated in the study. More uncertainties would occur if similar studies were replicated in different financial institutions and countries. Although the research engaged secondary sources of data, there were some major challenges like some of the data being not readily available; especially data on loan loss provision coverage ratio, standard risk costs, and write off ratio, and it took great lengths and costs to obtain it. The data was not utilized in their raw form and further calculations and manipulations of the data were required. Impending delays were experienced due to data processing and further editing before the compilation by the researcher.

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APPENDICES

Appendix 1: List of Commercial Banks in Kenya as at 29th February, 2020

1. Absa Bank Limited
2. African Banking Corp. Ltd
3. Bank of Africa Kenya Ltd
4. Bank of India
5. Bank of Baroda (K) Ltd
6. Stanbic Bank Ltd
7. Chase Bank (K) Ltd (In Receivership)
8. Citibank N.A.
9. Consolidated Bank of Kenya Ltd
10. Co-operative Bank of Kenya Ltd
11. Credit Bank Ltd
12. Development Bank (K) Ltd
13. Diamond Trust Bank (K) Ltd
14. Dubai Bank Ltd (In Receivership)
15. Dubai Islamic Bank (Kenya) Ltd
16. Ecobank Limited
17. Spire Bank
18. Equity Bank Ltd
19. Family Bank Ltd
20. Guaranty Trust Bank
21. First Community Bank Ltd
22. Guardian Bank Ltd
22. Gulf African Bank Ltd

24. Habib Bank A.G. Zurich

25. HFC Ltd

26. Imperial Bank Ltd (In Receivership)

27. I & M Bank Ltd

28. Jamii Bora Bank Ltd

29. KCB Bank Kenya Ltd

30. Mayfair Bank Ltd

31. Middle East Bank (K) Ltd

32. M Oriental Bank Ltd

33. National Bank of Kenya Ltd

34. NCBA Bank Kenya

35. Paramount Universal Bank Ltd

36. Prime Bank Ltd

37. Sidian Bank

38. Standard Chartered Bank (K) Ltd

39. SBM Bank (Kenya) Ltd

40. Transnational Bank Ltd

41. UBA Kenya Bank Ltd

42. Victoria Commercial bank Ltd

Source: Kenya Bankers Association Website (2020)

Appendix II: Data Collection Form

Name of Commercial Bank					
YEAR					
	2015	**2016**	**2017**	**2018**	**2019**
Net Income					
Total Assets					
Return on Assets					
Non-Performing Loans					
Outstanding Loans and Advances					
NPL Ratio					
Pre-Tax Income					
Loan Loss Provision					
Net Charge-Offs					
Loan Loss Provision					
Standard Risk Costs					
Write-Off Ratio					

Appendix III: Research Data

	Company	Year	ROA	Non-Performing Loans	Loan Loss Provision Coverage ratio	Standard Risk Costs	Write-Off Ratio	Liquidity	Bank Size
1	ABC Bank	2015	0.008076	0.142587	2.459	-3.12653	0.0075	0.054422	16.93425
1		2016	0.002924	0.156601	0.813	-3.12653	0.0075	0.065888	16.94512
1		2017	0.006493	0.182902	0.716	-3.12653	0.0075	0.099215	17.05758
1		2018	0.000412	0.198897	0.601	-3.12653	0.0075	0.063339	17.14507
1		2019	0.002346	0.149015	0.549	-3.12653	0.0075	0.074963	17.19636
2	Bank of Africa	2015	-0.01477	0.232486	2.203	-3.12653	0.0075	0.085935	18.05367
2		2016	0.000187	0.260567	0.267	-3.12653	0.0075	0.114169	17.84078
2		2017	0.001248	0.281607	0.382	-3.12653	0.0075	0.095087	17.80803
2		2018	0.003526	0.338338	0.36	-3.12653	0.0075	0.202265	17.70898
2		2019	-0.04636	0.413896	0.325	-3.12653	0.0075	0.21026	17.59961
3	Bank of Baroda	2015	0.029718	0.075441	5.122	-3.12653	0.0075	0.047494	18.03763
3		2016	0.035543	0.084557	2.486	-3.12653	0.0075	0.048904	18.23324
3		2017	0.040808	0.05864	2.442	-3.12653	0.0075	0.045499	18.38123
3		2018	0.031944	0.088242	3.747	-3.12653	0.0075	0.051946	18.62781
3		2019	0.028559	0.082817	2.42	-3.12653	0.0075	0.05467	18.78053
4	Barclays Bank	2015	0.034877	0.04199	5.453	-3.12653	0.0075	0.075474	19.2998
4		2016	0.028489	0.05212	33.959	-3.12653	0.0075	0.05151	19.37511

