THE EFFECT OF CREDIT RISK ON THE FINANCIAL PERFORMANCE OF COMMERCIAL BANKS LISTED AT THE NAIROBI SECURITIES EXCHANGE

BY

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DECLARATION

This research report is my original work and has not been presented for the award of any degree or diploma in this or in any other university.

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CAR; - Capital Adequacy Ratio

CIR; - Cost to Income ratio

GDP; - Gross Domestic Product

IFRS; - International Financial Reporting Standards

IRS; - Interest Rate Spread

LDR; -Loan to Deposit Ratio

NFI; - Non-Funded Income

NII; - Net Interest Income

NIM; - Net Interest Margin

ROA; - Return on Assets

ROE; - Return on Equity

ABSTRACT

The study aimed at determining the effect of credit risk on the financial performance of the various commercial banks listed at the Nairobi Securities Exchange. Credit risk was specifically analyzed on its effect on return on equity and return on asset. In furtherance to this, the study reviewed determinants allied to financial performance such as interest rate and exchange rates. Accordingly, the study adopted a descriptive research design. This was done on a population of eleven banks and it utilized secondary data, which was obtained from the financial statement of the commercial banks. It is worth noting that the financial statements were readily available in the specific banks' website between the years 2012 -2016. Finally to establish the relationship among variables -descriptive, correlation and regression analysis was done. Descriptive statistics indicated that ROA had a mean of 3% with standard deviation of 0.012. ROE recorded a minimum of -10% and a maximum of 30%. Mean ROE was 18% against standard deviation of 0.07. Credit rating based in percentage had a mean of 8% and standard deviation of 0.039 while CAR had mean of 21% and standard deviation of 0.048. Asset quality on the other hand had a mean of 5% and standard deviation of 0.057. LDR and CIR had a mean of 85% and 59% respectively. Standard deviation for LDR and CIR were 0.193 and 0.295 respectively. GDP measured in billion Ksh. had a mean of 3858.7718 and standard deviation of 300.64475 within the 5-year period (2012-2016). Correlation results indicated a very strong and positive correlation between ROA and ROE (r =0.957). This correlation was significant at 95% confidence level (*P value = 0.00<0.05).* Credit rating had a negative and strong correlation with both ROA and ROE (r =-.811 and -.715 respectively. Capital adequacy ratio (CAR) was found to have positive and weak association with ROA and ROE (r = 0.354 and 0.344 respectively). CAR also had a weak and negative association with CR (r =-0.293) significant at 95% confidence level. Asset quality (AQ) indicated a negative correlation with both ROA and ROE (r = -0.544 and -0.569). LDR indicated a strong and positive association with both ROA and ROE (r = 0.711 and 0.753 respectively). Regression analysis established that Credit Rating (CR) had positive coefficient of 1.019 with ROE at 95% confidence level. CAR had a positive coefficient of 0.067 significant at 95% confidence level. Asset quality (AQ) on the other hand had a negative coefficient of -0.323 and p value of 0.004 < 0.05. Loan to Deposit Ratio (LDR) can predict ROE at 95% confidence level. Only cost to income ratio (CIR) was insignificant with ROE at 95% confidence level. However, on ROA, all variables had significant effect at 95% confidence level. Credit rating, capital adequacy ratio, and load to deposit ratio had a positive effect while cost to income ratio and asset quality had a negative effect. The study concluded that credit risk has an effect on financial performance in commercial banks listed in NSE. Therefore, it adds to the body of knowledge that credit risk has a negative effect on financial performance. The study recommended commercial banks to support credit rating aspect as it gives depositors a sense of safety. Further study can be done to establish the gap between credit rating and implementation.

CHAPTER ONE

INTRODUCTION

1.1 Background of the Study

The risks faced by banks include Market risk, Credit risk, Liquidity risk, Operational risk, Business risk, Systemic risk, Reputational risk, and Moral hazard (Perez, Market Realist, 2014). The key risks being earning risk, credit risk, market risk, interest rate risk and liquidity risks (Saeed & Zahid, 2016). Banks in Kenya face credit risk because they are involved in the business of collection of deposits and disbursements of loans as their main activity. They re-allocate money from savers who have a surplus to borrowers who can make better use of it contributing to economic activity (The Economist, 1999). As such, the core activity of a bank is financial intermediation. Loans represent the largest asset class for banks, which are financed by deposits by bank customers (Federal Reserve Bank of San Francisco, 2004). As such, the risk of non-repayment of loans by borrowers would lead to probability of nonpayment of deposits as and when demanded by bank customers (The Economist, 1999). This risk tends to grow during periods of economic booms only becoming apparent during recessions. Credit risk thereby poses the greatest risk for banks as their core activity is provision of credit in their capacity as financial intermediaries.

There are different variable that affect the financial performance of banks such as the Non-performing loans (NPL R), Loss Reserve/ the Gross Loans (LLR R) and the Net Income/Total assets. Normally, there is a significant correlation between the credit risk (loan performance and loan loss reserve) and the financial performance of banks (ROA).

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This implies that effective management risk should result in improved financial performance in the banking sector. Thus, there is need for bank managers to ensure that banks practice prudent management of risk, protect the interest of the shareholders, as well as ensure that the assets of the banks are safeguarded. The other factors with a positive effect to the financial performance of banks include the Some of the factors affecting the financial performance, and which are closely allied to credit risks include the interest rates, the bank's capital adequacy, quality of assets, cost of income, credit rating as well as the loan to deposit ratio.

1.1.1 Credit risk

According to Basel Committee on Banking Supervision (1999), credit risk is the potential failure of bank borrowers or rather their counterparty to meet the obligations of their credit based on the agreed terms. It is worth noting that the credit risk for banks arises due to amounts lent to customers in which they expect a return in the form of interest and principal repayments. Their customers also have debts arising from other transactions like letters of credit, swaps, forward rate agreements, or performance bonds (Coyle, 2000). The risk involves uncertainty of repayment on loans and uncertainty of timing of repayments (Perez, Market Risk, 2014). Credit risk signifies a decline in asset values prior to default arising from a decline in portfolio value or an individual's credit quality (Perez, Market Realist, 2014).

According to Vodova (2003), the determinants of credit risk are the process of credit monitoring and rationing, credit portfolio concentration, structure of the credit portfolio and collateral. He suggests that credit portfolio concentration is the most important determinant and it relates to any exposure whereby, the potential losses tend be large compared to the total assets, capital and overall level of risks of a bank.

Credit risk can be measured using credit ratings, internal and regulatory capital demand, as well as key credit metrics. It can be mitigated through the use of collateral or risk transfer where credit exposure if viewed as a tradable commodity (Vodova, 2003). In this study, credit risk will be measured by a number of ratios which include; Credit Rating (CR), Capital Adequacy Ratio (CAR), asset quality (AQ), Loan to Deposit Ratio (LDR) and Cost to Income Ratio (CIR).

1.1.2 Financial Performance

According to Business Dictionary (2015), financial performance refers to the measure of the outcome of an organization's operations and policies expressed in monetary value over a period. Financial performance measures are split into four categories of profitability, gearing, and liquidity and investor ratios. The financial metrics are of two categories. Firstly, there is the cash flow metrics. This includes metrics like Return on Investments (ROI), Net Present Value (NPV), as well as internal rate of return (IRR). The aforementioned metrics are used to evaluate various streams of cash flows and investments. The second is financial statement metrics, which include metrics such as the current ratio, inventory turnover, or earnings per share, for evaluating a company's financial position and financial performance (Schmidt, 2015).

According to Schmidt (2015), financial performance plays an imperative role in both the internal and external stakeholders. To the internal users, it helps the management of an organization to establish the weaknesses, strengths, as well as the target levels. These aspects are critical in attaining the objectives of the business and the evaluation of investment decisions together with budgeting decisions.

The importance to external users from investor perspective is in deciding whether to buy or sell stock or bonds in a company. Financial performance is also measured in return on assets (ROA) and return on return on Equity. These variables ROA and ROE were used as measures of financial performance in this study (Awoke, 2014).

1.1.3 Effect of Credit Risk on Financial Performance

It is the mandate of banks to maintain a Loan Loss Provision account to provide for probability of default by its borrowers (Spaulding, 2017). The provisions are established to report incurred impairment losses either on specific loan assets or within a portfolio (Citi Group, 2015). As such, it is expected that an increase in credit risk increases the loan loss provision which is netted off against the interest income and loan assets. This translates to reduced income and profits for a bank. It also increases the liability position of the bank which affects its ratios which investors use to assess its financial performance and position.

