THE EFFECT OF CREDIT RISK MANAGEMENT ON THE FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN KENYA

BY:

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DECLARATION

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

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

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The committed staff in the Banking Industry, can't go without my uncommon affirmation for requiring some investment off their bustling timetable to give me all the data I required throughout the exploration. Without their tremendous participation I would not have achieved this far.

DEDICATION

This work is devoted to my family and in addition every one of the individuals who upheld me in the culmination of this project.

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LIST OF ABBREVIATIONS

ANOVA	Analysis of Variance
APT	Arbitrage Pricing Theory
CAPM	Capital Asset Pricing Method
CAR	Capital Adequacy Ratio
CBK	Central Bank of Kenya
CRM	Credit Risk Management
GDP	Gross Domestic Product
GNP	Gross National Product
NPRL	Non Performing Loans Ratio
NSE	Nairobi Securities Exchange
ROA	Return on Asset
ROE	Return on Equity
SACCOS‘s	Savings and Credit Societies
SPSS	Statistical Package for the Social Sciences
VIF	Variance Inflation Factor

ABSTRACT

The contemporary economy is fundamentally credit based hence commercial banks assume a pivotal role through credit creation. However recent bank collapse witnessed in the country has brought into sharp focus management of credit risk. This research tries to examine the effect of credit risk administration on the financial performance of business banks in Kenya. It will endeavor to build up if there exists a relationship between credit risk management using the determinants of credit risk management as follows: Credit analysis, Credit risk identification, Credit scoring mechanism and Credit risk monitoring and the financial performance of commercial banks in Kenya. Several literatures were reviewed to give the researcher insights into the subject which has enabled the researcher to identify gaps in the previous studies. Both primary and secondary information were utilized in the investigation. Primary information on credit risk management was gathered utilizing a questionnaire while secondary information on the banks execution in budgetary viewpoint was separated from different bank's distributed fiscal reports for a long time from 2013-2017.The gathered information was condensed by elucidating insights like standard deviation and the mean and afterward broke down utilizing regression analysis and correlation examination. The examination found a critical positive relationship between credit analysis, credit scoring and the financial performance of business banks in Kenya, it additionally found a negative however irrelevant relationship between credit identification and performance and finally it found a positive yet unimportant relationship between credit monitoring and financial performance. The investigation prescribed that the administration of business banks put more exertion using loan analysis and acknowledge scoring components as this will enable capture credit risk at the beginning, moreover it suggested that the administrative bodies should think of arrangements and controls that fortify credit risk management practices in the business banks.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Banking institutions are key entities in the financial services sector, hence the banking sector is significant in ensuring the growth as well as the development of any particular economy. The main goal of any banking institution is to attain increased returns thus high profitability (Adenkule and Yinika, 2015). However in the past ten years banks have faced multiple challenges that have potentially threatened their stability. (World Bank, 2017)

The contemporary economy is basically credit based. According to Alloyo (2013) credit risk has been known to be the leading cause of failure of banking institutions. Perhaps the most significant indicators of credit risk in the Kenyan economy are: Increased number of non-performing loans, accelerated growth base as well as optimistic ranking or categorization of clients during credit risk analysis. Other factors include the interest rate being charged, based on the type of loan i.e. secured or unsecured, the value of the amounts being disbursed and also the sector to which the amounts are advanced among others.

The main income generating activity of banking institutions is credit creation which exposes the banking institutions to credit risk (Darell, 2012). Risk is inherent to commercial banks given the nature of their day to day operations (Singh, 2013) .It is worth noting that banking institutions are faced with numerous risks such as liquidity, reputational, market and operational risks. However, credit risk is one that is of greater concern to both bank management and the regulatory authorities (Naceur, 2003). Duaka (2015) indicates that the

failure by banking institutions to effectively and comprehensively manage credit risk mostly contributes to banks financial crisis.

In 2017 the Kenyan banking sector experienced a slowdown in credit growth where it hit a record low of 1.7%. Key industry players however blamed the same on the interest rate cap implemented in 2016 by the CBK. The Law caps interest rates to a tune of 4% above the country's Central Bank Rate (CBR) and also imposes 70% minimum deposit rate to the set benchmark. Currently the CBR is at 10% effectively capping the interest rate at 14% and the minimum deposit rate at 7%. This has greatly affected interest incomes as commercial banks previously used to charge interest rates as high as 23%. The World Bank (2017) argues that the decline in the private sector access to credit from 2015 accounts for the slowdown in economic performance in Kenya. It is therefore evident that the Kenyan economy actually espouses some if not all symptoms that lead to the failure of banking institutions.

The study will analyze several theories which include the capital asset pricing theory which basically covers decisions surrounding diversified portfolios, the arbitrage pricing theory which is an alternate to the capital asset pricing theory as a result of the limitations occasioned by the over simplified assumptions under CAPM, the buffer theory of capital adequacy which covers minimum capital requirements and finally the liquidity preference theory.

1.1.1 Credit Risk Management

It is the risk of default arising as a result of a client failing to make repayments on the amounts advanced as per the stipulated terms. More specifically and in relation to the

banking sector, credit risk implies the likely hood that a bank debtor won't meet his/her obligation as per the set contract (Oludhe, 2011). On the other hand, CRM describes the systems and processes put in place by banking institutions to mitigate or control its financial exposures (Metzmakers, 2001). Commercial banks develop credit policy guidelines for making investment and leading decisions, this also gives a reflection of the banks appetite towards risk. (Mercylynne & Job, 2017)

The Central Bank of Kenya plays a major part in CRM for commercial banks by laying down guidelines for the banking institutions to follow. Interest rates are a key determinant in loan defaults in that there is a high probability that a borrower my fail to make repayments when the rates charged are overly excessive and vice versa. To this end the CBK introduced an interest rate cap in September 2016. Although the measure has been deemed as counterproductive by the industry players, it has to some extent safe guarded the banking institutions against credit risk.

1.1.2 Financial Performance of Commercial Banks

The ultimate goal of commercial banking institutions in Kenya or the world over is higher returns. Banks use various operating and financial ratios to determine their condition as well as the performance (Ogilo, 2012). Commonly used ratios include ROA and ROE. ROA refers to the percentage of profits that a corporation makes as a fraction of its total assets while ROE is the net income of a company as a percentage of shareholders equity or simply the amount of profits the company is able to generate with the funds from its shareholders. The assumption is that the higher the ROA implies that the company is using its assets efficiently hence generating more income while low ROA indicate inefficient use

of the assets. Similarly a high ROE implies that the company is utilizing the shareholders' funds efficiently to generate more income and vice versa.

