

**CREDIT RISK MANAGEMENT AND FINANCIAL STABILITY OF  
COMMERCIAL BANKS IN KENYA**

**ELMI NAJIIB ABDIRAHMAN**

**D61/28523/2019**

**A RESEARCH PROJECT SUBMITTED IN THE SCHOOL OF BUSINESS  
IN PARTIAL FULFILLMENT FOR THE AWARD OF A DEGREE  
OF MASTER OF BUSINESS ADMINISTRATION (FINANCE) AT  
THE UNIVERSITY OF NAIROBI**

**NOVEMBER, 2022**

## DECLARATION

This research project is my original work and has not been presented for a degree in any other university

Signature:



Date: November 14, 2022

**Elmi Najiib Abdirahman**

**D61/28523/2019**

The project has been submitted for examination with my approval as university supervisor.

Signature



Date: **November 17, 2022**

**Dr. Winnie Nyamute Lecturer, School of Business, University of Nairobi**

## **DEDICATION**

I dedicate this project to my family for their continuous moral and financial support.

## **ACKNOWLEDGEMENT**

Appreciations are extended to my supervisor Dr. Winnie Nyamute for the guidance, patience and support I received. I don't take that support for granted.

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## ABSTRACT

The study was set to determine relationship between credit risk management and financial stability of commercial banks in Kenya. Correlational design that was cross sectional in nature was adopted. The study targeted 39 commercial banks that were operational as at 31 December 2021. Secondary data was adopted in this study on a five year period 2017-2022 and it was on annual basis. The findings were analyzed as supported by SPSS tool where means and standard deviations were generated to provide an overall description of the data. Correlation and regression analysis were the inferential statistics adopted in the analysis. It was shown that credit risk management reported the highest effect on financial stability of Kenyan commercial banks ( $\beta=0.529$ ) followed by operational efficiency ( $\beta=0.509$ ) and then bank size ( $\beta=0.348$ ). It was concluded that credit risk is a key enabler of financial stability of commercial banks. It was recommended that the board committee responsible for credit risk among commercial banks should enhance their oversight role to counter the challenge of credit risk in commercial banks. Regular follow up on customer loan accounts should be done to recover the outstanding loan facilities. The policy makers working at the CBK should enact and implement relevant policies in regard to credit management to safeguard the remaining banks against imminent corporate failure and financial distress that are occasioned by financial instability challenges and concerns.

## CHAPTER ONE: INTRODUCTION

### 1.1 Background to the Study

The 2007/09 Global Financial Crisis (GFC) raised significant attention on financial stability and the role it plays in the entire banking industry. Financial stability allows formal financial institutions to effectively realize their intermediation role in an economy through mobilization of savings and fostering investment (Cheror, 2020). Effective credit risk management mechanisms allow the financial institution to remain resilient and stable and this is critical for the growth of the economy. As concerns of sustainability gain appreciation in the around, financial institutions have come to realization that gaining stability require them to put in place relevant strategies of mitigating credit risk exposure (Degl'Innocenti, Grant, Šević & Tzeremes, 2018).

The modern portfolio theory and the information asymmetry theory underpinned the inquiry. Advanced by Markowitz (1952), the portfolio theory argues that the aim of investors including commercial banks is to minimize risk exposures so as to maximize returns. One way of minimizing risk is through diversification. Hence, the theory will support the notion of diversification as one of the credit risk management practice which commercial banks should embrace to remain stable. Developed by Akerlof, Spence and Stiglitz in 1970s, the information asymmetry theory argues that there exist differences in the quantity of information possessed by borrowers and commercial banks in the process which may impact on the quality of loans in the long run. The theory provided the basis of how differences in information processed by commercial banks and the borrowers contribute towards an increase in non-performing loans (NPLs) thus credit risk.

In Kenya, some institutions like Imperial Bank Ltd, Chase Bank (K) Ltd and Charterhouse Bank Ltd have been placed under receivership. Other institutions like Jamii Bora were forced to enter

into Acquisition arrangements with Cooperative to create the new Kingdom Bank. Others like Development Bank of Kenya and Consolidated Bank of Kenya have been recording losses according to statistics from the National Treasury. This signifies concerns about financial instability and thus motivation of the present inquiry.

### **1.1.1 Credit Risk Management**

Credit risk is the possibility that counter party or the borrower had failed to meet a given obligation on the agreed terms and conditions. Borrowers always find themselves defaulting on their commitments due to a number of reasons including challenges of liquidity (Bhattarai, 2019). Credit risk management are the practices embraced by the financial institution aimed at minimization of risks while maximizing the returns of the firm. It is a decision making process that involves minimization of losses from bad debts as well as the costs of debts and at the same time resulting into maximization of the value of credit sales (Ndyagyenda, 2019).

Credit risk has received considerable attention among central banks in the world as they strive to formulate relevant regulations to govern the operations of banks. In fact, Basel II framework that provides global standards top commercial banks is about credit risk management (Clerc, 2004). Literature provides a number of measures of credit risk management including non-performing loan (NPLs) ratio and loan loss provision ratio (Herring, 2002). The present study measured credit risk management using NPLs ratio that is obtained by dividing NPLs against total loans. This is the mostly used indicator in studies focusing on credit risk management and hence the key reason why it will be adopted in this study.

### **1.1.2 Financial Stability**

Financial stability (FS) is a condition or state where the financial institution has the ability to withstand unraveling and shocks of financial disturbances and imbalances and this helps to mitigate any possible disruption in the process of financial intermediation (Gadanecz & Jayaram, 2008). Such disruptions if not countered can be so severe to have significant implication on impairment of how savings are allocated to investment opportunities that are deemed to be profitable for the institution (ECB 2007). The other definition of financial stability is that it is the poor choice made in regard to investments or allocation of funds. Central banks have demonstrated their increased focus on financial stability (Gupta & Kashiramka, 2020).

A financial system is believed to be stable if it has the ability to facilitate the efficiency of economically established resources together with other financial related activities like lending, borrowing and saving as well as investment. According to Degl'Innocenti, Grant, Šević and Tzeremes (2018), the analysis of financial stability should not just be constrained on consideration of possible disturbances alone but also the extent which the financial system is absorbed. Thus, consideration should be given to those factors aimed at mitigation of absorption of the shocks like the available size of capital reserves and reliability of reinsurance services and facilities (Raouf & Ahmed, 2020). Although there are several measures and indicators of financial stability, this study adopted z-score as a measure of financial stability because it has been widely documented in literature.

### **1.1.3 Credit Risk Management and Financial Stability**

Empirically, the link between credit risk and financial stability has been explored by Kanake (2014) who established mixed results of positive and negative relationship between loan loss provision,

risk coverage and financial stability respectively. Anh and Phuong (2021) documented existence of a negative link between NPLs and financial stability of banks. Otieno, Nyagol and Onditi (2016) established negative link between credit risk management (CRM) and financial performance.