Understanding of credit risk and its management in commercial is paramount to financial performance. Zidan (2014) posited that, sound management of credit risk improves practical oversight of asset quality and developing sound credit policies which in turn contribute to positive effect on financial performance. Kisgen (2008) further documented that credit rating as a consideration in the field of credit risk has a significant role because it indicates firm's quality and has an effect on company cost of capital. Raqeeb, Zaidi and Cheema (2012) indicated that credit ratings have a bigger effect on capital structure along with size and ROA.

1.1.4 Commercial Banks listed at the Nairobi Securities Exchange

The Nairobi Securities Exchange (NSE) was started 1951 and has the mandate of proffering a platform for trading to the listed companies. The NSE and oversees its Member firms while the Capital Markets Authority (CMA) regulates it. The Kenyan Companies Act also regulates all companies listed in NSE. They are therefore required to follow the guidelines provided in Act with regard to preparation of their financial statements (Nairobi Securities Exchange, 2015).

The Central Bank of Kenya (CBK) regulates as well as licenses Kenyan commercial banks. The CBK is established under section 231 of the constitution on Kenya (Central Bank of Kenya, 2017). This is in accordance with the provisions contained in Banking Act as well as the prudential guidelines and regulations issued.

Some of the factors affecting the financial performance, and which are closely allied to credit risks include the interest rates, the bank's capital adequacy, quality of assets, cost of income, credit rating as well as the loan to deposit ratio. In September 2016, an amendment of the Banking Act was made to cap the lending interest rates at 4.0 above the CBR. Accordingly, the floor on deposit rates was 70% of the Central Bank Rate (Cytonn, 2016). The aim of the amendment was to increase regulation and reduce the cost of borrowing which was supposed to increase financial inclusion.

However, smaller banks have borne the grunt of the cap and have become takeover targets or candidates for consolidation (Reuters, 2017). The flight to safety and higher costs of savings and term deposits have led to the negative effect on smaller banks, with larger banks shifting their focus to non-funded income (Reuters, 2017) shifting riskier borrowers to micro finance institutions and shylocks who could charge higher rates to compensate for higher risks.

Kenyan banks are also expected to face more shocks as the International Financial Reporting Standard (IFRS) 9, comes into force on January 1, 2018 where experts predict credit impairment to almost double from current ratios (Herbling, 2017). The standard demands that banks project possible toxic loans for the next 12 months and make provisions while historically, provisions have only been made for actual losses.

The other factor affecting financial performance is the capital adequacy. Based on the guidelines of the Central Bank of Kenya banks are supposed have cash which is equivalent to 2% of loans that have unpaid installment for 3-6 months. Accordingly, the banks are supposed to have 100% provisions for the loans, which are doubtful. Notably, these are doubtful loans - which have taken over 180 days and not yet repaid (Herbling, 2017). According to a 2016 CBK survey, credit officers expected NPLs, a measure of credit risk, to increase owing to increased regulation, and higher cost of funds for customers sent away by banks on account of their risk profile (Ngigi, 2016).

This is against a backdrop of three banks which were placed in receivership in a period of 3 years: Chase Bank in 2016, Dubai Bank August 2015, and Imperial Bank in October 2015 (MacPherson, 2016) and (Central Bank of Kenya, 2016)

These regulations and developments are expected to affect credit risk and subsequent banks financial performance in Kenya.

1.2 Research Problem

Banking is listed as one of the key pillars of Vision 2030 in Kenya. Banking is among the key drivers for the Kenyan economic growth because of the role they play in an economy (MacPherson, 2016). However, the sector has experienced turmoil owing to the new regulations enshrined in the constitution, which required banks to increase their minimum core capital requirements to one billion Kenyan shillings by 2012 (Banker, 2015). Additionally, the global crisis affected the mobilization of deposits and trade reduction (Banker, 2015). As such, the banking sector has not been profitable as anticipated owing to the changes that has taken place over time.

Three banks, Imperial Bank, Dubai Bank and Chase Bank have been placed in receivership over the last three years. (Central Bank of Kenya, 2016). According to reports from the Central Bank of Kenya, the receiverships were mainly due to poor corporate governance, failure to maintain adequate capital ratios and liquidity a well as insufficient provisions for Non-Performing Loans (The National Treasury, 2015). In addition, an amendment to the Banking Act in September 2016 introduced the capping of the lending interest rates at 4.0 percent above the CBR with the deposit floor rates at 7 percent of the CBR (Cytonn, 2016). In 2017, MOODY's, a global leader in credit ratings, assigned various credit ratings allied to B1, the deposit rating for global foreign-currency of B2 as well as the b1 (BCAs) to Cooperative bank and Equity Bank and in 2016 KCB Bank (Global Credit Research, 2017). The credit rating was against a backdrop of their credit profiles and the two banks' liquidity buffers to withstand

their weakened asset quality versus the increased NPLs in an environment characterized by difficult operations (Global Credit Research, 2017).

Nevertheless, understanding the effect of credit risks to the performance and profitability of banks is critical because banks are in the business of making risks. A study done by Tang and Jiang in 2003 on banks' profitability established that both macro-economic and bank-centric facets play a great role in determining the performance of banking sector. In the study - which was done in Hong Kong- Tang and Jiang (2003) sampled four banks. The study concluded that various macro-economic variables such as interest rates, inflation, and real GDP growth affect banks performance positively. Ahmad and Ariff (2007) established that a vast majority of banks in Indonesia, Mexico, Malaysia, Japan and Thailand were affected immensely by increased non-performing loans as well as increased credit risks when they were faced by the banking and financial crises. This led to the closure of some banks.

In Kenya, several studies have been done in relation to credit risk. Gatuhu (2013), Mutua (2014), Korir (2013) and Gatuhu (2014) investigated the effect of credit risk management on financial performance of MFIs and commercial banks. While these studies handle credit risk management and financial performance, they don't address the recent adjustments of interest rate capping in commercial banks and credit rating on credit risks. In addition, their scope is different from this study scope which justifies the need to undertake this research.

Therefore, based on the research gap in the empirical studies done so far the current research answers the research question, "how does credit affect the Kenyan listed commercial banks' financial performance? It is worth mentioning that so far, none of the empirical studies has specifically investigated the extent of which credit ratings can be used a measure of credit risk.

Additionally, none of the studies has assessed the effects of new regulations and guidance on the credit risk and banks' financial performance.

1.3 Research Objective

The objective of the research was to establish the effect of credit risk on the financial performance of commercial banks listed at the Nairobi Securities Exchange.

1.4 Value of the Study

The research added more value to the body of knowledge available on credit risk exposure at a time when uncertainties and volatilities in the world economy are increasing every day. Kenyan companies and in particular banks are aggressively expanding into the wider East and Central African Region and as such their customer base is growing. These banks have to manage their credit risk amidst the growth and innovation in provision of their services. The use of alternative banking channels such as loan lending through mobile banking introduces a new facet which is not covered under traditional credit risk mitigation.

Additionally, increased regulation by the CBK places the banks at a crossroads where traditionally higher risk would be covered through increase in price (interest rates), the increase is capped hence increased risk.

The findings are of importance to the field of finance in that they will help influence policy of banks concerning managing credit risk which affect their largest asset class – loans. The study shall help identify the effect of credit risk on banks' financial performance, which will help management of various organizations and banks in applying policies that places them in a favorable position to manage the exposure.

Additionally, the research plays a critical role in the field of finance because it proffers more insights for different researchers to do studies. Accordingly, the study provides information to the financial analysts regarding the existing gaps in the determining the correlation of company's financial performance and credit risk. This is crucial for doing further studies. It is also imperative in informing managers on how different variables define and affect credit risk to enable them to create financial policies that are in line with their corporate objectives. The findings will hence help banks to mitigate against the risk of poor performance which as a result affects shareholder value. The findings are also of importance to investors as they will help identify whether traditional measures of credit risk such as financial ratios actually have a relationship with the financial performance of the banks. They also determine whether alternative measures of credit risk, such as credit ratings, which are increasingly being adopted in Kenya have an effect on financial performance and consequently their returns.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

The current chapter provides an overview of relevant literature written on the effect of credit risk on the financial performance of Commercial Banks in Kenya. The chapter starts with a theoretical literature review, an empirical literature, and then the chapter conclusion.

2.2 Theoretical Review

Theoretical framework involves an exploration of the theories that inform the relationships of the variables under study. These theories are extensive, but the selected theories explored within the scope of this study are; the Financial Distress theory, The Agency theory, as well as the Information Asymmetry theory.