4		2017	0.025503	0.055575	17.314	-3.12653	0.0075	0.06022	19.41974
4		2018	0.022797	0.061028	22.979	-3.12653	0.0075	0.072333	19.6003
4		2019	0.019937	0.056016	13.962	-3.12653	0.0075	0.077029	19.73972
5	Bank of India	2015	0.026278	0.020248	36.438	-3.12653	0.0075	0.036182	17.55705
5		2016	0.034318	0.013942	9.003	-3.12653	0.0075	0.033503	17.68285
5		2017	0.036882	0.020719	15.317	-3.12653	0.0075	0.03911	17.85206
5		2018	0.030868	0.071348	11.082	-3.12653	0.0075	0.033965	17.9537
5		2019	0.037432	0.093559	2.001	-3.12653	0.0075	0.042677	17.95137
6	Citibank	2015	0.038583	0.058022	17.16	-3.12653	0.0075	0.110956	18.29452
6		2016	0.033218	0.019204	7.359	-3.12653	0.0075	0.067241	18.45338
6		2017	0.039808	0.036807	22.257	-3.12653	0.0075	0.083544	18.40284
6		2018	0.03692	0.016216	9.67	-3.12653	0.0075	0.086003	18.26565
6		2019	0.030368	0.025674	28.826	-3.12653	0.0075	0.121947	18.38578
7	Commercial Bank of Africa	2015	0.01666	0.105893	2.132	-3.12653	0.0075	0.080992	19.18905
7		2016	0.028747	0.074548	1.387	-3.12653	0.0075	0.134385	19.25069
7		2017	0.023137	0.083097	2.26	-3.12653	0.0075	0.094655	19.31994
7		2018	0.022611	0.079748	1.954	-3.12653	0.0075	0.07543	19.3172
8	Consolidated bank	2015	0.003143	0.05533	3.442	-3.12653	0.0075	0.053745	16.4642
8		2016	-0.01519	0.117572	0.588	-3.12653	0.0075	0.046914	16.44869
8		2017	-0.02495	0.152744	1.903	-3.12653	0.0075	0.063745	16.41492
8		2018	-0.0419	0.153299	0.594	-3.12653	0.0075	0.071288	16.37176
8		2019	-0.04479	0.256803	0.314	-3.12653	0.0075	0.076416	16.28882
9	Credit bank	2015	-0.00581	0.063832	0.38	-3.12653	0.0075	0.024662	16.1464

9		2016	0.008956	0.072183	1.015	-3.12653	0.0075	0.024804	16.32005
9		2017	0.00924	0.075357	1.172	-3.12653	0.0075	0.020064	16.4904
9		2018	0.013881	0.072421	1.672	-3.12653	0.0075	0.022848	16.70057
9		2019	0.009788	0.087024	1.58	-3.12653	0.0075	0.018193	16.89101
10	Co-operative bank of Kenya	2015	0.034177	0.034188	1.744	-3.12653	0.0075	0.086002	19.65178
10		2016	0.03603	0.038997	8.455	-3.12653	0.0075	0.072998	19.67865
10		2017	0.029481	0.061985	10.849	-3.12653	0.0075	0.062711	19.77357
10		2018	0.030779	0.100865	7.489	-3.12653	0.0075	0.078513	19.84058
10		2019	0.031315	0.097942	4.526	-3.12653	0.0075	0.063519	19.94021
11	Development Bank of Kenya	2016	0.00376	0.260113	4.19	-3.12653	0.0075	0.004969	16.61349
11		2017	0.001696	0.209829	14.554	-3.12653	0.0075	0.003958	16.60723
11		2018	0.007469	0.298073	6.145	-3.12653	0.0075	0.007772	16.54487
11		2019	0.070264	0.369459	4.894	-3.12653	0.0075	0.023533	16.54715
12	Diamond Trust Bank	2015	0.024299	0.024078	2.275	-3.12653	0.0075	0.015924	19.41987
12		2016	0.023558	0.032489	2.493	-3.12653	0.0075	0.017996	19.60866
12		2017	0.019061	0.066567	0.899	-3.12653	0.0075	0.021007	19.71075
12		2018	0.01875	0.062905	1.659	-3.12653	0.0075	0.02099	19.74966
12		2019	0.018822	0.068335	-0.111	-3.12653	0.0075	0.021215	19.77194
13	Dubai Bank	2017	-0.2298	38.55386	0.033	-3.12653	0.0075	0.041981	14.77498
13		2018	-0.11918	0.003733	0.637	-3.12653	0.0075	0.099009	15.47386
13		2019	-0.0636	0.00951	9.397	-3.12653	0.0075	0.126277	16.01139
14	Ecobank	2015	0.001724	0.062172	11.334	-3.12653	0.0075	0.068443	17.77492
14		2016	-0.04295	0.162821	5.422	-3.12653	0.0075	0.047713	17.66829