Bashaija and Mahina (2018) noted existence of a positive and significant link between credit risk management and financial stability. Theoretically, a positive relationship is anticipated between CRM and financial stability. This is because sound and effective CRM mechanisms and platforms can allow the financial institution to effectively realize their financial intermediation role.

#### **1.1.4 Commercial Banks in Kenya**

In Kenya, the responsibility of CBK includes formulation of relevant rules and regulations to govern the operation of commercial banks. The role of CBK is to enhance and promote financial stability of the commercial banks in the country. As of December 2021, there were 42 commercial banks in Kenya. These banks are categorized by the CBK into tier system that comprises of three classifications based on asset base, customer deposits and their overall market shares.

Financial instability has remained a challenge for some of the commercial banks in Kenya. For instance, some of these institutions like Charterhouse Bank, Chase Bank and Imperial Bank Ltd have been forced to be placed under receivership while undergoing liquidation. Other banks like the former Jamii Bora were acquired by Cooperative Bank of Kenya while NIC bank merged with CBA Bank forming NCBA so as to remain stable.

## **1.2 Research Problem**

Financial stability has attracted significant attention among policy makers especially in developing countries. Financial soundness of the respective institutions informs and contributes to the overall

stability. Credit risk management issues help financial institutions to mitigate their exposure thus contributing towards financial stability (Bashaija & Mahina, 2018). The key motivation for credit risk management in a financial institution arises from risks that can affect financial stability. Credit risk management is a complex and difficult understanding in a financial institution because the micro-economic variables are always unpredictable. Credit risk management is one of the critical functions of any commercial bank (Samorodov, Azarenkova, Holovko, Miroshnyk & Babenko, 2019).

Commercial banks mobilize savings and promote investment in an economy. They occupy key roles in development, economic and national frameworks. The only challenge with some of the commercial banks in Kenya is that they are facing issues as far as their stability is concerned. These include Kingdom Bank, NBK, CBKL as well as DBK. These concerns about financial stability should be urgently addressed failure of which the consequences would be dire as so many customers would lose their hard earned deposits.

The available studies on the global scene include Pham and Doan (2020) who appraised financial inclusion and its implication on financial stability while focusing on Asian countries and a positive interaction was registered. In Vietnam, Anh and Phuong (2021) did an analysis of credit risk and financial stability where dynamic panel data approach was the adopted methodology. A negative link was registered by NPLs and financial stability. Among commercial banks in Pakistan, Hamza (2017) did an assessment of credit risk management and performance and mixed results were established. Among MFIs in Rwanda, Bashaija and Mahina (2018) evaluated CRM and FS where positive relationship was noted.

Locally in Kenya, Kanake (2014) analyzed CRM and financial stability focusing on micro-finance institutions and established mixed results. Otieno, Nyagol and Onditi (2016) studied CRM and financial performance focusing on MFs in Kenya where longitudinal design and purposive sampling were the methodologies adopted and a significant relationship was registered. Cheror (2020) covered SACCOs in Nairobi to determine how credit management practices impacted on financial stability and a positive relationship was noted. Githaiga (2015) sought to relate CRM and financial performance among Kenyan commercial banks where an inverse but weak link was established. Among the listed commercial banks, Onang'o (2017) analyzed how CRM impacts on financial performance and sampling was done purposively and the results were mixed.

The aforementioned studies create gaps since some like Anh and Phuong (2021) focused on other countries like Vietnam and not in Kenya. Other studies like Cheror (2020) were done focusing on SACCOs and not commercial banks. There are other studies like Onang'o (2017) that focused on financial performance as the dependent variable. Methodologically, there are studies like Onang'o (2017) that adopted purposive sampling. Thus, in order to fill these gaps, the proposed study seeks to determine relationship between credit risk management and financial stability of commercial banks in Kenya

### **1.3 Objective**

To determine relationship between credit risk management and financial stability of commercial banks in Kenya

### **1.4 Value of the Study**

The credit managers of commercial banks in Kenya would formulate relevant strategies. The risk management committees being salient aspects of the corporate governance would formulate

relevant policies. The risk managers working among commercial banks in Kenya would be able to strengthen and enhance their credit risk management mechanisms.

The study would be important to policy makers CBK would formulate regulations on CRM and FS. The policy makers among commercial banks in Kenya would leverage the findings of the study to strengthen the policies with regard to credit risk management.

The study would contribute to the existing knowledge and information as it regards CRM and FS. The study would contribute to the existing theories underpinning credit risk management and financial stability. This would be used by future scholars and researchers.



## **CHAPTER TWO: LITERATURE REVIEW**

### **2.1 Introduction**

This chapter is set out to review literature including the theories underpinning the study variables. The gaps from the reviewed studies are also documented. The study variables are conceptually demonstrated

### **2.2 Theoretical Foundation**

#### **2.2.1 Modern Portfolio Theory**

Proposed by Markowitz (1952), this theory argues that investors strive to minimize their risks thus maximizing returns through diversification. The theory assumes that investors seek to maximize their returns from investments for any given risk level. Diversification arises when investors hold on more than one assets in a portfolio. This ensures that incase of risks, the losses may be minimal.

The theory provides the need for commercial banks to adopt asset-by asset approach as a way of managing their credit risk exposure. This approach helps loan officers to carry out an evaluation of the credit quality. The theory argues that excellent review and proper credit rating systems are critical in credit risk management. This theory underpinned the main independent variable credit risk management and how best it can be mitigated.

#### **2.2.2 Information Asymmetry Theory**

This theory was developed by Akerlof, Spence and Stiglitz in 1970s. The theory argues that differences in the information possessed by borrowers and financial institutions can be detrimental. Therefore, to counter the problem of information asymmetry, financial institutions are required to properly screen their customers before lending tem with credit. It is important that adequate

information is collected from borrowers before loans are advanced to them. This can allow the financial institution to establish the capability of customers from meeting their financial obligation thus reducing the value of NPLs.

## **2.3 Determinants of Financial Stability among Commercial Banks**

The subsequent sections detail the determinants of financial stability among commercial banks in Kenya.

### **2.3.1 Credit Risk**

Lending which is one of the key roles of a modern commercial banks exposes institutions to credit risks. This risk arises especially when borrowers fail to honor their financial obligations. A bank where borrowers have defaulted on their credit may face cash flow challenges on a long term and this may in turn have an influence on the liquidity of the institution. In the long run, it will adversely affect the profits and capital of the institution thus lowering the ability to carry out the financial intermediation role. It is important that commercial; maintain low levels of NPLs.