2.2.1 Agency theory

According to Jensen and Meckling (1976), agency relationship is a contract whereby one or more parties – in this case the principal - engage the other party or agent to do a specific task on their behalf. By doing this, according to Jensen and Meckling (1976) the principle delegates some authority to the agent to make some decisions on behalf of the principle. The assumption is that the aim of both the agent and the principle is to maximize utility. Thus, the agent may fail to act as expected by the principal or in the principal's best interest. Thus, in such a case, the principal has to incur monitoring costs as well as include incentives to motivate the agent. In essence, such acts limit the principal's interests.

Adam Smith posits that directors of a company –since they manage the money for other people and not their own cash- cannot be expected to have vigilant watch over it as they would their own (Smith, 1776). Moral hazard also arises owing to limited liability which gives bank shareholders an increased risk appetite. Since the government protects bond holders, they tend towards risk aversion and reduced need of monitoring (Demsetz, Saidenberg, & Strahan, 1997). This theory is relevant to this study as managers make bank decisions which influence credit risk and/or financial performance. Agency costs incurred also affect the company's bottom line, which translates to profitability and overall bank performance.

2.2.2 Financial distress theory

Financial distress refers to an entity's inability to pay its debts. This implies that the operating cash flows of the firm are not able to meet the present needs and obligations. It can be identified through different events like closing the plant, reducing dividend, layoffs, financial losses, among other facets (Ross, Hillier, Westerfield, Jaffe, & Jordan, 2012). Edwards Altman introduced the Z score as a means of testing for bankruptcy which looked at a firm's profitability, liquidity, solvency, leverage, as well as activity metrics (Cao, 2016). According to Demsetz, Saidenberg and Strahan (1997) the liquidity measure (T1) is difficult to implement on commercial banks as estimating working capital requires consideration of cash, which is a key element in banking operations. Thereby, according to Altman, ability of a firm to meet its obligations and mandate sufficiently and effectively, is by itself a business performance measure. The relevance of this theory arises as banks need to meet their obligations to depositors and suppliers as and when they fall due. Failure to do so would constitute a liquidity problem. Credit risk should also be monitored as it may lead to financial distress.

2.2.3 Information asymmetry theory

George A. Akerlof first introduced this concept where he developed asymmetric information by arguing that in markets, buyers tend to use market statistics when measuring the value of goods. Therefore, the buyer –most of the time –has a perception of averagely the entire market. On the converse, most often the seller possess more detailed information regarding an item. Akerlof adds that this asymmetry proffers an incentive for the seller to offer less goods and services compared to the quality of goods in the market (Auronen, 2003). The less than average quality goods begin to dominate the market, which is referred to as adverse selection. He posits that this asymmetry can be reduced through intermediary market institutions, which allows the owners of goods that are above average to acquire full value for their products ensuring the market does not reduce to zero value (Auronen, 2003).

In credit market, information asymmetry arises because the borrowers understand more facets allied to their investment projects compared to the lenders (H.C, 2016). It is worth noting that the asymmetry takes place as "ex post" or "ex ante." According to H.C (2016), an ex-ante asymmetry is experienced if the lender is not in a position to understand borrowers with their different credit risks while providing loans. This can result in an adverse problem when it comes to selection. Notably, an adverse selection problems is experienced if an interest rates' increase abandon risky borrowers in a market for funds. Thus, banks have a high probability of lending borrowers with high-risk due to their willingness to pay increased interest rates. On overage, however, such borrowers have more risks (Claus & Grimes, 2003). This theory is relevant to this study because adverse selection tends to increases the possibility of loans becoming bad credit risks.

2.3 Determinants of Financial Performance of Commercial Banks

2.3.1 Interest Rate

Interest rate is a percentage of the principal the borrowers pay to use the money they borrow from creditors. In the context of financial institutions,commercial banks being inclusive,the borrower-lender relationship is arrived at from two angles. The first is the CBK that acts as a lender and the commercial banks that acts as borrowers, the second is that of commercial banks acting as the lender and clients as borrowers (Investor Words, 2015).

In Kenya, the Central Bank acts as a regulator by setting up the base lending rate from which commercial banks can lend at. The wider economy views the interest rate as a regulator of the level of the economy in terms of inflation levels. However, the rate from the perspective of commercial banks is that of a key determinant of their financial performance. The variables used in this case is normally the interest rate spread. Note that the interest spread refers to the difference between the borrrowing rate of commercial banks from central bank and the lending rate to the clients. The general statement is that low interest rate spread affects the profitability of firms positively. Various scholars have done research on the relationship and effect of interest rates on performance and all have come up with their conclusions (Central Bank of Kenya, 2015).

A study done by Irungu (2013) scrutinised a number of variables related to interest rate spread such as gross domestic growth rate, liqudity risk and the savings/deposit rate.the use of regression analysis and the anova techniques revealed that there is a positive correlation between the performance and interest rate spread, and as such, Irungu (2013) accepted the

alternative hypothesis that supported the idea that there is a relationship between financial performance of banks and the variables of interest rate spread.

Macrothink institute (2014) research proved that interest rates affect the banks interest income as confirmed by the Pearson correlation technique that was used. The study established a correlation of profitability and interest of -0.69. This implies a strong correlation between the two variables, albeit negative. This is an indication of an indirect alliance between bank profitability and interest rate. As such, if banks increase or decrease the interest rate value (X), the bank's profitability value (Y) will automatically be increased or decreased depending on the direction of change. This outcome differs from the suggestions made in the literature because the Pakistan's banking sector had huge banking spread by the time of the research. Therefore, any variance in interest rates would be absorbed easily by the spread. In addition, Moreover, banks earn profits be investing and the profits do not depend heavily on the interest margins.

Langat (2013) sought to identify the effect allied to interest rates spread and performance in the Kenyan banking industry. Further, he sought to establish the effect of banking regulations and credit risk on interest rates spread as well as their probable effects on the performance of banks. The findings of the research established that credit risk, CBK regulations, and various macro-economic variables affect the interest rates spread. In fact, the spread proffered enough margins for commercial banks to proceed with their operations in the market. As a result, the performance of the banking industry was equally affected. In terse, the study established a positive correlation between the performance of Kenyan commercial banks and the interest rates spread.

2.3.2 Credit ratings

The Credit Rating Agencies (CRA) are mandated to issue credit ratings. This reduces the information asymmetry between lenders and borrowers (Elkhoury, 2008). Their role has been extended due to globalization and the Basel II regulations, which include credit ratings in the weighting rules for credit risk as posited by Basel Committee on Banking Supervision (2008). It is expected that the higher the credit rating, the lower the credit risk and subsequently the better the financial performance of the bank.

2.3.3 Capital Adequacy

Under the current Basel 2 requirements, which have been adopted in Kenya, there exist two kind of capital, which are counted in attaining the required capital adequacy rules. These include supplementary capital and core capital. Based on the traditional approaches to banking, positive characteristics of capital adequacy are needed because capital acts as the buffer against financial performance and losses. Moreover, due to their nature of limited liability, the tendency of commercial banks to engage in activities that have high risks tends to decrease based on the capital at risk compared to the banks' assets. Most importantly, it is worth noting that the performance of banks is incredibly affected by the reduced massive taking of risks (Caprio, Barth & Levine, 2001).

According to Manole and Grigorian (2002), tightened minimum ratios for capital adequacy have also been allied to increased ability to generate revenue as well as aggressive behaviors associated with deposit taking that have a direct effect to the financial performance.

2.3.4. Liquidity

Ferrouhi (2009) defines lliquidity as the extent to which securities or assets or security can be sold or bought in a market without influencing the price of the assets. Note that one of the characteristics of liquidity is an increased level of trading activity. In fact, according to Ferrouhi (2009), assets with the affinity to sell or be bought easily are referred to as liquid assets. Accordingly, Ferrouhi (2009) - in his study on the effects of liquidity of banks on financial performance, the findings clearly exhibit that adequate liquidity prevents the occasions of financial crisis in case of massive withdrawals by the public.

Based on Basel 3, Liquidity Coverage Ratio (LCR), on the other hand, aims at ensuring that commercial banks maintain quality liquid assets. Due to the high levels of liquidity, it becomes easier to convert the assets into cash to meet the current needs of the firm. This is also imperative in ensuring that the firm meets its requirement for a 30 days calendar under a critically severe scenario of liquidity stress as stipulated by the Net Stable Funding Ratio (NSFR) and supervisors. This is crucial in ensuring that long-term assets can be financed with minimum amount of the firm's stable liabilities compared to the firm's liquidity risk profiles as posited in the Basel Committee on Banking Supervision (2008).

2.3.5. Quality of Assets

Quality of assets in banks mainly refers to the quality of its loan book. It is measured using non performing loans. It is expected that the higher the non-performing loans, the poorer the financial performance of a commercial bank (Bank for International Settlements, 2013).