Bank performance can be affected by a variety of aspects that could be grouped into either internal or external elements. Internal elements or factors are specific to a particular bank for example management strategies and board decisions while on the other hand external factors which can also be referred to as macroeconomic factors are conditions that are not specific to a bank and affect the sector as a whole. Macroeconomic factors are outside the control of the banks and include GDP, inflation, exchange rates, government policies and regulatory authorities' requirements among others. The CBK uses CAMEL analysis to measure the operations of commercial banks. It has set benchmarks for the various aspects for which the performance would be compared against.

1.1.3 Credit Risk and Financial Performance of Commercial Banks

Various risks influence the operating performance of commercial banks in Kenya for example market risk, liquidity risk, interest rate risk and political risk. Banking institutions are in the business of credit creation hence making credit risk one of the main risks affecting operating performance. Commercial banks devise credit policy guidelines which determine who should or should not access credit and the collateral if any that should be put up for particular amounts advanced.

In the recent past the loan books of commercial banks in Kenya have been growing at a very high rate further exposing them to credit risk. However the increase in the loan books has seen a spike in the non-performing loans signaling credit risk which has affected the

banks financial performance as a result of higher provisioning against the NPL and advances.

A number of banks have been placed under receivership or gone under in the recent past for example Dubai Bank, Chase Bank and Imperial Bank. A closer analysis of the factors that led to the downfall of this banks shows that non-performing loans played a key role. For example Chase Bank advanced huge amounts to insiders without registering collateral against this amounts while in some cases the advanced amounts to individuals were in excess of the regulatory limits. Most of these amounts remained unpaid. They further failed to make disclosures of the same in their financial statements in an attempt to doctor their accounts.

1.1.4 Commercial Banks in Kenya

The financial industry in Kenya has demonstrated colossal development in the course of the last couple of years driven by automation, globalization and use of mobile telephony. For example Mpesa has revolutionized banking in Kenya since it's easily accessible to any individual with a mobile phone enabling customers to easily make withdrawals and deposits from the comfort of their homes while also making payments for various services. Simply put the Kenyan banking sector is slowly moving away from "traditional banking".

As at 31st December 2017, the banking sector in Kenya had a portfolio of 43 banking institutions comprising, 42 business banks and 1 housing finance company. 25 of these were locally controlled, 15 had over 50% foreign ownership while the government owned

3 banks. Additionally a No. of Kenyan Banks have subsidiaries in the larger East African Community for example, KCB, Equity, Commercial Bank of Africa and Bank of Africa.

In terms of regulation banks are controlled by the Banking Act, the CBK Act as well as the Companies Act. These acts are used in conjunction with the prudential guidelines provided by the CBK .The CBK in its role as the regulator has the responsibility of ensuring the commercial banks operate as per the set guidelines and therefore safeguards' customer deposits. It is able to accomplish this through the Kenya Deposit Insurance Corporation (KDIC). The CBK further uses CAMEL rating system in assessing the soundness of commercial banks. Rating can either be strong, satisfactory or fair.

In 2017 the commercial banks in Kenya posted varying results with some of the big banks recording improvements while majority of the smaller banks posted poor results. This was blamed on the interest law cap, the 2016/2017 drought and the prolonged electioneering period which had created a lot of uncertainties'. The law however had both positive and negative repercussions, on one hand it improved efficiency and created convergence of product offering while on the other hand it saw a reduction in revenues, weakened the smaller banks and resulted in lower earnings among others. The reduction in interest income forced commercial banks to take cost cutting measures to try and reduce its expenses so as to improve profitability. These measure included layoffs and branch closures which also negatively affected the economy and therefore also indirectly affecting the performance of commercial banks.

1.2 Research Problem

Commercial banks role in an economy is to provide financial services to the populous which ensures socio economic stability as well as sustainable economic growth. By creating credit they provide funds for development projects thus accelerating economic development. Therefore the performance of commercial banking institutions directly affects the economy of any given nation.

Inadequacy of risk management and especially credit risk management was found to be the consistent element in the failure of commercial banks in the USA around the mid-1980s. Similarly in Kenya several banks e.g. Chase Bank and Imperial Bank among others have in the recent past gone under due to credit related issues such as Non-performing loans and advances. It can therefore be argued that ineffective credit risk management systems are the principal cause of bank collapse.

Several surveys have been conducted on the research area and the results were inconclusive and contradicting. Nduku (2016) studies indicated a weak relationship between credit risk as measured by NPLR and return on equity. A similar study by Githaiga (2013) showed CAR, liquidity and management efficiency had a strong relationship with ROA while Mutua (2014) concluded that a direct correlation existed between credit risk management and the financial performance or profitability of a company. Fan Li (2014) performed a similar study in Europe and the results showed the relationship between CAR and ROE is insignificant, it also showed an inverse relationship between NPLR and ROA.

Since commercial banks main revenue line is through credit creation and the fact that the various empirical studies carried out on the topic gave contradicting results coupled with

the changing dynamics of the Kenyan economy, the study possess the research question: "What is the effect of credit risk management on the financial performance on commercial banks in Kenya?" .

1.3 Research Objective

To determine the impact of credit risk management on the financial performance of commercial banking institutions in Kenya.

1.4 Value of the Study

Recent bank receiverships for example Chase Bank have underlined the importance of credit risk management. Regulators have increased the disclosures to be made on financial statements in an effort to fortify the solidity of the financial system since credit problems greatly affect banks financial performance.

This study will help regulators and the policy makers to put in place sound credit risk management guidelines and standards which will ensure appropriate credit levels for commercial banks hence therefore maintain credit risk at low rates as will be indicated by the non-performing loans.

Credit risk departments of commercial banking organizations will use the results of the following research to strengthen their credit risk management policies which will help in effectively managing this risk. It adds to scholarly knowledge and will help other scholars who wish to study the topic further as a reference tool.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter will highlight theories on credit risk, empirical studies carried on credit risk, the factors of operation performance, the conceptual frame work of the research, the summary on literature review and lastly the gap.