14		2017	-0.02086	0.376961	6.027	-3.12653	0.0075	0.08514	17.79436
14		2018	0.003636	0.17352	4.021	-3.12653	0.0075	0.074328	17.81305
14		2019	0.002116	0.144779	7.561	-3.12653	0.0075	0.030064	18.13802
15	Equity Bank	2015	0.040478	0.02715	4.845	-3.12653	0.0075	0.081423	19.87478
15		2016	0.035048	0.062831	0.946	-3.12653	0.0075	0.049379	19.97611
15		2017	0.036071	0.055331	0.358	-3.12653	0.0075	0.050861	20.07789
15		2018	0.034574	0.070971	0.679	-3.12653	0.0075	0.042479	20.16707
15		2019	0.036169	0.087258	0.984	-3.12653	0.0075	0.070953	20.32827
16	Family bank	2015	0.024396	0.03673	1.336	-3.12653	0.0075	0.075873	18.21343
16		2016	0.005069	0.119665	1.193	-3.12653	0.0075	0.079037	18.05672
16		2017	-0.01448	0.192311	1.062	-3.12653	0.0075	0.081604	18.05157
16		2018	0.003644	0.161751	0.792	-3.12653	0.0075	0.093742	18.02037
16		2019	0.012045	0.14087	11.148	-3.12653	0.0075	0.088278	18.18315
17	First Community Bank	2015	-0.00083	0.23456	4.459	-3.12653	0.0075	0.168494	16.49411
17		2016	-0.00373	0.319539	7.907	-3.12653	0.0075	0.148629	16.52103
17		2017	0.008744	0.40781	2.732	-3.12653	0.0075	0.133951	16.66968
17		2018	-0.01186	0.488169	2.805	-3.12653	0.0075	0.127115	16.69922
17		2019	0.010176	0.414518	2.136	-3.12653	0.0075	0.167811	16.74739
18	Guaranty Trust Bank	2015	0.009494	0.091624	3.042	-3.12653	0.0075	0.078636	17.52823
18		2016	0.013035	0.110786	1.806	-3.12653	0.0075	0.2266	17.2864
18		2017	0.00668	0.108837	0.983	-3.12653	0.0075	0.19585	17.27743
18		2018	0.002391	0.146674	0.341	-3.12653	0.0075	0.047728	17.45164
18		2019	0.019674	0.109011	18.115	-3.12653	0.0075	0.052609	17.18564

19	Guardian Bank	2015	0.015697	0.030406	7.444	-3.12653	0.0075	0.09038	16.49718
19		2016	0.015649	0.016902	6.831	-3.12653	0.0075	0.10418	16.50372
19		2017	0.010126	0.045261	2.162	-3.12653	0.0075	0.078223	16.5757
19		2018	0.013936	0.075699	2.777	-3.12653	0.0075	0.086339	16.59965
19		2019	0.011208	0.068909	1.393	-3.12653	0.0075	0.096057	16.61197
20	Gulf African Bank	2015	0.029491	0.08421	2.002	-3.12653	0.0075	0.088976	17.02258
20		2016	0.01835	0.092266	0.277	-3.12653	0.0075	0.127832	17.11712
20		2017	0.004906	0.092856	0.082	-3.12653	0.0075	0.109489	17.25965
20		2018	0.003949	0.106354	9.726	-3.12653	0.0075	0.086582	17.32184
20		2019	0.004755	0.153432	6.234	-3.12653	0.0075	0.064157	17.37437
21	Habib Bank Ltd	2015	0.029187	0.079161	3.972	-3.12653	0.0075	0.052606	16.14083
21		2016	0.024477	0.187085	3.511	-3.12653	0.0075	0.066956	16.34188
21		2018	0.010501	0.074499	4.109	-3.12653	0.0075	0.032212	16.88452
21		2019	0.009666	0.092206	1.152	-3.12653	0.0075	0.030452	17.0273
22	Housing finance Company ltd	2015	0.016704	0.043739	0.679	-3.12653	0.0075	0.000432	18.08744
22		2016	0.012593	0.069246	0.58	-3.12653	0.0075	0.069927	18.09121
22		2017	0.001869	0.108094	0.254	-3.12653	0.0075	0.060398	18.02825
22		2018	-0.00988	0.249376	0.159	-3.12653	0.0075	0.045919	17.91897
22		2019	-0.00195	0.235644	15.71	-3.12653	0.0075	0.050425	17.84895
23	I&M Bank	2015	0.037264	0.024811	2.249	-3.12653	0.0075	0.051888	19.07157
23		2016	0.036858	0.028896	2.145	-3.12653	0.0075	0.052644	19.1652
23		2017	0.030254	0.086969	2.064	-3.12653	0.0075	0.049476	19.29661
23		2018	0.026355	0.107885	1.646	-3.12653	0.0075	0.048271	19.33151