2.3.6 Regulatory Requirements

Basel II has various recommendations allied to banking regulations and laws that govern the institutions. There three pillars as established in the accord. These include supervisory review, minimum capital requirements, as well as the market discipline.

Based on Basel II, the first pillar is the Minimum Capital requirement. According to Naceur & Kandil (2006) – in their research about the effect of capital requirement on the performance and intermediation of banks - they estabished that increased capital adequacy tends to increase the shareholders interest in managing the portfolio of banks; consequently increasing the profitability of the banks. The finding of the study was in line with the efforts made by the Central Bank to enforce capital regulations as means of improving the performance of commercial banks.

The second pillar is the supervisory review. This pillar banks risks to make sure that banks engage in practices and sound judgment that are not detrimental to the operations of the bank. Accordingly, the pillars ensure that banks set aside adequate capital to deal with their risks (Njeri, 2013). The third pillar is the market discipline as stipulated in the Basel II Accord. The market discipline makes sure that markets are in a position to assess the banks risk profiles in an efficient way. Note that the third pillar is a crucial mechanism meant to induce the commercial banks to manage their levels of risks as well as maintain enough capital. This enables the banks to increase their profitability (Caprio, 2012).

2.4 Empirical Review of Credit Risk Issues

Saeed and Zahid (2016) analyzed the effects of credit risk on banks' profitability. The study used the UK's top five commercial banks. In this study, the researchers considered Return on Equity (ROE) and Return on Assets (ROA) as a profitability measure, which was measured against the credit risk metrics. This was covered for the period between 2007 and 2015, which covered the financial crisis. The United Kingdom experienced a credit crunch in 2007/2008 (Pettinger, 2016). This was a spillover of the crisis experienced USA. This led to banks such as Northern Rock experiencing shortfalls and seeking support from the Bank of England (Kingsley, 2012) which also led to depositors withdrawing their savings. This also led to banks struggling to finance their balance sheets, falling house prices, and expensive mortgages, a key product for banks (Pettinger, 2016). The results of the study showed that despite this crisis, the credit risk indicators depicted a positive correlation with profitability. This was an implication that banks were still getting benefits from interest rates, fees and commissions, despite achieving profitability after the crisis The study also revealed that the size of banks, their growth as well as leverage were positively interlinked (Saeed & Zahid, 2016).

Awoke (2014) in his studied the how credit risk affected the performance of commercial banks in Ethiopia and found out that there is a significant effect on performance of the banks with varying magnitudes and direction of their effect on the ROA. In the study, Awoke covered the years 2008 to 2012 and used ROA as a measure of bank performance. The ROA was regressed against the loan to total asset, the provision to total loans, Size (Economies of scale) and the credit administration (cost to total loans).

Judgmental sampling was used to arrive at the sample of eight banks which represented approximately 80% of the industry's loans and advances. The finding indicated that there was an incredible effect. The recommendation was there was a need for banks to have the capacity to manage their credit risk, reduce/control their overhead spending, and increase the loan book without compromising on its quality (Awoke, 2014).

In addition, Bhattarai (2016) analyzed the effects of credit risk on the performance of banks in Nepal. The study adopted a causal and descriptive comparative research design on a sample on 14 commercial banks in Nepal between 2010 and 2015. The results showed that non-performing loans, which were adopted as a measure of credit risk had a negative effect on bank performance. In addition to the risk indicators, bank size had a positive effect on bank performance hence concluding that there existed an incredible relationship between the credit risk indicators and the bank's performance.

Zidan (2014) analyzed the effect of credit risk on Palestinian Banks for the period 2005 – 2011. This established that credit risk had a significant relationship on profitably of Palestinian banks with a negative relationship established between credit risk and return on assets. The study sampled five banks in the country and used regression analysis to analyze the data. The author recommended consideration of credit policy by bank managers to avoid negative effects of those policies on profitability of the commercial banks (Zidan, 2014).

As per Ekinci (2016), foreign exchange risk arising through banks operating in various countries and credit risk had a notably significant effect on profitability of banks in Turkey. The author also noted that credit risk had a relationship with the commercial banks return on stock as measured by dividends and the respective volatility of the returns.

A recommendation was thus forwarded on the consideration of credit risk and market risk as it affected the performance of commercial banks in Turkey and would contribute to a deeper understanding of the aforementioned sector (Ekinci, 2016).

Over the period 2005 – 2013, Alshatti (2015) examined 13 commercial banks in Jordan to establish whether their financial performance was affected the policies they put in place to manage their credit risk. The author established a significant relationship between the aforementioned variables did exist and recommended implementation of credit estimation to aid in management of credit risk, as well as effective administration and monitoring of the process followed in the issuance of loans in Jordan (Alshatti, 2015).

Kishori & Sheeba (2017), posited that return on assets and return on equity could be used as a measure of financial performance of banks as per the DuPont model. The authors also established that liquidity ratios, non-performing loans which represented the non-performing loans, ratio of loans to the deposits in a bank and the cost incurred per every loan issued could be used to measure credit risk. This study was carried out in India (Kishori & Sheeba, 2017).

Sadeghi & Faraji (2017), sought to establish credit risk management as implemented by banks listed on the Tehran Stock Exchange had an effect on their financial performance and their stock returns. Over the years 2010 – 2014, using the sample of 20 state owned and private banks, the study established that a direct relationship existed between the capital adequacy of the banks and their respective financial performance indicators as analyzed using a multiple regression model with a 95% confidence level. They also established that there was a relationship between liquidity and financial performance for the banks in Tehran.

They recommended reduction of credit risk levels at the point of loan origination by bank managers (Sadeghi & Faraji, 2017).

According to a study by Isanzu (2017) seeking to establish the effect of credit risk on Chinese commercial banks between 2008 and 2014, it was established that banks needed to manage their credit risk as a significant relationship existed between the aforementioned risk and the financial performance of the banks. The study was carried out in China on the five largest commercial banks and utilized a regression model to analyse the data. The study recommended improved management of credit risk by the banks (Isanzu, 2017).

Mendoza & Rivera (2017), studied rural banks in the Philippines seeking to establish whether a relationship existed between their financial performance and their credit risk levels and their capital adequacy. It was established that a relationship did indeed exist which was negative and statistically significant as analyzed using the Arellano-Bond estimator. However capital adequacy did not have a significant effect on profitability. As such, the authors recommended that rural banks needed to establish whether injection of capital would in any way affect their profitability Vis a Vis increasing their debts (Mendoza & Rivera, 2017).

Over the years 2006 – 2015, Rwayitare, Shukla & Ruhara (2016) undertook a study on commercial banks in Rwanda seeking to establish whether a relationship existed between their profitability and their credit risk as measured by indicators such as the net interest margin. The augmented dickey fuller test was employed and was found that there was co-integration on the variables.

The study also revealed that there was an increasing trend on the credit risk indicators over the analysis period hence recommended an increase in collection of deposits to increase availability of loans complemented by the implementation of policies to manage credit risk (Rwayitare, Shukla, & Ruhara, 2016).

Additionally, Kayogire & Shukla (2016), undertook a case study on Equity Bank (Rwanda) seeking to establish whether their credit risk management policy had an effect on the bank's financial performance. The researchers collected primary data from 57 of the bank's credit officers and established that indeed a relationship existed between the bank's performance and its loan collectability and policies it had put in place to assess lending to its customers (Kagoyire & Shukla, 2016).

Muriithi (2016) researched the relationship between financial risk and the performance of commercial banks in Kenya. Credit risk was one of the financial risks identified in addition to liquidity risk and market risk. The results showed that there was a significant negative relationship as established by an F test and the pooled OLS model. The study was carried out on all 43 banks in Kenya and recommended that bank managers might have to make a tradeoff between financial performance and financial risk (Muriithi, 2016).

Accordingly, a study done by Muasya (2013) on the alliance of practices allied to credit management and losses established that a significant number of commercial banks had not put in place credit risk management information systems. As a result, there was a negative relationship between the loan losses and the practices of credit risk management in banks. The author used a descriptive research design to establish whether there was a relationship between loan portfolio losses and the practices of credit risk management.

The recommendations of the study were that banks should consider provisions for specific practices allied to credit risk management to be implemented uniformly by Kenyan Banks

In furtherance to this, a study done by Opondo (2014) entitled "Effect of Credit Risk Management on the Financial Performance of Commercial Banks in Kenya" concluded that higher credit risk resulted in better financial performance for the Kenyan banks. This was indicated by an improvement in ROA. The study utilized a descriptive research design and regression analysis where credit risk was the independent variable measured with the variability in the ratio of loans to deposits. The study covered the years 2008 -2013. The study recommended that commercial banks should be encouraged to share information on their borrowers to improve loan book quality.