2.2 Theoretical Review

This will look at the existing theories on the topic of study and the relationships between them.

2.2.1 Capital Asset Pricing Theory

The theory was advance by Sharpe (1964), and John Linter (1968) by advancing on the works of (Markowitz, 1952) portfolio selection to come up with the CAPM. The model is used to advise on the required rate of return of a particular asset and making decisions on a well-diversified portfolio. It is restricted to a single period and takes into account the assets sensitivity to systematic or market risk. It makes various assumptions about the investors as follows: they are rational and risk averse, are price takers who trade without transaction costs, have homogenous expectations, aim to maximize economic utilities and information is accessible to all investors at the same time.

From the assumptions made on CAPM we can deduce that basically investors evade risk, the capital markets are assumed to be ideal , investment opportunities assume a normal distribution and no single individual or investor can influence or alter the security prices.

The model has however been criticized on the basis that some of the assumptions are unrealistic. For example investors are unlikely to have homogenous expectations and information cannot be available to all market participants at the same time. Empirical studies carried out on CAPM indicate asset returns cannot be solely determined by market risk (Black, Jensen, & Myron, 1972).With regards to the time period (Melody, Davis, Godfrey, & Takawira, 2016) noted that CAPM performs poorly over limits that fall outside its optimal range that stands at approximately 3-6 months. Lastly the market portfolio includes all assets financial and non-financial which may or may not be investable or tradeable.

According to Fama & Kenneth (2004) the attaraction of Capital asset pricing method is mainly due to the fact that it provides a strong and pleasing forecast about how to evaluate risk and return. Its verifiable problems however reflect its conceptual faillings as a result of the multiple simplifying assumptions. The problems are serious enough to invalidate most of its applications.

The model is applicable in the banking sector and more so credit risk management in that investors being risk averse they would prefer to invest where they anticipate a return.

2.2.2 Arbitrage Pricing Theory

Ross (1976) proposed the APT model as an alternate to CAPM as a result of its limitations occassioned by its numerous over simplified assumptions. It assumes theres many sources of risk and uncertainity and every investor can create a portfolio based on his or her risk tolerance.

According to Ross (1976) there are other macroeconomic factors that could relatively predict the expected returns.These include infaltion, GNP, Corporate bond premiums , shift in the yield curve, commodity prices, market indices and currency exchange rates.

Intuitively APT makes a lot of sense as it removes the restrictions imposed by the assumptions in CAPM. Some of its assumptions include the following: all participants in a market trade with the main goal of maximizing profits, no arbitrage is existent and if it does participants will participate inorder to benefit out of it and bring equilibrium to the market, markets are frictionless i.e. lack of construction costs, taxes, short selling is likely and an unlimited no of stock or securities are existent (Ross, 1976).

APT challenge is on applicability in that when determining the factors that influence a particular portfolio or stock will take a substantial amount of research. Various Studies however have shown that inflation, GNP, confidence of investors as well as shifts in the yield curve illuminate most of a security return. Jechehe (2006) in his empirical studies on arbitrage pricing in Zimbabwe for the period 1980 to 2005 showed that there is an immediate connection between trade rates and stock cost, GDP and stock prices while there is an inverse relationship between inflation and the stock prices.He asserts that the exchange rates must be predictable for stock prices to be predictable and the uncertainty of exchange rates may also depict instability in stock prices.

According to Chen (1983) APT can never be turned down in favour of any other alternative hypothesis since it performs well against CAPM. It is therefore a resonable model for explaining cross-sectional variation in asset prices. Cagneti (2002) asserts that APT performs better in all tests considered making it a more powerful method as it permits for

the consideration of the risk borne on supplementary systemic " state variables" other than the market portfolio.

2.2.3 Credit Management Theory

The theory arouse from Woolcock (1999) and argues that the markets for credit or loans are highly shaped by commercial banks strategies with respect to potential debtors or clients analysis screening and by addressing the deft conduct which is encoraged by the characteristics of loan contracts. Credit uptake tend will in general be contrarily identified with both interest rates and the required security or collateral againts the amounts advanced. Therefore business banks tend to use the credit management theory in the process taking advantage of the deft conduct presented by potential borrowers (Everlyn, 2016).

2.2.4 The Theory of Adverse Selection

The theory emanated from the works of Akerlof (1970), it assumes that lenders will be unable to distinguish between bank customers of various risk degrees and that the contracts of the bank loans offered to customers are all exposed to restricted liability.It further asserts that commercial banks cannot distinguish safe from risky borrowers since they have inadequate information about the clients.Therefore adverse selection occurs when market participation is affected by assymetric information where the buyers in this case " borrowers" and sellers "commercial banks" have different information about the other party which ends up in benefitting one party at the expense of the other.

2.3 Determinants of Financial Perfomance

This section will assess Capital adequacy, Asset quality, and Liquidity and Total assets as the main determinants that affect the banking sector performance in Kenya.

2.3.1 Capital Adequacy

Ongore and Kusa (2013) argue that capital is one of the bank explicit components that affects the amount of returns.Capital alludes to funds accessible to aid the banks operations. It further creates liquidity and the more the it is it reduces the chances of financial distress.

Capital adequacy alludes to the amount of funds required to shield them from the risks (Ongore & Kusa, 2013). According to Yahaya, Mansor and Okazaki (2016) capital adequacy is a crucial component in deciding the level of risk assimilation of banks.They further argue that it plays a key part in the security of banks and potrays banks' images as a whole, possibly drawing public assurance to invest in the bank.

The capital adequacy ratio is strongly linked to profitability of commercial banks as it informs banks investment decision by measuring the risk associated with certain ventures. (Sagmi & Tabassum, 2010).

2.3.2 Asset Quality

Abata & Adeolu (2017) argue that this is an facet of bank administration which involves the analysis of a bank asset in order to ascertain the level and size of credit risk associated with its operation. It is focused on the quality of loans advanced. Asset quality further highlights the measure of existing and potential credit risk identified with the proression of an investment. (Ishaq, Karim, & Ahmed, 2016)

Deteriorating in banks asset worth distresses its operations and financial performance as well as the generall reliability of the financial system. (Abata & Adeolu, 2017). The core principles on bank supervision according to Basle committee comprised 25 essential ideologies whereby 7 are intended to manage the pertinent bank asset quality or credit risk management.