### **3.3.2 Operating Efficiency**

Operating efficiency of a firm is informed by the operating costs. Commercial banks should seek to have efficiency in their cost management. The common measure of operating efficiency is operating costs against the total assets. Commercial banks seeking to remain stable should always contain their operating cost at low levels. Efficient firms are ones that are in position to minimize their cost of operation. Apart from using assets, the operating costs of the firm can also be expressed as a proportion of the profits generated (Swarnapali, 2014).

### **2.3.3 The Size of the Bank**

Bank stability has largely been informed by the value of assets expressed in form of natural logarithm of the assets (Adusei, 2015). The main aim of expansion in size of the bank is to achieve financial stability (Ali & Puaah, 2018). Larger banks in Kenya are classified as tier I and they are more stable as compared to smaller tier III banks. Shapiro (2008) observed that larger firms have greater negotiating power that contributes towards lower financing costs and thus positively impacting on their financial stability. Large banks have strong ability of hedging and mitigating against credit risk exposures.

### **2.4 Empirical Literature Review**

The study conducted by Anh and Phuong (2021) sought to determine credit risk and its impact on financial stability. In this study, financial stability was measured by z-score and data was gathered on a period from 2010 all through to 2019. The methodology adopted was dynamic panel data approach. The results were that CRM significantly impacts on financial stability. The study conducted in Pakistan by Hamza (2017) focused on assessing CRM and performance. The methodology adopted during analysis was pooled regression. It emerged from the results that credit risk and performance are inversely connected and linked with each other.

The study by Bhattarai (2019) was done in Pakistan and it aimed at determining how credit risk impacts on financial performance with emphasis on commercial banks. The time horizon considered by this study was the period 2001 all through to 2016. The findings were that credit risk significantly predicts bank performance. Among commercial banks in Rwanda, Bashaija and Mahina (2018) focused on risk management and financial stability of MFIs. It emerged from

analysis that risk management and financial stability are positively and significant related with each other. In fact, this link was positive.

Kanake (2014) examined the link between CRM and FS focusing on MFIs in Kenya. A total of 37 firms were targeted. It emerged from the results that credit risk has significant effect on FS of the MFIs. Otieno, Nyagol and Onditi (2016) appraised the link between CRM and financial performance focusing on MFIs in Kenya. The design adopted in this study was longitudinal and the period considered was 2011 all through to 2015. In total, 12 institutions were purposively selected and included in the inquiry. Evidence from the analysis were that credit risk and financial performance are significant related with each other.

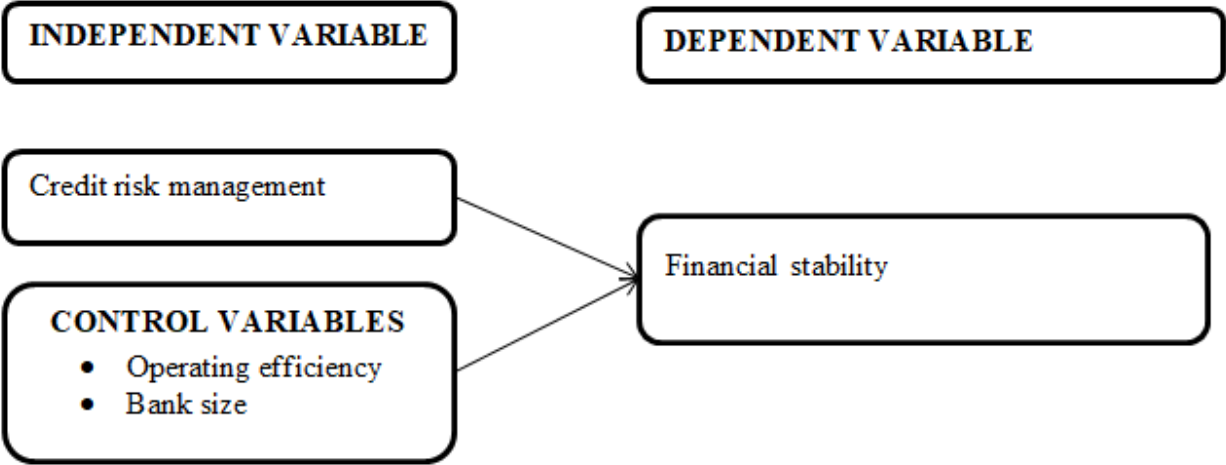
Cheror (2020) did an analysis of credit risk management practices and their implication on FS with focus on SACCOs in Nairobi. In total, 54 institutions were covered and information was obtained from first hand sources supported by the questionnaire. Results were that CRM and FS are positively linked with each other. Githaiga (2015) did an assessment of credit risk management and financial performance focusing on Kenya's banks. Noted from the results was that credit risk and financial performance were inversely related with each other. Onang'o (2017) did an analysis of CRM and financial performance with emphasis on listed banks in Kenyan context. Longitudinal study design and fixed effect model was adopted in the analysis. It was noted that NPLs ratio and performance are inversely linked with each other.

## **2.5 Summary of Literature and Gaps**

The study has reviewed literature that presents a number of gaps. For instance, Hamza (2017) focused on Pakistan, while Bashaija and Mahina (2018) used the context of Rwanda and not Kenya. The study by Cheror (2020) focused on SACCOs while Otieno, Nyagol and Onditi (2016)

did a study focusing on MFIs and not commercial banks. All these create contextual gaps. The study by Onang'o (2017) among others focused on financial performance and not stability as the dependent variable thus creating conceptual gap.

**2.6 Conceptual Framework**



**Figure 2. 1: Conceptual Model**

## **CHAPTER THREE: RESEARCH METHODOLOGY**

### **3.1 Introduction**

This chapter discusses the methodologies to achieve the objectives. The specific contents of the chapter include a discussion of the design of the inquiry, targeted participants, the means of obtaining evidence and how the same underwent processing.

### **3.2 Research Design**

This study adopted correlational design that was cross sectional in nature. Through correlational design, it was possible to establish the cause effect nexus between CRM and FS. The design was cross sectional because data was collected within a single time for analysis.

### **3.3. Population**

The study targeted 39 commercial banks that were operational as at 31 December 2021. This information is presented on appendix I. Census was used since the target population is relatively small.

### **3.4 Data Collection**

Secondary data was adopted in this study guided by the data collection sheet. This data was gathered from reports published by the CBK as well as financial statements extracted from each of the institution. Data was gathered on a five year period 2017-2022 and it was on annual basis.

### 3.5 Data Analysis

The findings were analyzed as supported by SPSS tool where means and standard deviations were generated to provide an overall description of the data. Correlation and regression analysis were the inferential statistics adopted in the analysis.