2.5 Conceptual Framework

This study sought to analyse the effect of credit risk on the financial performance of commercial banks listed at the Nairobi Securities Exchange. Credit risk formed the independent variables while financial performance was the dependent variables. Credit risk was measured by Credit Rating (CR), Capital Adequacy Ratio (CAR), asset quality (AQ), and Loan to Deposit Ratio (LDR) while financial performance was measured by ROA and ROE. Control variables were Cost to Income Ratio (CIR) and GDP. Figure 2.1 illustrates the interrelationship between these variables.

Independent Variables

Credit Risk

Credit Rating (CR)

Capital Adequacy Ratio (CAR),

Asset Quality (AQ),

Loan to Deposit Ratio (LDR)

Financial Performance (Measured by ROA and ROE)

Control Variables

Cost to Income Ratio (CIR) Gross Domestic Product (GDP)
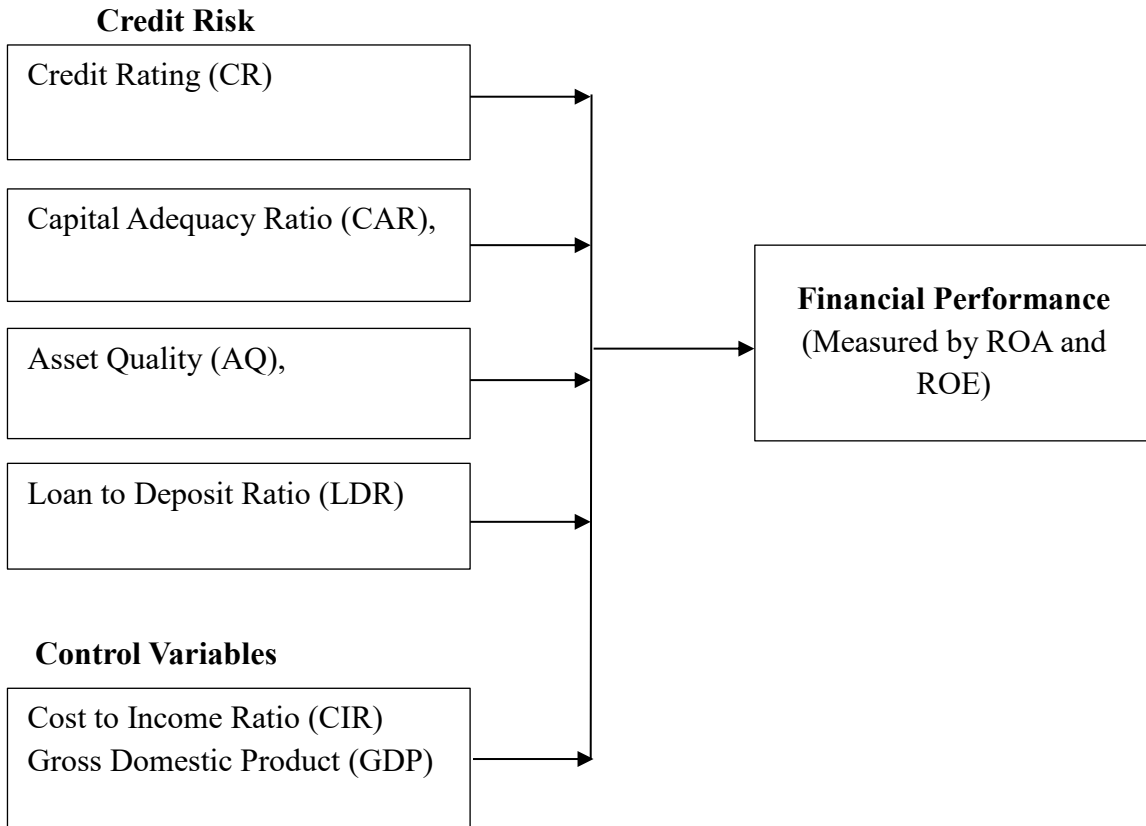
Figure 2. 1 Conceptual Model

2.6 Chapter Summary

Several studies have been undertaken seeking to find out the correlation of banks' financial performance and credit risk in various countries in the world. From the review done in the current paper, similar studies have been undertaken in Nepal, Ethiopia, Liberia and Nigeria. The researchers sought to establish the relationship between ROA and/or ROE and various measures of credit risk such as NPLs, Loan to Deposit ratio, Cost to Income Ratio, among other facets.

The studies generally focused on financial indicators as a measure of credit risk i.e. financial ratios and provided by audited financial statements. The studies were also carried out in markets where pricing in the form of interest rates was determined by the market demand and forces of supply. In other words, the markets were destitute of interest rate cap regulations. The aforementioned two gaps are what this study seeks to fill. The study also includes credit ratings as the measure of credit risk through the formulation of a synthetic rating for the commercial banks. The synthetic rating takes into consideration sovereign risk, bond risk that are macroeconomic indicators not covered in financial ratios. The study also seeks to establish whether the regulations relating to interest cap affect credit risk and consequently the financial performance of the sampled banks.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

The chapter is about the research approaches used in generating the data utilized in the study. The chapter entails the rationale and approach used, the study location, the design used in the research and the sampling procedure. Other aspects covered in the chapter include the population of the study, sampling, data collection, data validity, reliability and validity of the instruments used to collect the data, ethical considerations and data analysis as well as the unit of analysis.

3.2 Research Design

The research adopted a descriptive research design of the banks listed at the NSE. According to Gatobu (2013), a descriptive research design entails collecting data, which describe events. The data is then organized, tabulated to depict certain output, notably presented in visual aid instrument such as charts and graphs to assist the user comprehend the data distribution. The research design was chosen as the study sought to establish a relationship between various study variables.

3.3 Population and Sample

The study used all the Kenyan Commercial banks listed in NSE. The number of commercial bank listed in NSE are 11 (NSE, 2015). Therefore, the population of the study was the 11 commercial banks. As such this study was a census of the listed banks.

3.4 Data Collection

The study used secondary data. Also worth mentioning is that the data used was quantitative data. As such, the data was available from the financial statements of the listed banks. Notably, the data obtained included Return on Assets, Return on Equity, Profit before tax, and profit after tax, Earnings per share, as well as total assets and liabilities.

3.5 Data Analysis

3.5.1 Model

Data was analyzed using excel spreadsheets for Microsoft Windows. First, a descriptive analysis was done on the variables' data, and then the variables were correlated to each other using correlation analysis. Finally, the data was regressed to establish the intended relationship. Below is the regression model used for the study?

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

Where:

Y= Financial Performance (Dependent variable) - Return on Assets (ROA) and Return on Equity (ROE),

β_0 = Constant term

X_1 = Credit rating

X_2 = capital adequacy of bank

X_3 = asset quality of bank

X_4 = loan to deposit ratio

X_5 = Cost to income ratio

X6 = Gross domestic product

E = Error term

3.5.2 Operationalization of variables

Three matrices were used to determine the financial performance (Y). These included the Return on equity (ROE) and Return on Assets (ROA). The Return on Assets refers to the net income ratio to the total assets times the ratio of the asset turnover (sales/total assets). On the other hand, the Return on Equity is the net income ratio to shareholder equity. The ROE measures the return of an investor for each shilling invested in the bank. Lastly, the Net Interest Margin measures the net interest income which is a major source of income to a bank.

Credit ratings were arrived at using MOODY's synthetic rating metric which was used in rating KCB, Equity Bank and Cooperative Bank of Kenya. Loan to deposit ratio (LDR) was calculated by dividing total loans with total deposits while cost to income ratio (CIR) was arrived at by dividing operating costs by the sum of net interest income (NII) and non-funded income (NFI). GDP information was readily available from World Bank reports on the Kenyan economic outlook. Asset quality is the ratio of a bank's non-performing loans (NPLs) to total loans. While capital adequacy ratio (CAR) is a measure of the capital expressed by banks as a percentage of a Risk Weighted Credit Exposure of the bank. The CAR is always compared to the set CBK prudential guidelines to asses a banks compliance and its excess capital over the set minimum requirements.

3.5.3 Interpretation

β_0 is the intercept coefficient which indicates that at zero levels of our independent variables, financial performance will be β_0 in value. A positive (+ve), meant that at zero levels of credit ratings, capital adequacy of bank, asset quality of bank, cost to income ratio, loan to deposit ratio, as well as Gross domestic product, the banks were still able to achieve positive returns in terms of their ROA, ROE and NIM. If negative (-ve), the reverse was true indicating reduced levels of efficiency, losses in terms of the returns earned by their investors and interest expenses exceeding their net incomes. β_1, β_2, β_3 and β_4 represented coefficients for credit risk, capital adequacy of bank, asset quality of bank, Cost to income, loan to deposit ratio, ratio and Gross domestic product respectively.