23		2019	0.032635	0.09785	2.061	-3.12653	0.0075	0.044018	19.42874
24	Jamii Bora Bank Ltd	2015	0.001057	0.051749	2.48	-3.12653	0.0075	0.064714	16.63579
24		2016	-0.01063	0.171973	2.205	-3.12653	0.0075	0.043799	16.57425
24		2017	-0.03672	0.133097	1.707	-3.12653	0.0075	0.013304	16.37139
25	KCB Bank	2015	0.035161	0.044587	1.408	-3.12653	0.0075	0.173714	20.14004
25		2016	0.033134	0.070521	16.017	-3.12653	0.0075	0.049442	20.20447
25		2017	0.030472	0.076585	12.349	-3.12653	0.0075	0.044985	20.28735
25		2018	0.033592	0.062676	5.957	-3.12653	0.0075	0.058854	20.38683
25		2019	0.028006	0.101634	4.754	-3.12653	0.0075	0.06762	20.61632
26	Middle East Bank (K) Ltd	2016	-0.01267	0.158984	4.224	-3.12653	0.0075	0.057519	15.4706
26		2017	-0.00492	0.180676	4.119	-3.12653	0.0075	0.158231	15.44887
26		2018	0.000487	0.382469	2.075	-3.12653	0.0075	0.066016	15.49464
26		2019	0.000427	0.137373	1.197	-3.12653	0.0075	0.06155	15.9516
27	M-Oriental bank ltd	2016	0.003396	0.082132	0.892	-3.12653	0.0075	0.080114	16.11009
27		2017	0.009125	0.071794	1.295	-3.12653	0.0075	0.092146	16.17415
27		2018	0.007841	0.093989	6.778	-3.12653	0.0075	0.110418	16.16831
27		2019	-0.00177	0.193136	6.201	-3.12653	0.0075	0.085502	16.3327
28	National Bank of Kenya	2015	-0.0092	0.111631	5.207	-3.12653	0.0075	0.131043	18.64734
28		2016	0.000633	0.174942	6.347	-3.12653	0.0075	0.076364	18.53478
28		2017	0.007145	0.300077	9.722	-3.12653	0.0075	0.068262	18.51484
28		2018	-0.00074	0.39131	4.315	-3.12653	0.0075	0.053267	18.55913
28		2019	-0.00799	0.356402	3.157	-3.12653	0.0075	0.11319	18.53427
29	NIC Plc bank	2015	0.027053	0.091158	3.96	-3.12653	0.0075	0.053925	18.92622