2.3.3 Liquidity

Liquidity refers to a situation where a bank meets its obligation as and when they fall due. For a bank to achieve its goal of being profitable they should eliminate the risk of incapacity to meet its interim commitments. (Kartal, 2016)

Kanga and Achoki (2016) argue that liquidity is a key factor in the determination of the banks financial performance.Futher companies have different liquidity needs depending on the circumstances. The main factors influencing liquidity being the nature and size of the business operations.

2.3.4 Total Assets

By size we refer to the banks total assets. According to a study on the effect of the bank size on profitability done by Aladwan (2015) on the Jordanian commercial banks for the period 2007 to 2012, the results showed that profitability and bank size had a negative relationship.This supports the argument that the smaller the bank in terms of its total assets the better its profitability.

Contraly to the above assertion by Aladwan (2015), studies by Mesut (2013) on the Instanbul Stock Exchage indicated that bank scope and success had a direct connection.

The sample 200 companies'profitability increased as the total assets increased. Total assets in this case included total sales and number of employees.

2.4 Empirical Review

Gathigia, Muyua and Mwangi (2016) studied the effect of credit risk on financial operation of commercial banks in kenya for the year 2005 to 2014. The population was 43 commercial banks in kenya at that time with the variables being asset quality, capital adequacy, loans provision amd performance measured by ROE. The findings showed that credit risk has an inverse and inconsequential association with the banks returns.

Adenkule and Yinika (2015) conducted a similar study on selected commercial banks in Nigeria for the year 2006 to 2010. The conclusions showed that CRM has significant influence on finanacial operation.They noted that Non performing loans exerts significant inverse effect on Return on equity , also the percentage of total assets that goes into loans and advances exerts significant positive effect on Return on equity.

Sharma (2012) conducted a similar study on studied the business banks in Nepal. The population was 31 for the period 2000 to 2011. The variables used were nonpayment rate, price for credit assets, CAR and profitability ratio.The results indicated that the variables had inverse impact on the banks financial performance. Capital adequacy had a substantial undesirable relationship with ROA.

Alshatti (2015) conducted a similar study on Jordanian commercial banks for the period 2013 to 2015. The sample included 13 commercial banks. Regression analysis was used to estimate the effect of credit risk.The findings indicated a positive relationship between

NPLR ratio and ROA.It also revealed that the CAR does not affect the profitability as measured by ROE.

Kimotho (2015) conducted a similar study on business banks in Kenya. The population was 129 credit department team from 43 coommercial banks at the time.Variables used included credit risk identoification, credit risk insurance, credit risk monitoring and credit appraisals.The findings showed a strong positive relationship between financial performance and credit risk identification, credit risk insurance, credit risk monitoring and credit appraisal analysis.

Heydavi and Abdoli (2015) studied the effect of credit risk management and capital adequacy on financial performance of banks in india for the period 2009 to 2014. The population was 25 commercial banks in india at the time. The variables used were liquidty ratio, capital adequacy, loss reserve and ROA. The results showed a invers relationship between loss reserve on loans and previous maturity of credits and banks performance measured by ROA. On the opposite side it showed a positive relationship between liquidity ratio, capital adequacy and ROA.

Isanzu (2017) conducted a similar study. Statistics was collected from the 5 largest commercial banks in the country for the period 2008 to 2014.The variables used were non performing loans , capital adequacy ratio, impared loan reserve and loan impairment charges as measured by credit risk and ROA was used as a measure of performance.Findings were that impaired loan reserve and non perfoming loans had negative relationship to ROA while capital adequacy and loss impairment charges had a positive relationship with ROA.

Nduku (2016) conducted a similar study on business banks in kenya for the period 2011 to 2015. Data was collected from 40 out of a possible 43 as at that time. The variables used included NPLR, CAR, size and liquidty.Findings indicated a weak negative correlation between credit risk as calculated by non performing loans ratio and financial performance as calculated by ROE.

2.5 Conceptual Framework

The factors affecting financial performance are as below:

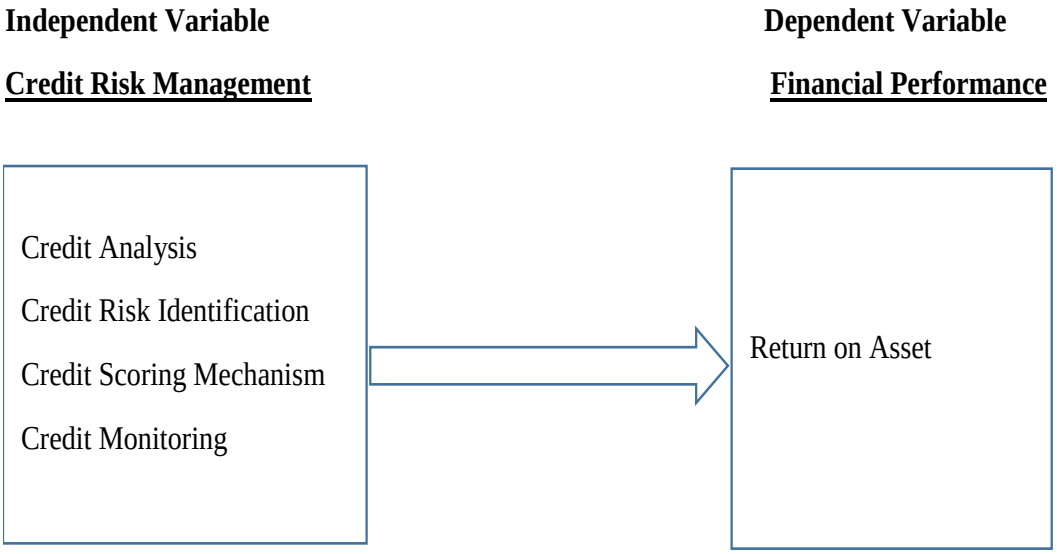

Figure 2.1 Conceptual Framework

2.6 Summary of Literature Review

The empirical studies carried out across the globe on the effects of CRM on financial operation of business banks have borne different conclusions. Alshatti (2015) found a positive correlation between ROA and NPL and that capital adequacy does not affect

ROA.On the other side Heydavi and Abdoli (2015) found out there's an inverse relationship between ROA and non-performing loans.