#### 3.5.1 Model Specification

The following regression model was adopted in this study:

$$Y_{it} = \alpha + \beta_1 X_{1it} + \beta_2 X_{2it} + \beta_3 X_{3it} + \epsilon_{it}$$

Where Y is the financial stability of firm i and time t

$\alpha$  refers to the Y intercept of the linear model

$X_{1it}$  refers to credit risk of firm i at time t

$X_{2it}$  refers to operational efficiency s of firm i at time t

$X_{3it}$  refers to size of firm i at time t

$X_{4it}$  refers to interest coverage of firm i at time t

$\beta_1$ ,  $\beta_2$ , and  $\beta_3$ , are the coefficient of  $X_{1it}$ ,  $X_{2it}$ , and  $X_{3it}$ , respectively while  $\epsilon$  is error term

Table 3.1 shows how the study variables were measured

Variable	Scale	Measurement
Financial stability	Ratio	Z-score=[(Equities/asset)+ROA]/std.deviation of ROA (Morgan & Pontines, 2014; Badea & Matei, 2016).
Credit risk management	Ratio	NPLs/Total loans (Abiola & Olausi, 2014).
Operational efficiency	Ratio	Operating costs/Operating income (Swarnapali, 2014).
Bank size	Continuous	Natural logarithm of total assets (Shapiro, 2008)

### **3.5.2 Significance Tests**

The study determined the p-values and these were interpreted at 5% level of significant. In addition, t values were also determined and interpreted at 1.96 as the threshold.

### **3.5.3 Diagnostic Tests**

Before conducting regression analysis, multicollinearity tests, normality and Heteroskedasticity test will be conducted and appropriately interpreted. Multicollinearity is a situation when at least one of the independent variables of the study has a relationship with another one (Rutter & Gatsonis, 2001). This should not be the case as it strongly violated the premise of regressing the variables. The study will adopt the Variance of Inflation Factors (VIF) to test for multicollinearity where values in the range 1-10 signified absence of multicollinearity assumption.

Normality is a situation when there is normal distribution in a data set. This is a desirable attribute that is required before conducting regression analysis (Yan & Su, 2003). The study leveraged Shapiro-Wilk test to determine and infer presence of normality assumption in the data and the resultant p-values was interpreted at 5% level.  $P > 0.05$  led to the assumption of the normality condition in the data (Meuleman, Loosveldt & Emonds, 2015).

Heteroskedasticity is a situation of when there is constant variance in the error term of the regression model (Yan & Su, 2003). This is an undesirable condition and its opposite but desirable state is homoskedasticity. The study used scatter plots to determine presence of this assumption absence of pattern showing lack of this assumption (Pesaran, 2021).



## CHAPTER FOUR: DATA ANALYSIS AND DISCUSSION

### 4.1 Introduction

The chapter presents the results after the analyzed data. It covers the descriptive, diagnostic and correlation as well as regression results.

### 4.2 Descriptive Statistics

Table 4.1 gives a summary.

**Table 4.1: Descriptive Statistics**

	<b>N</b>	<b>Minimum</b>	<b>Maximum</b>	<b>Mean</b>	<b>Std. Deviation</b>
Financial stability	195	-38.95	21.90	2.23	5.694
Credit risk management	195	.00	.76	.19	.156
Operational efficiency	195	-6.29	15.76	4.52	2.572
Bank size	195	2.71	5.88	4.59	.662

Table 4.1 indicates that financial stability average z-score was 2.23, which is positive. This means that the studied banks had a relatively low level of financial stability. On credit risk, the value of average was 0.19, which imply that NPLs were 19% of the total loans among the studied banks. Operation efficiency had the value of average as 4.52, which imply that most of the banks incurred more operating expenses as compared to their operating income. In regard to bank size, the value of average wa4.59, this means that the studied banks invested in different assets that were used to finance the operations.

### 4.3 Diagnostic Tests

These are detailed in sub sections below:

### 4.3.1 Multicollinearity Test

Multicollinearity is a situation when at least one of the independent variables of the study has a relationship with another one (Rutter & Gatsonis, 2001). This should not be the case as it will have strongly violated the premise of regressing the variables. The study will adopt the Variance of Inflation Factors (VIF) to test for multicollinearity Table 4.2 is an overview of the findings.

**Table 4. 2: Multicollinearity Test**

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Credit risk management	.980	1.021
	Operational efficiency	.984	1.016
	Bank size	.978	1.022

The findings reported in Table 4.2 are that all the variables have VIF values less than 2. This agrees with Rutter & Gatsonis (2001) VIF values within range of 1-10 under this test means absence of multicollinearity.

### 4.3.2 Normality Test

Normality is a situation when there is normal distribution in a data set. This is a desirable attribute that is required before conducting regression analysis (Yan & Su, 2003). The study will leverage Shapiro-Wilk test to determine and infer presence of normality assumption in the data and the resultant p-values will be interpreted at 5% level. Table 4.3 is a breakdown of results.

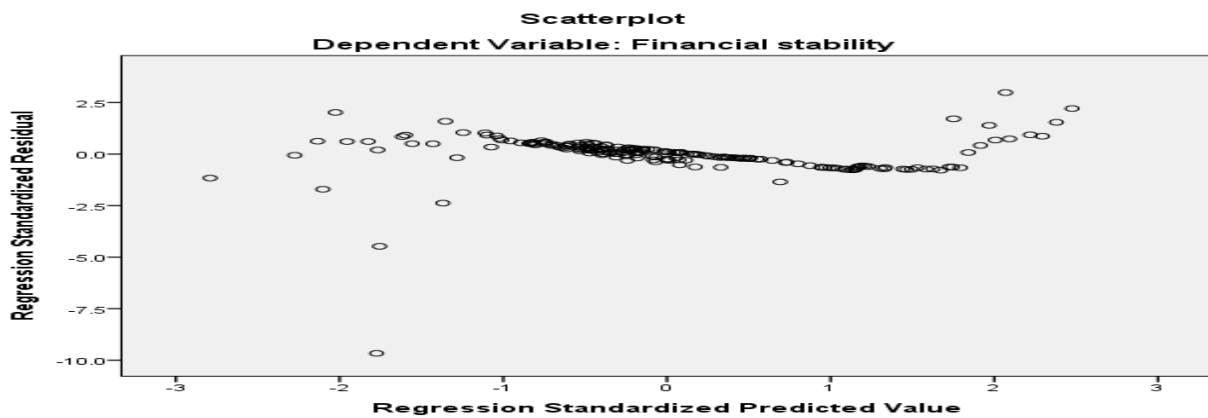
**Table 4. 3: Normality Test**

	Shapiro-Wilk		
	Statistic	df	Sig.
Financial stability	.863	17	.117
Credit risk management	.366	10	.880
Operational efficiency	.628	22	.902
Bank size	.658	10	.567

It was observed from Table 4.3 that the p-values across all the variable are above 0.05. This agrees with Meuleman, Loosveldt & Emonds (2015) who noted that  $>0.05$  leads to the assumption of the normality condition in the data.