The coefficients indicated that for every unit increase in the independent variable, we expected an increase or decrease of performance by the coefficient value. If positive (+ve), it represented an increase and a negative (–ve) value indicated a decrease in performance.

The R value represented the correlation between financial performance and the predictor variables which measured the strength and direction of the relationship between the variables if linear. The value lied between +1 and -1 (Kozak, Staudhammer, & Watts, 2004).

Exactly -1 indicated a perfect negative linear relationship.

-0.7 indicated a strong negative linear relationship

-0.5 indicated a moderate negative linear relationship

0 indicated no linear relationship

+0.5 indicated a moderate positive linear relationship

+0.7 indicated a strong positive linear relationship

Exactly +1 indicated a perfect positive linear relationship.

The R^2 indicated the explanatory power of the independent variables (The MathWorks, Inc, 2015). This meant that if the value was high, it denoted a strong relationship between the explanatory variable and the performance as measured by ROA, ROE and NIMs.

The F value depicted the test statistic utilized to decide if the model used had significant predictive capacity. It is the ratio of the model mean square to the error mean square. Using the null hypothesis, the model depicted no predictive capacity. This implies that the regression coefficients of all the population were zero. The null hypothesis would be rejected if the F value was large (Dallal, 2012).

CHAPTER FOUR

DATA ANALYSIS, PRESENTATION AND INTERPRETATIONS

4.1 Introduction

This chapter covers data analysis, presentation and interpretation on the effect of credit risk on the financial performance of commercial banks listed at the Nairobi Securities Exchange. Full data was available for the banks chosen hence indicating 100% response rate.

4.2 Descriptive Analysis

The study sought to analyse the effect of credit risk on financial performance in commercial banks listed at the Nairobi Securities Exchange. Financial performance was measured in both return on assets (ROA) and return on equity (ROE). Other ratios determining credit risk and deemed to affect credit were also provided. These included; Gross Domestic Product (GDP), Credit Rating (CR), Capital Adequacy Ratio (CAR), asset quality (AQ), Loan to Deposit Ratio (LDR) and Cost to Income Ratio (CIR). Table 4.1 gives descriptive statistics of the ratios.

Table 4. 1: Descriptive Analysis

Ratio	Scale	Min	Max	N	Mean	Std.Dev
ROA	%	-1%	5%	55	3%	0.012
ROE	%	-10%	30%	55	18%	0.070
CR	%	2%	14%	55	8%	0.039
CAR	%	12%	38%	55	21%	0.048
AQ	%	0%	41%	55	5%	0.057
LDR	%	53%	148%	55	85%	0.193
CIR	%	6%	195%	55	59%	0.295
GDP	Billion KSh	3444.339	4299.088	55	3858.7718	300.645

The minimum value for ROA was -1% while the maximum was 5%. ROA had a mean of 3% with standard deviation of 0.012. ROE recorded a minimum of -10% and a maximum of 30%. Mean ROE was 18% against standard deviation of 0.07

Credit rating based in percentage had a mean of 8% and standard deviation of 0.039 while CAR had mean of 21% and standard deviation of 0.048. Asset quality on the other hand had a mean of 5% and standard deviation of 0.057. LDR and CIR had a mean of 85% and 59% respectively. Standard deviation for LDR and CIR were 0.193 and 0.295 respectively.

GDP measured in billion Ksh. had a mean of 3858.7718 and standard deviation of 300.64475 within the 5-year period (2012-2016).

4.3 Correlation Analysis

Correlation analysis in this study was sought to establish the presence of association between the independent and dependent variables. The dependent variables in this study were ROA and ROE. Independent variables were Credit Rating (CR), Capital Adequacy Ratio (CAR), asset quality (AQ), Loan to Deposit Ratio (LDR) and Cost to Income Ratio (CIR). Pearson correlation coefficient which indicate how variables co-move was used. In the correlation, a negative coefficient implied inverse relationship and vice versa. Correlation coefficient was used to determine the strength of the relationship between the correlated variables at 95% confidence level. The scale for gauging the strength of coefficients is as provided;

Correlation Coefficient	Relationship
<0.2	Very weak correlation
0.2 – <0.4	weak correlation
0.4 - <0.6	Moderate correlation
0.6 - 0.8	Strong correlation
>0.8 <1	Very strong correlation
1	Perfect correlation

Table 4. 2: Correlation Results

		ROA	ROE	CR	CAR	AQ	LDR	CIR
ROA	Pearson Correlation	1						
	Sig. (2-tailed)							
	N	55						
ROE	Pearson Correlation	.957**	1					
	Sig. (2-tailed)	.000						
	N	55	55					
CR	Pearson Correlation	-.811**	-.715**	1				
	Sig. (2-tailed)	.000	.000					
	N	55	55	55				
CAR	Pearson Correlation	.354**	.344*	-.293*	1			
	Sig. (2-tailed)	.008	.010	.030				
	N	55	55	55	55			
AQ	Pearson Correlation	-.544**	-.569**	.346**	-.217	1		
	Sig. (2-tailed)	.000	.000	.010	.111			
	N	55	55	55	55	55		
LDR	Pearson Correlation	.711*	.753**	.260	.195	-.085	1	
	Sig. (2-tailed)	.021	.003	.055	.154	.537		
	N	55	55	55	55	55	55	
CIR	Pearson Correlation	-.403*	-.426*	-.468	-.334**	.378**	-.108	1
	Sig. (2-tailed)	.003	.044	.147	.000	.004	.432	
	N	55	55	55	55	55	55	55

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Correlation results indicate that there is a very strong and positive correlation between ROA and ROE (r =0.957). This correlation was significant at 95% confidence level (*P value = 0.00<0.05).* This implies that, an increment in ROA is associated with an increase in ROE while a drop in ROA is associated with a decrease in ROE.

Credit rating had a negative and strong correlation with both ROA and ROE (r =-.811 and-.715 respectively. The correlation was significant at 95% confidence level as indicated by p value of 0.000<0.05 in both ROA and ROE.

Capital adequacy ratio (CAR) was found to have positive and weak association with ROA and ROE (r = 0.354 and 0.344 respectively) the correlation was significant at 95% confidence level. CAR also had a weak and negative association with CR (r =-0.293) significant at 95% confidence level. The association points out that, an increase in CAR is associated with increase in both ROA and ROE. Similarly, a decline in CAR is associated with decline in ROA and ROE. Asset quality (AQ) indicated a negative correlation with both ROA and ROE (r = -0.544 and -0.569). The association was significant at 95% confidence level (p value = 0.000 and 0.000). Asset Quality has indicated a significantly weak and positive correlation with credit rating (r = 0.346) and p value 0.01<0.05. The association indicates that and increase in ROA and ROE is associated with decline in AQ while a decrease in ROA and ROE is associated with increase in AQ.LDR indicated a strong and positive association with both ROA and ROE (r = 0.711 and 0.753 respectively). The correlation is significant at 95% confidence level implying that an increase in ROA and ROE is associated with increased in LDR and vice versa.

Significant association was also established between CIR and ROA, ROE, CAR and asset quality. From the results, the correlation is moderate and negative at 95% confidence with ROA, ROE and CAR but a positively weak association with AQ. The correlation coefficient for ROA, ROE,CAR and AQ are -0.403, -0.426,-0.331 and 0.378 respectively. Therefore, an increase in CIR is associated with decline in ROA, ROE and CAR while a decrease is associated with increase in ROA, ROE and CAR.

4.4 Regression Analysis: ROE

Regression analysis sought to identify relationship between Independent and dependent variables. The dependent variables were ROE and ROA. The dependent variables were, GDP, Credit Rating (CR), Capital Adequacy Ratio (CAR), asset quality (AQ), Loan to Deposit Ratio (LDR) and Cost to Income Ratio (CIR). GDP was removed from the model owing to the same value after average computation of 5 years for 11 banks.

Table 4. 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.815a	.665	.630	.0387452

a. Predictors: (Constant), CIR, AQ, CR, LDR, CAR

Table 4.3 shows results of goodness fit. R square which as the coefficient of determination was 0.66.5. This indicates that 66.5% of variation in ROE is explained by independent variables. Only 33.5% is explained by other factors. R represents the correlation coefficient which indicates the relationship between the independent and dependent variables in the model.

In the study, R was 0.815 indicating very strong positive correlation. Therefore, the model used in this study was satisfactory.