It can be concluded therefore that the various empirical studies done have failed to clearly distinguish the impact of credit risk management on operating performance of commercial banks further justifying the need to conduct the study.

2.7 Research Gap

Few studies have been conducted on developing countries such as Kenya, furthermore the economic environment has kept changing from time to time hence rendering the results for the previous studies insufficient or inconclusive. This study will therefore aim at addressing this shortcomings.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The section spans the areas of study design, the population, data collection and methodology used for data exploration.

3.2 Research Design

The study assumed a descriptive survey research design. A descriptive research design defines and accounts the way the things are (Mugenga & Mugenda, 2013). It is suitable as it will enable generalization of hypothesis to a greater population.

3.3 Population

According to Mugenga & Mugenda (2013) a population is an explicit set of individuals, services or elements that have distinct characteristics from others.The population of the research was the 43 business banking institutions as at 31st December 2017. It took a census format whereby financial data from all the 43 banks was extracted.

3.4 Data Collection

The research used both primary and secondary data. Primary data was in the form of structured questionnaires to inspire an extensive variety of benchmark about credit risk admninstration practices in the business banks in Kenya. The targeted respondents were credit managers for the various commercial banks in Kenya. It had two sections with the first section aimed at gathering background information about the respondent as well as the institution while the second section targeted insights about the credit risk management

systems in place and the management approach of the various commercial banks to credit risk management.Secondary data on the other hand was obtained from publications by CBK, the NSE and published financial statements of the 43 commercial banks as at 31st December 2017.

3.5 Data Analysis

The study adopted a multiple regression model. A formula used to assess whether there is a statistically significant relationship between sets of variables. According to Oludhe (2011) multiple regression analysis makes it easier to predict one variable on the basis of several other variables. The model was used to establish the correlation between financial performance as measured by retur on asset and CRM exemplified by Credit analysis, Credit monitoring , Credit scoring mechanism and Credit risk identification.

3.5.1 Analytical Model

The multiple regression model took the form below:

$$Y = b_0 + b_1x_1 + b_2x_2 + b_3x_3 + b_4x_4 + \varepsilon$$

Where: Y = ROA

X_1 = Credit Analysis

X_2 = Credit Risk Identification

X_3 = Credit Scoring Mechanism

X_4 = Credit Risk Monitoring

b_0 = Constant term

b_{1-4} = Regression coefficients

$\varepsilon =$ Error term

3.5.2 Diagnostic Tests

Multicollinearity test was conducted using a statistical package for the social science (SPSS) to determine whether the autonomous variables in the regression model are interrelated since the autonomous variables should be independent as such.

Normality test was conducted using SPSS statistic on the variables i.e. the data set with the aim of establishing whether the data is normally distributed since non-normality will render the statistical tests performed on the data inaccurate.

Homoscedasticity test was conducted using SPSS statistic to ascertain that the residual values are not related to the independent variables.

CHAPTER FOUR

DATA ANALYSIS, RESULTS AND INTERPRETATION

4.1 Introduction

Chapter 4 provides findings of evaluated data, which are presented, inform of tables. The chapter describes the response rate, data reliability and descriptive statistics, correlation analysis results, regression analysis outcomes and the interrelation of the study results.

4.2 Response Rate

A census of the 43 commercial banks in Kenya was done but obtained full data from only 38 commercial banks. This signifies a response rate of 88.37%, that was appropriate for study.

4.3 Data Reliability and Validity

The study used Cronbach alpha coefficient in determination of reliability of research instrument.

Table 4.1 Data Reliability

Variables	Cronbach's Alpha	N of Items
Credit Risk Identification Credit Analysis Credit Scoring Credit Monitoring	.709	4

Source: Research Findings

Table 4.1 shows that the variables yielded alpha coefficient of 0.709 which is above the recommended level according to Bryman & Bell (2007) of above 0.7 hence reliable.

The study used Shapiro wilk test to test for normality of the data.

Table 4.2 Data Normality

	Statistic	df	Sig
Credit Analysis	.990	17	.999
Credit Risk Identification	.957	16	.610
Credit Scoring	.972	18	.842
Credit Monitoring	.948	13	.566
Average ROA	.972	18	.842

Source: Research Findings

Table 4.2 shows the calculated p- values are greater than the chosen significance level of 0.05 henceforth the data is normally distributed.

The study used Levene's test of equivalence of error variances test for homoescedasticity.

Table 4.3 Homoscedasticty

	Levene Statistic	df1	df2	Sig.
Based on Mean	1.206	6	21	.342
Based on Median	.827	6	21	.562
Based on Median and with adjusted df	.827	6	12.339	.570
Based on trimmed mean	1.150	6	21	.369

Source: Research Findings

a. Dependent variable: Average ROA

b. Design: Intercept + CreditAnalysis + CreditRiskIdentification + CreditScoring + CreditMonitoring

Table 4.3 shows that the calculated p-values are greater than the importance level of 0.05 henceforth the residual values are not related to the independent variables.

The study used the variance inflation factor to test for multicollinearity.

Table 4.4 Multicollinearity

	VIF			
	Credit Analysis	Credit Risk Identification	Credit Scoring	Credit Monitoring
Credit Analysis	-	1.063	1.058	1.037
Credit Risk Identification	1.601	-	1.604	1.302
Credit Scoring	1.989	2.002	-	1.267
Credit Monitoring	2.400	1.063	1.630	-

Source: Research Findings

Table 4.4 indictes that the calculated VIF values are all less than the recommended 2.50 hence therefore the independent variables are truly independent as such.

4.4 Descriptive Statistics

Table 4.5 presents the summary of descriptive statistics of study, which comprises of the mean , standard deviation and Kurtosis.

Table 4.5 Descriptive Statistics

	Mean	Std. Deviation	Kurtosis	
	Statistic	Statistic	Statistic	Std. Error
Credit Analysis	4.55	.504	-2.063	.750
Credit Risk Identification	4.53	.557	-.710	.750
Credit Scoring	4.08	.784	-.169	.750
Credit Monitoring	4.61	.547	-.080	.750
Average ROA	.0211	.0176	2.901	.750

Source: Research Findings

Table 4.5 results shows that, average ROA of the banking sector in Kenya is 0.0211 with a standard deviation of 0.0176 respectively. Further it indicates the mean usage of Credit analysis, Credit risk identification, Credit scoringand Credit monitoring to be 4.55, 4.53, 4.08 and 4.61 respectively. The means value correspond to the scale value of 4 in the likert scale of the questionnaire which indicates that commercial banks in Kenya use CRM to a great degree.