### 4.3.3 Heteroskedasticity

Heteroskedasticity is a situation of when there is constant variance in the error term of the regression model (Yan & Su, 2003). This is undesirable condition and its opposite but desirable state is homoskedasticity. The study used scatter plots to determine presence of this assumption absence of pattern showing lack of this assumption (Pesaran, 2021). Figure 4.1 is a breakdown of results.



**Figure 4.1: Heteroskedasticity**

The findings in the scatter plot indicate that there is no clearly visible pattern, which means that there was no Heteroskedasticity in the data (Pesaran, 2021). As such, Homoskedasticity assumption was assumed which is desirable.

#### 4.4 Correlation Results

**Table 4.4: Correlation Results**

		<b>Financial stability</b>	<b>Credit risk management</b>	<b>Operational efficiency</b>	<b>Bank size</b>
Financial stability	Pearson Correlation	1			
	Sig. (2-tailed)				
	N	195			
Credit risk management	Pearson Correlation	.581	1		
	Sig. (2-tailed)	.011			
	N	195	195		
Operational efficiency	Pearson Correlation	.527	.150*	1	
	Sig. (2-tailed)	.000	.037		
	N	195	195	195	
Bank size	Pearson Correlation	.759	.070	.251**	1
	Sig. (2-tailed)	.000	.331	.000	
	N	195	195	195	195

Table 4.4 indicate that credit risk management ( $r=0.581$ ), operational efficiency ( $r=0.527$ ) and bank size ( $r=0.759$ ) all have strong and positive relationship with financial stability. Thus, credit risk is a strong correlate of financial stability.

#### 4.5 Regression Results

The effect of credit risk management on financial stability was explored through regression analysis. Table 4.5 is the findings of the mode summary.

**Table 4.5: Model Summary**

<b>Model</b>	<b>R</b>	<b>R Square</b>	<b>Adjusted R Square</b>	<b>Std. Error of the Estimate</b>
1	.803 <sup>a</sup>	.645	.639	3.42160

Table 4.5 shows that 63.9% of variation in financial stability of commercial banks in Kenya is explained by credit risk. Thus, there are other addition factors with an effect on financial stability that should create concern for further inquiries. Table 4.6 is a breakdown of the ANOVA.

**Table 4.6: ANOVA**

<b>Model</b>		<b>Sum of Squares</b>	<b>df</b>	<b>Mean Square</b>	<b>F</b>	<b>Sig.</b>
1	Regression	4054.281	3	1351.427	115.434	.000 <sup>b</sup>
	Residual	2236.106	191	11.707		
	<b>Total</b>	<b>6290.387</b>	<b>194</b>			

With an F calculated of 115.434 and  $p < 0.05$ , it follows that the overall regression model was significant. The beta and significance results are summarized in Table 4.7.

**Table 4.7: Beta and Significance**

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	28.200	1.733		16.268	.000
	Credit risk management	.529	.189	.097	2.799	.028
	Operational efficiency	.509	.100	.239	5.090	.000
	Bank size	.348	.083	.692	4.193	.000

From the beta coefficient values in Table 4.7,

The findings in Table 4.7 indicate that credit risk management reported the highest effect on financial stability of Kenyan commercial banks ( $\beta=0.529$ ) followed by operational efficiency ( $\beta=0.509$ ) and then bank size ( $\beta=0.348$ ). In terms of significance at 5%, the study observed that credit risk, operational efficiency and bank size ( $p<0.05$ ) all have significant effect on financial stability. Thus, credit risk is a key enabler of financial stability of commercial banks.

#### 4.6 Discussion of the Findings

Correlational results were that credit risk is a strong correlate of financial stability. This means that any improvement in credit risk management practices of the commercial banks would lead to an improvement in financial stability position. The finding disagrees with Anh and Phuong (2021) who documented existence of a negative link between NPLs and financial stability of banks. The finding further disagrees with Otieno, Nyagol and Onditi (2016) who established negative link between credit risk management (CRM) and financial performance. However,, this finding agree with Bashaija and Mahina (2018) who noted existence of a positive and significant link between credit risk management and financial stability. Cheror (2020) covered SACCOs in Nairobi to

determine how credit management practices impacted on financial stability and a positive relationship was noted. Githaiga (2015) sought to relate CRM and financial performance among Kenyan commercial banks where an inverse but weak link was established. Among the listed commercial banks, Onang'o (2017) analyzed how CRM impacts on financial performance and sampling was done purposively and the results were mixed. Pham and Doan (2020) who appraised financial inclusion and its implication on financial stability while focusing on Asian countries and a positive interaction was registered. In Vietnam, Anh and Phuong (2021) did an analysis of credit risk and financial stability where a negative link was registered by NPLs and financial stability. Among commercial banks in Pakistan, Hamza (2017) did an assessment of credit risk management and performance and mixed results were established. Among MFIs in Rwanda, Bashaija and Mahina (2018) evaluated CRM and FS where positive relationship was noted

Regression analysis showed that credit risk is a key enabler of financial stability of commercial banks. This means that credit risk is important risks that cannot be ignored when make financial stability decisions among commercial banks. The result agree Otieno, Nyagol and Onditi (2016) who studied CRM and financial performance focusing on MFs in Kenya where a significant relationship was registered.

## **CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATIONS**

### **5.1 Introduction**

The chapter details a summary of the analyzed results, conclusion and recommendations. The limiting factors and areas that deserve future inquiries are also indicated.

### **5.2 Summary of the Study**

Results from descriptive statistics were that the studied banks had a relatively low level of financial stability. NPLs were nineteen percent of the total loans among the studied banks. Most of the banks incurred more operating expenses as compared to their operating income. The studied banks invested in different assets that were used to finance the operations.

Correlation results were that credit risk management, operational efficiency and bank size all have strong and positive relationship with financial stability. Thus, credit risk is a strong correlate of financial stability. From regression analysis, credit risk management had the highest effect on financial stability of Kenyan commercial banks followed by operational efficiency and then bank size. Credit risk is a key enabler of financial stability of commercial banks.

### **5.3 Conclusion of the Study**

Financial stability is a challenge among majority of the commercial banks in Kenya. This can be demonstrated by the increased number of mergers and acquisitions in the banking industry over the past decade. This is further illustrated by the collapse of some banks like Chase Bank. On average, these banks have some level of NPLs in the loan portfolios. In some of the commercial banks, the operating incomes were less than operating expenses further signaling these concerns about financial stability.