Table 4. 4: Overall Model Significance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.146	5	.029	19.412	.000b
	Residual	.074	49	.002		
	Total	.219	54			

a. Dependent Variable: ROE

b. Predictors: (Constant), CIR, AQ, CR, LDR, CAR

Table 4.4 presents analysis of variance which describes significance of the overall model. From the results, the F statistic is 19.412 greater than F critical (2.901). P value was 0.000 smaller than the critical p value 0.05. Therefore, the model was significant at 95% confidence level and thus there is at least one significant independent variable. Hence, for ROE, independent variables are good joint predictors.

Table 4. 5: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.231	.036		6.453	.000
	CR	1.019	.158	.635	6.462	.000
	CAR	.067	.120	.051	.556	.002
	AQ	-.323	.106	-.293	-3.029	.004
	LDR	.050	.030	.154	1.695	.029
	CIR	-.018	.019	-.084	-.928	.092

a. Dependent Variable: ROE

Results tabulated in table 4.5 indicate the coefficients, t values and significance levels of variables under study. The constant had a coefficient of 0.231 significant at 95% confidence level (p value = 0.000 < 0.05). Therefore, holding all other variable at zero level, ROE will be equivalent to constant based on the model. Credit Rating (CR) had positive coefficient of 1.019 indicating that, an increase in CR will lead to an increase in ROE. Credit rating was significant at 95% confidence level as indicated by p value 0.000<0.05.

CAR had a positive coefficient of 0.067 significant at 95% confidence level (p value = 0.002 < 0.05). Therefore, CAR as a predictor of ROE, its increase contributes to an increase in ROE while its decline will result to a decrease in ROE. Asset quality (AQ) on the other hand had a negative coefficient of -0.323 and p value of 0.004 < 0.05. Thus, asset quality predict ROE at 95% confidence level in the sense that its increase contributes to decrease in ROA and vice versa.

Loan to Deposit Ratio (LDR) can predict ROE at 95% confidence level. This is inferred from the coefficient results where LDR has a positive coefficient of 0.5 and p value of 0.029 < 0.05. This imply that, an increase in LDR will resort to an increment in ROE and vice versa. Cost to Income ratio (CIR) had a coefficient of -0.18 and p value of 0.092. This indicates that CIR as a ROE predictor is insignificantat 95% in this model.

4.4.1 Fitting Regression Model

The regression model used in this study was

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + E$

Where:

Y= Return on Equity (ROE)

β_0 = Constant term

X1 = Credit rating

X2 = capital adequacy of bank

X3 = asset quality of bank

X4= loan to deposit ratio

X5 = Cost to income ratio

X6 = Gross domestic product

E = Error term

Using only the significant variables, the fitted model became;

$ROE = 0.231 + 1.019X1 + 0.067X2 - 0.323X3 + 0.5X4 + E$

4.5 Regression Analysis: ROA

Apart from ROE, ROA was used in this model as dependent variable. Regression analysis was undertaken to establish the ROA relationship with GDP, Credit Rating (CR), Capital Adequacy Ratio (CAR), asset quality (AQ), Loan to Deposit Ratio (LDR) and Cost to Income Ratio (CIR). GDP was removed from the model owing to the same value after average computation of 5 years for 11 banks.

Table 4. 6: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.874a	.764	.740	.0057601

a. Predictors: (Constant), CIR, AQ, CR, LDR, CAR

Table 4.6 shows the model summary for the regression model. The coefficient of determination represented by R squared indicates the variation in the dependent variable due to changes in the independent variable. This value was 0.764 indicating that 76.4% of ROA is explained by the independent variables and only 23.6% is explained by other factors. Thus, there is a relative significant effect between dependent and independent variables. R represents the correlation coefficient which indicates the relationship between the independent and dependent variables in the model. In the study, R was 0.874 indicating very strong positive correlation. Therefore, the model used in this study was satisfactory.

Table 4. 7: Overall Model Significance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	.005	5	.001	31.762	.000b
	Residual	.002	49	.000		
	Total	.007	54			

a. Dependent Variable: ROA

b. Predictors: (Constant), CIR, AQ, CR, LDR, CAR

Table 4.7 give the analysis of variance. From the results, the independent variables have a combined effect on ROA. This is inferred from the significance interval of 0.000 significant at 95% confidence level. The F statistic is 31.762 greater than F critical (2.901). Therefore, the independent variables being good joint predictors, the overall regression model can be used to predict ROA given the independent variables.

Table 4. 8: Regression Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.043	.005		7.990	.000
	CR	.211	.023	.741	8.994	.000
	CAR	.012	.018	.050	.656	.000
	AQ	-.044	.016	-.226	-2.777	.027
	LDR	.006	.004	.106	1.394	.003
	CIR	-.004	.003	-.110	-1.458	.033

a. Dependent Variable: ROA

Regression coefficient with ROA indicate that, the constant had a positive coefficient of 0.043 significant at 95% confidence level (p value = 0.000<0.05). Credit Rating (CR) has a positive effect on ROA as shown by the coefficient of 0.211. This implies that an increase in CR will result to an increase in ROA and vice versa. CR was found to be significant at 95% confidence level (p value = 0.000 > 0.05). Therefore, based on this model, CR can predict ROA at 95% confidence level.

Capital adequacy ratio (CAR) is a significant determinant of ROA at 95% confidence level (p value = 0.000<0.05). CAR has appositive effect on ROA as shown by coefficient of 0.012. Therefore, an increase in CAR will result to an increase in ROA. A decline in CAR will as well result to decrease in ROA.

Asset quality (AQ) has an inverse contribution to ROA based on the coefficient of -0.044. This variable is significant at 95% confidence level (p value = 0.027<0.05). Therefore, increase in AQ results to decrease in ROA and vice versa. LDR has a positive contribution to ROA in the

sense that an increase in LDR will result to an increase in ROA. A decline in LDR will lead to decline in ROA. This is inferred from the LDR coefficient of 0.006. Further, LDR has was found significant at 95% confidence (p value = 0.003).

Cost to income Ratio (CIR) too had a significant contribution to ROA at 95% confidence level. CIR had a negative coefficient of 0.004 and p value of 0.033. This implies that an increase in CIR decreases ROA while its decline leads to increase in ROA.

4.5.1 Fitting Regression Model

The regression model used in this study was

$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + \beta_5 X_5 + \beta_6 X_6 + E$

Where:

Y = Return on Assets (ROA)

β_0 = Constant term

X_1 = Credit rating

X_2 = capital adequacy of bank

X_3 = asset quality of bank

X_4 = loan to deposit ratio

X_5 = Cost to income ratio

X_6 = Gross domestic product

E = Error term

Using only the significant variables, the fitted model became;

$ROA = 0.043 + 0.211 X_1 + 0.012 X_2 - 0.044 X_3 + 0.006 X_4 - 0.004 X_5 + E$

4.6 Discussion of the Results

This study sough to analyse the effect of credit risk on financial performance. Credit risk in this study was measured by credit rating, while financial performance was measured with both ROA and ROE. The study also factored other ratios that contribute to credit risk. These included, capital adequacy ratio, asset quality, loan to deposit ratio and cost to income ratio.

Correlation analysis found significant association between study variables. ROA and ROE had a significant positive correlation. Capital adequacy ratio (CAR) and Loan to Deposit ratio had a significant positive association with both ROA and ROE. On the other hand Credit Rating, Asset quality and cost to income ratio indicated a negative but significant association with ROA and ROE.

On regression analysis, Credit rating (CR) indicated a positive relationship with both ROA and ROE. This relationship was significant at 95% confidence level for ROA. This implies that an increase in credit rating will lead to increase in financial performance measured by ROA. According to Kisgen (2008) credit rating is a widely used measure for credit quality. For instance, to make portfolio allocation decisions, investors rely on credit ratings; financial sector notably banks and insurance firms use credit rating on investment decisions and allocating regulatory capital. Credit rating also is an important proxy for collateral quality. Kisgen (2008) further document that credit rating has a significant role because it indicates firm's quality and has an effect on company cost of capital. A study done by Raqeeb, Zaidi and Cheema (2012) indicated that credit ratings have a bigger effect on capital structure along with FtoA, size and ROA.

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They concluded that a firm with higher credit rating are characterised of good market reputation. Therefore, they will be devoid of more debt in capital structure hence saving them from worse conditions. However, it has to be noted that higher credit rating indicates lower credit risk and vice versa. This implies that, credit risk has a negative effect on ROA. These findings concur with Awoke (2014), Bhattarai (2016) and Muasya (2013) that credit rating has negative effect on financial performance in commercial banks.