4.5 Correlation Analysis

This segment presents correlation results of CRM practices and financial performance of business banks in Kenya.

Table 4.6 presents the findings obtained in the form of a correlation matrix.

Table 4.6 Correlation Matrix

	Average ROA	Credit Analysis	Credit Risk Identification	Credit Scoring	Credit Monitoring
Average ROA	1.000				
Credit Analysis	.347	1.000			
Credit Risk Identification	.216	.188	1.000		
Credit Scoring	.266	.092	.459	1.000	
Credit Monitoring	.086	.224	.612	.704	1.000

Source: Research Findings

Table 4.6 indicates that there is a positive correlation between financial performance measured by ROA and Credit analysis, Credit risk identification, Credit scoring and Credit Monitoring. This shows the shows positive correlation between financial performance of commercial banks and their CRM practices.

4.6 Regression Analysis

Results on regression comprise of the model summary, Analysis of variance (ANOVA) and a summary of the regression coefficients.

4.6.1 Model Summary

Table 4.7 Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.502[a]	.252	.162	.01612

Source: Research Findings

a. Predictors: (Constant), Credit Monitoring, Credit Analysis, Credit Risk Identification, Credit Scoring

Table 4.7 shows that R-square is 0.252 which designates that credit analysis, credit risk identification, credit scoring and credit monitoring explain only 25.2 % of the discrepancy of financial performance of business banks. Therefore 74.8% of the variation in financial performance is described by other elements and the error term.

4.6.2 Analysis of Variance

Table 4.8 below indicates the results obtained by the ANOVA.

Table 4.8 ANOVA

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	.003	4	.001	2.785	.043[b]
Residual	.009	33	.000		
Total	.011	37			

Source: Research Findings

a. Dependent Variable: ROA

b. Predictors: (Constant), Credit Risk Monitoring, Credit Risk Identification, Credit Risk Control, Credit Risk Appraisal

ANOVA results on table 4.8 indicates that, the correlation between CRM practices of commercial banks in Kenya and their financial performance is significant since the P-value calculated of 0.043 is lower as compared to importance value of 0.05.

4.6.3 Regression Coefficients

Table 4.9 shows findings of the summary of the coefficients of regression.

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	std Error			
(Constant)	-.043	Beta		-1.389	.174
Credit Analysis	.013	.005	.365	2.346	.025
Credit Risk Identification	.007	.006	.211	1.103	.278
Credit Scoring	.010	.005	.443	2.078	.046
Credit Monitoring	-.014	.008	-.437	-1.805	.080

Source: Research Findings

a. Dependent Variable: ROA

Table 4.9 shows the presence of a positive (B = 0.013) and significant correlation between credit analysis and the banks' performance in financial perspective. The results also show the existence of a positive (B =0.007) but insignificant relation between credit risk identification and financial performance of commercial banks. The findings likewise indicate that there is positive (B = 0.010) and a significant correlation between credit scoring and financial performance of business banks. Finally, the research indicates an inverse (B=-0.014) and an insignificant relationship between credit risk monitoring and the banks financial performance. Thus, from the study the subsequent regression equation was obtained

$$ROA = -0.043 + 0.013x_1 + 0.07x_2 + 0.010x_3 - 0.014x_4 + \varepsilon$$

4.7 Interpretation of the Findings

The research established a significant positive correlation between credit risk analysis and the financial performance of business banks. This means that a unit increase in credit risk analysis upsurges commercial banks financial performance by 0.013 units thus there is a

direct correlation between credit risk analysis and financial performance of business banks in Kenya.

The research established a positive correlation between credit risk identification and financial performance of business banks. This means that an upsurge in credit risk identification increases financial performance of business banks by 0.007 units thus credit risk identification positively affects financial performance of business banks in Kenya.

The study also established a positive significant correlation between credit scoring and financial performance of business banks in Kenya. This means the usage of credit scoring practices positively affects financial performance of business banks by 0.010.

The research established an insignificant adverse correlation between credit risk monitoring and the financial performance of business banks. This means that a unit upsurge in credit risk monitoring reduces commercial banks financial performance by 0.014 units. Thus there's an inverse correlation between financial performance and credit risk monitoring. The above outcomes conform to the findings by Evelyne (2016) who established that credit risk identification and credit appraisal had a positive influence on the financial profitability of commercial banks in Kenya. These are also similar to the findings according to Kibor, Ngahu, and Kwasira (2015) who established a moderately useful and positive relation between management of credit risk practices and the loan performance. They further established that the correlation between loan performance and credit standards was positive and statistically significant, however, study focused on credit risk management practices on loan performance and not financial performance. Joseph (2015) also found a substantial correlation between bank's performance and management

of credit risk in terms of risk identification, monitoring and credit sanctions and concluded that better management of credit risk leads to a great performance of the bank.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

5.1 Introduction

Chapter five gives the summary of the results of this research, conclusions, recommendations, limitations of the study and suggestion of areas which may require further consideration as far as future research is concerned.

5.2 Summary

This study aimed at assessing the effect of CRM on the financial performance of business banks in Kenya. Credit analysis, Credit risk identification, Credit scoring and Credit monitoring were used as autonomous variables and financial performance measured by ROA as the dependent variable. The study conducted a census of the 43 business banks in Kenya as at the end of 2017 but obtained data from 38 commercial banks. A questionnaire was used to collected primary data while secondary data was extracted from the published financial statements for the banks for the period 2013 to 2017. The Cronbach alpha coefficient established that the questionnaire was reliable since the alpha value was above 0.7 as recommended.

The results of descriptive statistics established that mean usage of Credit analysis, Credit risk identification, Credit scoring and Credit monitoring was 4.55, 4.53, 4.08 and 4.61 correspondingly. All the calculated average values corresponded to the scale value of 4 in the likert scale of the questionnaire which indicated that commercial banks in Kenya use CRM practices to a great degree. Correlation analysis findings established a positive correlation between Credit analysis, Credit risk identification and credit scoring while

Credit monitoring had a negative correlation with ROA.