It is concluded that credit risk has a strong and far reaching implication on financial stability of commercial banks. This credit risk is occasioned by a surge in the level of NPLs, implying that majority of the banks in Kenya don't have sound credit risk management practices. Credit risk was found to explain over half of financial stability of commercial banks, implying that the model was suitably selected. Taking into consideration the results from correlation analysis, it became evident that credit risk was a key driver of financial stability among Kenyan commercial banks.

#### **5.4 Recommendations of the Study**

The credit and loan managers working in commercial banks in Kenya should review the existing credit risk management guidelines to make them so robust aimed at countering the challenge of the increase in NPLs among these institutions. The board committee responsible for credit risk among commercial banks should enhance their oversight role to counter the challenge of credit risk in commercial banks. Regular follow up on customer loan accounts should be done to recover the outstanding loan facilities, The finance managers working among commercial banks in Kenya should set aside adequate loan loss provision that is able to cushion the banks against growing levels of NPLs.

The policy makers working at the CBK should enact and implement relevant policies in regard to credit management to safeguard the remaining banks against imminent corporate failure and financial distress that are occasioned by financial instability challenges and concerns. The policy makers working in commercial banks in Kenya should develop and implement sound policies revolving around credit risk management.

### **5.5 Limitations of the Study**

The study was limited to 39 commercial banks that were operational as at 31 December 2021. This is a limitation as it cannot permit generalization of results to the entire financial sector in Kenyan context. The other limitation was that only information in its secondary form was collected and analyzed in this study. Primary data is ideal compared to secondary data that can be prone to manipulation.

### **5.6 Areas for Further Research**

In the present study, it was pointed out that 63.9% of variation in financial stability of commercial banks in Kenya is explained by credit risk. Thus, there are other addition factors with an effect on financial stability that should create concern for further inquiries. Hence, the focus of further inquiries should be on bringing out these other additional factors.

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## Appendix I: List of Commercial Banks in Kenya

1. NCBA Bank Kenya Ltd.
- 2 Equity Bank Kenya Ltd
- 3 KCB Bank Kenya Ltd
- 4 Co-operative Bank of Kenya Ltd
- 5 ABSA Kenya Plc
- 6 Diamond Trust Bank (K) Ltd
- 7 Stanbic Bank Kenya Ltd
- 8 Standard Chartered Bank (K) Ltd
- 9 Family Bank Ltd
- 10 National Bank of Kenya Ltd
- 11 HFC Limited
- 12 Ecobank Kenya Ltd
- 13 I & M Bank Ltd.
- 14 Bank of Africa Kenya Ltd
- 15 Bank of Baroda Ltd
- 16 Prime Bank Ltd
- 17 Bank of India
- 18 Citibank N.A. Kenya
- 19 Sidian Bank Limited
- 20 SBM Bank (Kenya) Ltd.
- 21 Kingdom Bank Limited
- 22 Access Bank (Kenya) PLC
- 23 Gulf African Bank Ltd
- 24 First Community Bank Ltd
- 25 Consolidated Bank of Kenya Ltd
- 26 Credit Bank Ltd
- 27 African Banking Corporation Ltd
- 28 Spire Bank Limited
- 29 Guaranty Trust Bank (Kenya) Ltd
- 30 Guardian Bank Limited

- 31 Paramount Bank Ltd
- 32 UBA Bank Kenya Ltd
- 33 M-Oriental Commercial Bank Ltd
- 34 DIB Bank Kenya Ltd
- 35 Habib Bank A.G. Zurich
- 36 Middle East Bank Ltd
- 37 Victoria Commercial Bank Ltd
- 38 Mayfair CIB Bank Ltd
- 39 Development Bank of Kenya Ltd
- 40 Imperial Bank Ltd\*
- 41 Chase Bank Ltd\*\*
- 42 Charterhouse Bank Ltd\*\*

**\*Bank in Receivership    \*\*Banks in Liquidation**

## Appendix II: Raw Data Collected

Year	Bank Name	Financial stability	Credit risk management	Operational efficiency	Bank size
2017	KCB Bank Kenya Ltd	1.753	0.083	4.771	5.398
2017	Co-operative Bank of Kenya Ltd	2.060	0.071	4.277	5.414
2017	Equity Bank Kenya Ltd	1.035	0.067	5.295	5.544
2017	I & M Bank Ltd	1.264	0.139	3.787	5.324
2017	Absa Bank Kenya Plc	0.876	0.071	4.716	5.579
2017	Standard Chartered Bank Kenya Ltd	0.358	0.126	4.352	5.703
2017	NCBA Bank Kenya PLC	3.072	0.073	5.868	4.842
2017	Stanbic Bank Kenya Ltd	1.283	0.076	4.064	5.215
2017	Bank of Baroda (Kenya) Limited	1.432	0.061	4.561	5.388
2017	Citibank N.A. Kenya	-0.113	0.045	3.320	4.748
2017	Diamond Trust Bank Kenya Limited	0.879	0.076	4.678	4.833
2017	Bank of India	0.729	0.021	3.340	4.673
2017	Prime Bank Ltd	0.758	0.057	4.538	4.815
2017	Family Bank Ltd.	1.605	0.202	3.287	4.919
2017	SBM Bank Kenya Ltd	1.789	0.586	1.355	5.312
2017	Gulf African Bank Ltd	1.988	0.097	4.848	5.014
2017	Guaranty Trust Bank Ltd	1.533	0.103	2.038	3.418
2017	Victoria Commercial Bank Limited	0.836	0.001	3.102	5.061
2017	Habib Bank AG Zurich	1.857	0.104	4.789	4.680
2017	National Bank of Kenya Ltd	1.995	0.406	8.899	4.215
2017	First Community Bank Ltd	3.886	0.400	8.131	3.974
2017	African Banking Corporation Ltd	4.351	0.216	5.365	4.351
2017	Middle East Bank (K) Ltd	3.368	0.444	3.267	4.197
2017	Sidian Bank Ltd	3.999	0.211	3.537	4.086
2017	Paramount Bank Ltd	2.194	0.123	4.689	4.140
2017	Guardian Bank Limited	0.861	0.109	5.559	4.167
2017	UBA Kenya Bank Ltd	0.954	0.046	0.808	4.350
2017	M-Oriental Commercial Bank Ltd	-5.390	0.105	2.367	3.719
2017	Development Bank of Kenya Ltd	0.824	0.216	2.286	3.997
2017	Credit Bank Ltd	4.791	0.086	3.647	4.020
2017	Ecobank Kenya Ltd	-1.506	0.386	4.412	4.175