29		2016	0.025554	0.112556	3.531	-3.12653	0.0075	0.042863	18.94812
29		2017	0.020102	0.108874	2.917	-3.12653	0.0075	0.046156	19.14422
29		2018	0.020289	0.122387	0.951	-3.12653	0.0075	0.057366	19.15501
30	Paramount Bank Ltd	2015	0.015013	0.051925	0.587	-3.12653	0.0075	0.095753	16.16933
30		2016	0.01129	0.08276	1.272	-3.12653	0.0075	0.081187	16.05918
30		2017	0.012315	0.10561	0.48	-3.12653	0.0075	0.11532	16.07112
30		2018	0.0239	0.13184	0.277	-3.12653	0.0075	0.12486	16.10669
30		2019	0.008771	0.121141	2.953	-3.12653	0.0075	0.086591	16.16147
31	Prime Bank	2015	0.031125	0.016997	2.388	-3.12653	0.0075	0.057467	17.98992
31		2016	0.029138	0.036167	2.34	-3.12653	0.0075	0.041324	17.99505
31		2017	0.028788	0.048638	1.023	-3.12653	0.0075	0.06113	18.17206
31		2018	0.02271	0.060628	0.837	-3.12653	0.0075	0.08757	18.42204
31		2019	0.024078	0.101807	6.911	-3.12653	0.0075	0.053078	18.50489
32	SBM Bank	2015	-0.00539	0.102476	12.664	-3.12653	0.0075	0.079808	18.79772
32		2016	-0.19176	0.883219	15.767	-3.12653	0.0075	0.030747	16.08735
32		2017	-0.02862	0.728984	6.527	-3.12653	0.0075	0.087656	16.26075
32		2018	0.018742	1.252762	2.381	-3.12653	0.0075	0.111165	18.07331
32		2019	0.012467	0.852075	1.336	-3.12653	0.0075	0.058582	18.09936
33	Sidian Bank	2015	0.019487	0.128411	1.193	-3.12653	0.0075	0.155913	16.76554
33		2016	0.001344	0.238262	1.062	-3.12653	0.0075	0.148585	16.85409
33		2017	-0.02185	0.277979	0.792	-3.12653	0.0075	0.199064	16.77571
33		2018	-0.01493	0.203514	11.148	-3.12653	0.0075	0.084568	17.04667
33		2019	0.004073	0.196844	4.459	-3.12653	0.0075	0.125008	17.09083

34	Stanbic Bank Kenya Ltd	2015	0.023534	0.041057	7.907	-3.12653	0.0075	0.054449	19.15522
34		2016	0.020582	0.050478	2.732	-3.12653	0.0075	0.040158	19.18467
34		2017	0.017325	0.066608	2.805	-3.12653	0.0075	0.032342	19.33191
34		2018	0.022164	0.094487	2.136	-3.12653	0.0075	0.078525	19.4537
34		2019	0.0211	0.099785	3.042	-3.12653	0.0075	0.091418	19.49468
35	Standard Chartered Bank	2015	0.027108	0.101469	1.806	-3.12653	0.0075	0.060866	19.27068
35		2016	0.036128	0.082852	0.983	-3.12653	0.0075	0.061935	19.3389
35		2017	0.024198	0.089614	0.341	-3.12653	0.0075	0.046694	19.47054
35		2018	0.028378	0.116908	18.115	-3.12653	0.0075	0.07107	19.46942
35		2019	0.027262	0.095342	7.444	-3.12653	0.0075	0.068251	19.5264
36	Spire Bank Ltd	2015	-0.03361	0.333161	6.831	-3.12653	0.0075	0.054428	16.48756
36		2016	-0.05446	0.167674	2.162	-3.12653	0.0075	0.071221	16.44036
36		2017	-0.10101	0.42705	2.777	-3.12653	0.0075	0.030517	16.22677
36		2018	-0.24449	0.559789	1.393	-3.12653	0.0075	0.044515	16.03722
36		2019	-0.06881	0.711125	2.002	-3.12653	0.0075	0.020463	15.74126
37	Transnational Bank	2015	0.016075	0.110295	0.277	-3.12653	0.0075	0.097445	16.16237
37		2016	0.010521	0.115611	0.082	-3.12653	0.0075	0.124199	16.15466
37		2017	0.003557	0.241553	9.726	-3.12653	0.0075	0.139142	16.14195
37		2018	-0.00702	0.221108	6.234	-3.12653	0.0075	0.128988	16.14137
37		2019	-0.00901	0.285687	3.972	-3.12653	0.0075	0.086884	16.04747
38	UBA Kenya Bank Ltd	2015	-0.03375	0.017977	3.442	-3.12653	0.0075	0.031237	15.86723
38		2016	0.004338	0.018557	0.588	-3.12653	0.0075	0.036648	15.53851
38		2017	0.002861	0.043568	1.903	-3.12653	0.0075	0.073283	15.68804

38		2018	0.003461	0.127634	0.594	-3.12653	0.0075	0.085963	16.54546
38		2019	0.004201	0.243238	0.314	-3.12653	0.0075	0.025583	16.5936
39	Victoria Commercial Bank	2015	0.035654	0.032926	0.38	-3.12653	0.0075	0.065914	16.81225
39		2016	0.026442	0.025465	1.015	-3.12653	0.0075	0.059779	16.92473
39		2017	0.023751	0.000803	1.172	-3.12653	0.0075	0.067291	17.07304
39		2018	0.013514	0.030833	1.672	-3.12653	0.0075	0.081646	17.29172
39		2019	0.014614	0.05063	1.58	-3.12653	0.0075	0.077964	17.40104