The findings of the regression analysis established that Credit analysis, Credit risk identification, Credit scoring and Credit monitoring explain only 25.2% of the variation of financial performance for business banks in Kenya. It was also established that the F-statistic value was 2.785 and P- value 0.043 was significant an indication of a significant relation between the CRM practices and banks financial performance. The research established a significant positive correlation between credit analysis, credit scoring and the ROA for commercial banks in Kenya. The research established a positive insignificant correlation between credit risk identification and ROA of business banks in Kenya. The research also established a negative but insignificant correlation between credit risk monitoring and ROA.

5.3 Conclusions

The findings of the research revealed a significant positive correlation between credit analysis and credit scoring and the financial performance of business banks. The research therefore concludes that credit analysis and credit scoring considerably and positively affects financial performance of business banks in Kenya.

The research established an inconsequential positive correlation between credit risk identification the financial performance of business banks. However the research recommends that credit risk identification has a direct relationship to business banks financial performance therefore effect credit risk identification procedures and measures will enhance the banks financial performance.

The study found a negative insignificant relationship between credit monitoring and the financial performance of commercial banks. It therefore concludes that usage of credit

monitoring practices negatively affects commercial banks performance.

5.4 Recommendations

This study concluded that Credit analysis and Credit scoring has a substantial effect on the financial performance of the Kenyan banking sector. Thus, the research recommends that the administration of commercial banks should place added importance on credit analysis and credit scoring mechanisms as this forms the basis of credit advancement to individuals and corporate's hence will assist in mitigating credit risk at an early stage. The study further recommends that commercial banks should regularly revise and update the CRM mechanisms to guarantee that they are not redundant.

In terms of policy recommendations the study encourages the policy making entities and regulatory authorities (CBK) do develop and strengthen the prudential guidelines and policies in order reinforce the management of credit risk for business banks in Kenya.

5.5 Limitations

The research concentrated on the business banks in Kenya , this makes the research findings limited in scope to the commercial banks and not any other financial instutution such as SACCOS and Microfinance which are also deposit taking as well as offer credit although under different terms and conditions.

The research assumed the financial statements were a true reflection on the banks financial perfomance.However recent revelations on the collapse of various commercial banks like Imperial bank , Chase Bank and Dubai bank revealed that financial malparctices permiate the financial sector even under the oversight of regulators and auditors.

The study used structured likert questionnaires to get responses from credit managers of the various commercial banks of whom some were reluctant to participate fully with others opting for juinor staff to respond who were less experienced and thus the responses could have been different.

5.6 Suggestion for Further Research

The research concentrated on commercial banks in Kenya and not the financial sector as a whole which encompases other financial institutions such as SACCOS and Microfinance which moreso operate like commercial banks. The study thus recommends that the research be extended to this institutions.Futher the research can be done on a specific commercial bank and a specific bank product like the type of loans either business or consumer loans as this will lead to a more accurate result.

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APPENDICES

Appendix I: Questionnaire

This questionnaire seeks to collect data to be used in a study of **"THE EFFECT OF CREDIT RISK MANAGEMENT ON THE FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN KENYA".** Do provide honest and precise answers to these questions as much as possible.

Note that the data provided will be used confidentially for the purposes of this research.

Please tick appropriately.

Part 1: Background information

i. Commercial Bank Name…….

ii. Time period worked in the bank……..

Part 2: CRM Practices

Please mark by a tick [ ] to indicate your response to the questions.

a) Generally does think CRM have an influence on the Banks Financial Performance?

Yes [ ] No [ ]

b) Does it affect your banks performance?

Yes [ ] No [ ]

c) What is the significance and the benefits of handling Credit Risks for your organization?

d) From the below credit risk administration practices indicate by ticking the ones your bank applies?

Credit Risk Identification [ ]

Credit Analysis [ ]

Credit Scoring Mechanism [ ]

Credit monitoring [ ]

e) To what degree does your Bank consider Credit Risk Identification?

Very great degree [ ] Little degree [ ]

Great degree [ ] Not at all [ ]

Moderate degree [ ]

f) To what degree does your Bank consider Credit Analysis?

Very great degree [ ] Little degree [ ]

Great degree [ ] Not at all [ ]

Moderate degree [ ]

g) To what degree does your Bank consider Credit Scoring Mechanism?

Very great degree [ ] Little degree [ ]

Great degree [ ] Not at all [ ]

Moderate degree [ ]

h) To what degree does your Bank consider Credit monitoring?

Very great degree [ ] little degree [ ]

Great degree [ ] Not at all [ ]

Moderate degree [ ]

i) After how long does your Bank consider that a customer has defaulted on payment?

j) Which other way(s) does your Bank consider in CRM before awarding loans to customers?

Appendix II: List of Commercial Banks in Kenya

1) African Banking Corporation Limited
2) Bank of Africa Kenya Limited
3) Bank of Baroda (K) Limited
4) Bank of India Limited
5) Barclays Bank of Kenya Limited
6) CFC Stanbic Bank Limited
7) Charterhouse Bank Limited
8) Chase Bank (K) Limited
9) Citibank N.A Kenya Limited
10) Commercial Bank of Africa Limited
11) Consolidated Bank of Kenya Limited
12) Co-operative Bank of Kenya Limited
13) Credit Bank Limited
14) Development Bank of Kenya Limited
15) Diamond Trust Bank Kenya Limited
16) Dubai Bank Kenya Limited
17) Eco bank Kenya Limited
18) Equatorial Commercial Bank Limited
19) Equity Bank Limited
20) Family Bank Limited
21) Fidelity Commercial Bank
22) Fina Bank Limited
23) First community Bank Limited
24) Giro Commercial Bank Limited
25) Guardian Bank Limited
26) Gulf African Bank Limited
27) Habib Bank A.G Zurich Limited
28) Habib Bank Limited
29) I & M Bank Limited
30) Imperial Bank Limited
31) Jamii Bora Bank Limited

32) Kenya Commercial Bank Limited
33) K-Rep Bank Limited
34) Middle East Bank (K) Limited
35) National Bank of Kenya Limited
36) NIC Bank Limited
37) Oriental Commercial Bank Limited
38) Paramount Universal Bank Limited
39) Prime Bank Limited
40) Standard Chartered Bank Kenya Limited
41) Trans-National Bank Limited
42) UBA Kenya Bank Limited
43) Victoria Commercial Bank Limited