2017	Kingdom Bank Ltd	1.671	0.212	2.207	3.748
2017	Consolidated Bank of Kenya Limited	0.742	0.251	6.796	4.434
2017	Mayfair CIB Bank Ltd	0.451	0.047	3.966	4.231
2017	Bank of Africa (K) Ltd	0.984	0.315	4.695	4.320
2017	DIB Bank Kenya Ltd	3.130	0.306	3.822	4.144
2017	HFC Ltd	1.223	0.156	0.792	5.455
2017	Spire Bank Limited	0.146	0.342	4.186	5.434
2017	Access Bank Plc	0.811	0.217	4.825	5.583
2018	KCB Bank Kenya Ltd	1.473	0.069	3.792	5.361
2018	Co-operative Bank of Kenya Ltd	0.083	0.112	4.276	5.609
2018	Equity Bank Kenya Ltd	0.184	0.074	4.785	5.745
2018	I & M Bank Ltd	1.934	0.146	5.650	4.839
2018	Absa Bank Kenya Plc	0.380	0.074	4.629	5.265
2018	Standard Chartered Bank Kenya Ltd	0.318	0.163	4.078	5.431
2018	NCBA Bank Kenya PLC	0.248	0.078	3.190	4.734
2018	Stanbic Bank Kenya Ltd	2.372	0.107	4.429	4.793
2018	Bank of Baroda (Kenya) Limited	3.913	0.090	2.691	4.728
2018	Citibank N.A. Kenya	0.760	0.030	4.014	4.883
2018	Diamond Trust Bank Kenya Limited	4.238	0.072	4.086	4.983
2018	Bank of India	2.083	0.070	4.001	5.379
2018	Prime Bank Ltd	6.109	0.074	5.900	4.992
2018	Family Bank Ltd.	1.902	0.173	1.759	4.441
2018	SBM Bank Kenya Ltd	2.598	0.691	3.328	5.041
2018	Gulf African Bank Ltd	1.477	0.109	4.387	4.753
2018	Guaranty Trust Bank Ltd	1.210	0.189	13.414	4.213
2018	Victoria Commercial Bank Limited	3.348	0.031	8.645	3.980
2018	Habib Bank AG Zurich	3.753	0.090	6.234	4.395
2018	National Bank of Kenya Ltd	-14.503	0.476	3.363	4.109
2018	First Community Bank Ltd	4.121	0.462	3.702	4.160
2018	African Banking Corporation Ltd	1.158	0.401	4.391	4.047
2018	Middle East Bank (K) Ltd	5.722	0.400	5.524	4.199
2018	Sidian Bank Ltd	4.511	0.209	1.384	4.415
2018	Paramount Bank Ltd	-2.243	0.173	2.465	3.709
2018	Guardian Bank Limited	2.553	0.099	2.133	4.024
2018	UBA Kenya Bank Ltd	1.584	0.128	4.105	4.013

2018	M-Oriental Commercial Bank Ltd	7.194	0.096	6.785	4.240
2018	Development Bank of Kenya Ltd	0.447	0.287	1.558	3.813
2018	Credit Bank Ltd	3.399	0.083	8.096	4.496
2018	Ecobank Kenya Ltd	1.029	0.217	3.704	4.272
2018	Kingdom Bank Ltd	0.585	0.696	5.737	4.286
2018	Consolidated Bank of Kenya Limited	2.042	0.253	6.628	4.129
2018	Mayfair CIB Bank Ltd	0.084	0.306	4.861	5.454
2018	Bank of Africa (K) Ltd	2.856	0.362	4.442	5.512
2018	DIB Bank Kenya Ltd	0.254	0.466	5.627	4.605
2018	HFC Ltd	2.996	0.271	4.569	5.366
2018	Spire Bank Limited	4.969	0.440	4.773	5.642
2018	Access Bank Plc	4.280	0.242	4.927	5.794
2019	KCB Bank Kenya Ltd	2.229	0.074	5.396	4.825
2019	Co-operative Bank of Kenya Ltd	3.158	0.111	5.682	5.360
2019	Equity Bank Kenya Ltd	2.711	0.090	4.925	5.450
2019	I & M Bank Ltd	1.833	0.123	2.789	4.691
2019	Absa Bank Kenya Plc	-2.594	0.066	4.293	4.757
2019	Standard Chartered Bank Kenya Ltd	1.231	0.139	3.023	4.736
2019	NCBA Bank Kenya PLC	5.795	0.125	3.051	4.994
2019	Stanbic Bank Kenya Ltd	3.500	0.118	4.195	5.090
2019	Bank of Baroda (Kenya) Limited	2.957	0.084	7.164	5.449
2019	Citibank N.A. Kenya	4.920	0.041	5.845	4.933
2019	Diamond Trust Bank Kenya Limited	2.511	0.083	1.859	4.404
2019	Bank of India	4.653	0.089	3.892	5.061
2019	Prime Bank Ltd	2.976	0.117	4.962	4.797
2019	Family Bank Ltd.	3.617	0.152	14.164	4.185
2019	SBM Bank Kenya Ltd	5.421	0.550	11.155	3.995
2019	Gulf African Bank Ltd	2.596	0.147	5.913	4.435
2019	Guaranty Trust Bank Ltd	-13.217	0.185	3.443	4.000
2019	Victoria Commercial Bank Limited	6.979	0.049	4.105	4.251
2019	Habib Bank AG Zurich	13.738	0.112	4.644	3.965
2019	National Bank of Kenya Ltd	8.167	0.415	5.049	4.209
2019	First Community Bank Ltd	5.816	0.397	2.668	4.510
2019	African Banking Corporation Ltd	0.028	0.177	2.327	3.729