Appendix III: Financial Performance Data

	2013	2014	2015	2016	2017	Average ROA
ABC Bank	0.0214	0.0126	0.0129	0.0070	0.0058	0.0119
Bank of Africa	0.0143	0.0025	-0.0156	0.0002	0.0012	0.0005
Bank of Baroda	0.0392	0.0389	0.0311	0.0513	0.0565	0.0434
Bank of India	0.0333	0.0314	0.0290	0.0365	0.0400	0.0340
Barclays Bank of Kenya	0.0368	0.0387	0.0360	0.0284	0.0251	0.0330
Commercial Bank of Africa	0.0388	0.0450	0.0289	0.0358	0.0244	0.0346
Consolidated Bank of Kenya	-0.0065	-0.0174	0.0030	-0.0152	-0.0245	-0.0121
Cooperative Bank of Kenya	0.0393	0.0310	0.0373	0.0464	0.0321	0.0372
Credit Bank	0.0244	0.0321	0.0266	0.0278	0.0224	0.0267
Development Bank of Kenya	0.0110	0.0180	0.0181	0.0126	0.0120	0.0143
Diamond Trust Bank	0.0285	0.0294	0.0144	0.0204	0.0320	0.0249
Eco bank Kenya	0.0069	0.0163	0.0045	-0.0100	0.0102	0.0056
Equity Bank	0.0531	0.1491	0.1310	0.0401	0.0402	0.0827
Family Bank	0.0282	0.0334	0.0271	0.0073	0.0065	0.0205
First Community Bank	0.0117	0.0033	-0.0008	-0.0038	0.0009	0.0023
Guaranty Trust Bank Kenya	0.0045	0.0026	0.0208	0.0358	0.0211	0.0170
Guardian Bank	0.0259	0.0023	0.0156	0.0010	0.0025	0.0095
Gulf African Bank	0.0259	0.0245	0.0156	0.0115	0.0124	0.0180
Habib Bank AG Zurich	0.0357	0.0314	0.0293	0.0280	0.0355	0.0320
Housing Finance Company of Kenya	0.0210	0.0180	0.0181	0.0126	0.0018	0.0143
I&M Bank	0.0352	0.0354	0.0378	0.0400	0.0329	0.0363
Jamii Bora Bank	0.0134	0.0058	0.0014	-0.0299	-0.0533	-0.0125
Kenya Commercial Bank	0.0398	0.0451	0.0350	0.0407	0.0363	0.0394
Mayfair Bank	0.0048	0.0126	0.0258	0.0236	0.0226	0.0179

Middle East Bank Kenya	0.0079	0.0158	0.0265	-0.0133	0.0102	0.0094
National Bank of Kenya	0.0118	0.0074	-0.0096	0.0008	0.0026	0.0026
NIC Bank	0.0275	0.0309	0.0287	0.0253	0.0234	0.0272
Oriental Commercial Bank	0.0259	0.0245	0.0152	0.0115	0.0128	0.0180
Paramount Universal Bank	0.0209	0.0026	0.0208	0.0358	0.0211	0.0202
Prime Bank Kenya	0.0291	0.0333	0.0337	0.0292	0.0259	0.0302
SBM Bank Kenya Limited	0.0190	0.0259	-0.0068	-0.0243	-0.0306	-0.0034
Sidian Bank	0.0277	0.0357	0.0213	0.0014	-0.0210	0.0130
Spire Bank	0.0166	0.0160	0.0265	0.0153	0.0102	0.0169
Stanbic Bank Kenya	0.0290	0.0320	0.0258	0.0214	0.0195	0.0255
Standard Chartered Kenya	0.0604	0.0470	0.0272	0.0358	0.0244	0.0390
Trans National Bank Kenya	0.0666	0.0480	0.0219	0.0372	0.0244	0.0396
United Bank for Africa	0.0209	0.0176	0.0209	0.0242	0.0197	0.0207
Victoria Commercial Bank	0.0145	0.0025	0.0156	0.0044	0.0116	0.0097

Appendix IV: Regression Data

	Credit Analysis	Credit Risk Identification	Credit Scoring	Credit Monitoring	Average ROA
ABC Bank	5	4	4	5	0.01194
Bank of Africa	4	4	4	5	0.00052
Bank of Baroda	5	5	4	5	0.04340
Bank of India	5	5	4	5	0.03404
Barclays Bank of Kenya	5	5	5	5	0.03300
Commercial Bank of Africa	5	5	5	5	0.03458
Consolidated Bank of Kenya	4	4	3	4	-0.01212
Cooperative Bank of Kenya	5	5	5	5	0.03722
Credit Bank	5	5	4	5	0.02665
Development Bank of Kenya	5	5	5	5	0.01434
Diamond Trust Bank	4	4	4	4	0.02494
Ecobank Kenya	5	5	5	5	0.00558
Equity Bank	5	5	5	5	0.08270
Family Bank	5	4	2	3	0.02050
First Community Bank	4	5	4	5	0.00226
Guaranty Trust Bank Kenya	4	4	3	4	0.01696
Guardian Bank	4	5	5	5	0.00945
Gulf African Bank	4	5	4	5	0.01798
Habib Bank AG Zurich	4	4	4	4	0.03198
Housing Finance Company of Kenya	4	5	5	5	0.01430
I&M Bank	5	5	4	5	0.03626
Jamii Bora Bank	5	5	4	5	-0.01252
Kenya Commercial Bank	5	4	3	4	0.03938
Mayfair Bank	5	3	3	4	0.01788
Middle East Bank Kenya	5	5	4	5	0.00942

National Bank of Kenya	4	4	3	4	0.00260
NIC Bank	5	5	3	5	0.02716
Oriental Commercial Bank	5	4	4	4	0.01798
Paramount Universal Bank	4	4	5	5	0.02024
Prime Bank Kenya	4	4	4	4	0.03024
SBM Bank Kenya Limited	4	4	3	4	-0.00336
Sidian Bank	4	5	4	4	0.01302
Spire Bank	5	4	5	5	0.01692
Stanbic Bank Kenya	4	4	4	4	0.02554
Standard Chartered Kenya	5	5	4	4	0.03896
Trans National Bank Kenya	4	5	5	5	0.03962
United Bank for Africa	5	4	5	5	0.02066
Victoria Commercial Bank	4	5	4	5	0.00972