2019	Middle East Bank (K) Ltd	2.299	0.141	1.949	4.022
2019	Sidian Bank Ltd	-3.144	0.206	4.410	4.010
2019	Paramount Bank Ltd	-12.156	0.176	6.859	4.252
2019	Guardian Bank Limited	0.644	0.095	2.265	4.186
2019	UBA Kenya Bank Ltd	3.843	0.230	8.976	4.523
2019	M-Oriental Commercial Bank Ltd	6.987	0.189	3.741	4.333
2019	Development Bank of Kenya Ltd	-8.364	0.341	-6.286	4.404
2019	Credit Bank Ltd	-21.099	0.101	4.013	4.110
2019	Ecobank Kenya Ltd	16.101	0.198	5.797	5.480
2019	Kingdom Bank Ltd	15.581	0.565	4.282	5.573
2019	Consolidated Bank of Kenya Limited	16.005	0.295	5.451	5.653
2019	Mayfair CIB Bank Ltd	7.970	0.015	4.165	5.667
2019	Bank of Africa (K) Ltd	21.901	0.399	5.499	5.705
2019	DIB Bank Kenya Ltd	21.117	0.010	5.007	5.829
2019	HFC Ltd	6.535	0.269	5.190	4.897
2019	Spire Bank Limited	15.687	0.515	5.278	5.405
2019	Access Bank Plc	10.920	0.176	5.202	5.458
2020	KCB Bank Kenya Ltd	-38.953	0.123	3.430	4.643
2020	Co-operative Bank of Kenya Ltd	-0.043	0.168	4.251	4.757
2020	Equity Bank Kenya Ltd	2.087	0.120	3.010	4.877
2020	I & M Bank Ltd	6.375	0.126	3.326	5.037
2020	Absa Bank Kenya Plc	14.321	0.074	4.701	5.156
2020	Standard Chartered Bank Kenya Ltd	12.423	0.146	6.420	5.466
2020	NCBA Bank Kenya PLC	18.390	0.139	6.002	4.985
2020	Stanbic Bank Kenya Ltd	3.765	0.142	2.150	4.464
2020	Bank of Baroda (Kenya) Limited	-4.015	0.124	4.303	5.049
2020	Citibank N.A. Kenya	1.244	0.028	6.672	4.796
2020	Diamond Trust Bank Kenya Limited	8.058	0.119	8.393	4.186
2020	Bank of India	2.920	0.047	11.138	4.019
2020	Prime Bank Ltd	2.604	0.109	6.229	4.458
2020	Family Bank Ltd.	1.985	0.149	6.176	3.934
2020	SBM Bank Kenya Ltd	0.592	0.441	4.483	4.333
2020	Gulf African Bank Ltd	-4.612	0.176	4.768	3.836
2020	Guaranty Trust Bank Ltd	5.529	0.208	4.772	4.214
2020	Victoria Commercial Bank Limited	0.657	0.066	6.066	4.557

2020	Habib Bank AG Zurich	3.038	0.122	3.019	3.928
2020	National Bank of Kenya Ltd	1.367	0.354	1.526	4.093
2020	First Community Bank Ltd	-1.916	0.361	5.781	3.969
2020	African Banking Corporation Ltd	0.706	0.156	10.098	4.273
2020	Middle East Bank (K) Ltd	2.780	0.103	15.756	4.207
2020	Sidian Bank Ltd	2.759	0.115	4.398	4.546
2020	Paramount Bank Ltd	0.667	0.171	4.147	4.395
2020	Guardian Bank Limited	0.958	0.128	8.248	4.422
2020	UBA Kenya Bank Ltd	0.512	0.407	3.906	4.074
2020	M-Oriental Commercial Bank Ltd	0.855	0.234	5.290	5.513
2020	Development Bank of Kenya Ltd	0.387	0.337	4.316	5.577
2020	Credit Bank Ltd	0.114	0.115	0.744	5.696
2020	Ecobank Kenya Ltd	5.736	0.163	4.169	5.692
2020	Kingdom Bank Ltd	0.815	0.762	5.640	5.825
2020	Consolidated Bank of Kenya Limited	0.153	0.240	5.108	5.880
2020	Mayfair CIB Bank Ltd	0.568	0.026	5.407	4.957
2020	Bank of Africa (K) Ltd	0.339	0.398	5.180	5.453
2020	DIB Bank Kenya Ltd	4.434	0.014	5.061	5.494
2020	HFC Ltd	0.857	0.258	3.578	4.652
2020	Spire Bank Limited	0.166	0.708	3.849	4.736
2020	Access Bank Plc	0.047	0.046	2.738	4.975
2021	KCB Bank Kenya Ltd	4.672	0.219	3.556	5.065
2021	Co-operative Bank of Kenya Ltd	1.783	0.130	5.328	5.221
2021	Equity Bank Kenya Ltd	0.892	0.084	6.316	5.504
2021	I & M Bank Ltd	1.640	0.108	5.960	5.027
2021	Absa Bank Kenya Plc	3.597	0.077	2.320	4.495
2021	Standard Chartered Bank Kenya Ltd	1.487	0.157	4.194	5.103
2021	NCBA Bank Kenya PLC	0.837	0.160	6.788	4.876
2021	Stanbic Bank Kenya Ltd	0.315	0.112	8.313	4.236
2021	Bank of Baroda (Kenya) Limited	3.072	0.105	9.176	4.056
2021	Citibank N.A. Kenya	2.229	0.019	7.154	4.514
2021	Diamond Trust Bank Kenya Limited	-5.152	0.158	7.475	4.486
2021	Bank of India	0.147	0.028	5.580	4.364
2021	Prime Bank Ltd	-4.236	0.109	4.848	3.709
2021	Family Bank Ltd.	1.644	0.150	4.671	4.227

2021	SBM Bank Kenya Ltd	4.344	0.344	3.444	4.579
2021	Gulf African Bank Ltd	4.764	0.161	3.175	4.042
2021	Guaranty Trust Bank Ltd	0.897	0.138	1.622	4.113
2021	Victoria Commercial Bank Limited	3.342	0.139	5.481	4.006
2021	Habib Bank AG Zurich	0.773	0.116	11.348	4.341
2021	National Bank of Kenya Ltd	1.440	0.335	3.908	4.273
2021	First Community Bank Ltd	0.689	0.288	5.021	4.576
2021	African Banking Corporation Ltd	0.922	0.197	4.851	4.435
2021	Middle East Bank (K) Ltd	1.482	0.079	-2.634	4.525
2021	Sidian Bank Ltd	5.221	0.118	5.539	4.110
2021	Paramount Bank Ltd	0.498	0.191	0.643	3.793
2021	Guardian Bank Limited	4.304	0.164	0.770	4.213
2021	UBA Kenya Bank Ltd	0.608	0.478	0.284	3.954
2021	M-Oriental Commercial Bank Ltd	5.875	0.268	2.791	3.023
2021	Development Bank of Kenya Ltd	6.347	0.293	0.329	3.514
2021	Credit Bank Ltd	0.959	0.282	5.448	3.265
2021	Ecobank Kenya Ltd	0.336	0.161	1.139	3.853
2021	Kingdom Bank Ltd	0.601	0.745	0.586	3.236
2021	Consolidated Bank of Kenya Limited	7.209	0.275	0.872	3.139
2021	Mayfair CIB Bank Ltd	2.601	0.038	2.335	3.511
2021	Bank of Africa (K) Ltd	1.609	0.317	9.600	3.479
2021	DIB Bank Kenya Ltd	3.517	0.150	0.915	3.331
2021	HFC Ltd	4.149	0.220	1.464	2.711
2021	Spire Bank Limited	4.582	0.760	1.089	3.220
2021	Access Bank Plc	1.345	0.065	1.408	3.590