Capital adequacy was found to have positive and significant effect on ROA and ROE. Based on the traditional approaches to banking, positive characteristics of capital adequacy are needed because capital acts as the buffer against financial performance and losses. Moreover, due to their nature of limited liability, the tendency of commercial banks to engage in activities that have high risks tends to decrease based on the capital at risk compared to the banks' assets. Most importantly, it is worth noting that the performance of banks is incredibly affected by the reduced massive taking of risks (Caprio, Barth & Levine, 2001). These findings concur with Kiragu (2010) that CAR has a significant and positive effect on ROA. His study however found insignificant effect on ROE. This means that capital adequacy when measured in ROA and ROE is a determinant of earnings in commercial banks.

Asset quality (AQ) has negative significant effect on ROA but insignificant relationship with ROE. This implies that an increase in 1 unit of asset quality will lead to 0.189 decline in ROA. Banks asset quality has an effect to both operational and financial performance. In this study, asset quality as a ratio of nonperforming loans to total loans. Therefore these findings don't agree with Cheruiyot (2015). In his study, using NPAs on total asset as asset quality, Cheruiyot found that asset quality has a positive effect on ROA.

Given that loans form the largest asset in commercial banks, which also attract the largest credit risk, asset quality affect financial performance. This is because it has an effect on interest income in commercial banks.

Liquidity measured by LDR has a positive and significant relationship with ROA and ROE. In the analysis, an increase in 1 unit of LDR will lead to 0.972 and 1.483 to both ROA and ROE respectively. These findings concur with Bodla and Richa (2010) that a positive relationship exists between liquidity and banks profitability. Ferrouhi (2009) in his study on the effects of liquidity of banks on financial performance, clearly exhibit that adequate liquidity prevents the occasions of financial crisis in case of massive withdrawals by the public. Commercial banks make liquidity decisions and its management in relation to deposits and loans. Then, it must be noted that the importance of liquidity is superior to interest of banks because a shortfall leads to bigger systematic failure. Therefore banks maintain high liquidity level at opportunity cost to investment as a way to earn higher returns.

Cost to income ratio (CIR) has an insignificant relationship with ROE. However, when regressed with ROA, it resulted to a negative significant relationship with ROA. This implies that, increased CIR will lead to decrease in ROA. Therefore, banks have to embrace proper cost management to minimise costs which can shrink banks profitability.

CHAPTER FIVE

SUMMARY, CONCLUSIONS AND RECOMMENDATION

5.1 Introduction

This chapter covers summary of the findings, conclusions and recommendations, carried out on study variable on the effect of credit risk on financial performance of commercial banks listed in NSE. The study variable included; ROA, ROE capital adequacy ratio, asset quality, credit rating, loan to deposit ratio and cost to income ratio and GDP.

5.2 Summary of the Findings

Correlation analysis found significant association between study variables. ROA and ROE had a significant positive correlation. Capital adequacy ratio (CAR) and Loan to Deposit ratio had a significant positive association with both ROA and ROE. On the other hand Credit Rating, Asset quality and cost to income ratio indicated a negative but significant association with ROA and ROE.Credit rating (CR) indicated a positive relationship with both ROA and ROE. This relationship was significant at 95% confidence level for ROA. This implies that an increase in credit rating will lead to increase in financial performance measured by ROA. According to Kisgen (2008) credit rating is a widely used measure for credit quality. Further, Kisgen (2008) document that credit rating has a significant role because it indicates firm's quality and has an effect on company cost of capital. This implies that, a firm with higher credit rating are characterised of good market reputation. Therefore, they will be devoid of more debt in capital structure hence saving them from worse conditions. In this study therefore, higher credit rating conforms to lower credit risk while lower credit rating implies higher credit risk.

Therefore, there is inverse relationship between credit risk and financial performance in the sense that, the higher the credit risk the lower the bank's profitability and vice versa.

Capital adequacy has a positive and significant effect on ROA and ROE. Based on the traditional approaches to banking, positive characteristics of capital adequacy are needed because capital acts as the buffer against financial performance and losses. Moreover, due to their nature of limited liability, the tendency of commercial banks to engage in activities that have high risks tends to decrease based on the capital at risk compared to the banks' assets. This means that capital adequacy when measured against ROA and ROE is a determinant of earnings in commercial banks.

Asset quality (AQ) has negative significant effect on ROA but insignificant relationship with ROE. Banks asset quality has an effect to both operational and financial performance. Given that loans form the largest asset in commercial banks, which also attract the largest credit risk, asset quality affect financial performance. This is because it has an effect on interest income in commercial banks. Therefore, working around with minimising non-performing loans will see banks financial profitability increase.

Liquidity measured by LDR has a positive relationship with ROA and ROE. These findings concur with Bodla and Richa (2010) that a positive relationship exists between liquidity and banks profitability. Ferrouhi (2009) in his study on the effects of liquidity of banks on financial performance, the findings clearly exhibit that adequate liquidity prevents the occasions of financial crisis in case of massive withdrawals by the public. Commercial banks make liquidity decisions and its management in relation to deposits and loans.

It must be noted that the importance of liquidity is superior to interest of banks because a shortfall leads to bigger systematic failure. Therefore banks maintain high liquidity level at opportunity cost to investment as a way to earn higher returns.

Cost to income ratio (CIR) has an insignificant relationship with ROE. However, when regressed with ROA, it resulted to a negative significant relationship with ROA. This implies that, increased CIR will lead to decrease in ROA.

5.3 Conclusion

This study sought to establish the effect of credit risk on financial performance of commercial banks in Kenya. Credit risk in this study was measured using credit rating and asset quality. While loans stand out to be banks biggest asset, their credit rating has a meaning on credit risk management. The study found out that credit rating has positive effect on financial performance. This is to mean, credit ratings awarded to financial institutions effect on decisions made. For instance, in making portfolio allocation decisions, investors rely on credit ratings; financial sector notably banks and insurance firms use credit rating on investment decisions and allocating regulatory capital. Credit rating also is an important proxy for collateral quality.

Asset quality is an assessment of credit risk towards a particular asset. In this study, asset quality was done in relation to loans as the biggest bank asset. The findings indicated that lower asset quality leads to higher financial performance. Asset quality in terms of non-performing loans and total loans effect negatively to financial profitability of commercial banks.

Capital adequacy was found to have positive and significant effect on ROA. Capital adequacy are needed because capital acts as the buffer against financial performance and losses.

Moreover, due to their nature of limited liability, the tendency of commercial banks to engage in activities that have high risks tends to decrease based on the capital at risk compared to the banks' assets. A higher capital adequacy above the requirement by national regulator indicated that the firm is save and less to be insolvent in cases of losses. It is also a guarantee to depositors that their savings are secure. Therefore, commercial institutions with high capital adequacy are likely to foster higher performance which also translates to lower credit risks.

This study therefore adds to the body of knowledge that credit risk has a negative effect on financial performance measured by both ROA and ROE.

5.4 Recommendations

Credit rating has been identified as significant factor to affect financial performance. Also it is an indicator firms' credit risk. Therefore credit rating can be used by depositors to assess credit risk for banks and whether their money is safe. This study recommends commercial banks to support credit rating aspect as it gives depositors a sense of safety.

Having have identified that credit risk has a significant effect on financial performance, there is need for commercial banks to implement guidelines to share credit worthiness of borrowers. This will increase quality of loans as a bank's asset and minimize non-performing loans. In addition, good financial management in expenditure need to be in place. Maintaining expenses at the lowest levels will help maximize its profits.

5.5 Limitations of the Study

This study used a scope of 5 years to determine the effect of credit risk on financial performance. Could be a longer period would generate varied results.

Only commercial banks listed in NSE were chosen to participate in this study. Thus, all the 43 banks were not involved. The study had the bank size as a control variable, however this may affect the results when rolled out to all commercial banks.

The study was limited to commercial banks and not any other institution within the financial sector. Therefore if housing institutions and micro-finance institutions are included, the results may be varied in nature.

Loan to deposits which was used as a measure of liquidity in this study is dynamic in the sense that it varies from time to time based on financial circumstances in financial banks in Kenya. This implies that liquidity provided might not reflect actual effect of financial fraud within the time span adopted.

The data used was limited to secondary data obtained from published results. Interaction with census management may have revealed facets of credit risk not covered in this study.

5.6 Suggestion for Further Research

This study was done to determine the effect on credit risk on financial performance. The findings of these study can be replicated in all 43 commercial banks in Kenya, as this study only covered the listed entities.

Further research could also be undertaken on other financial institutions such as housing finance institutions and micro-finance institutions. This would provide a wider view on the impact of credit risk on financial performance.

Further study can be done on the gap between credit rating and implementation. Further, a study can be done to establish the effect of credit rating on financial performance as a way to encourage institutions to gain cost benefit.

Additional study could also be carried out using primary data which could provide a new facet on the measurement of credit risk in commercial banks.

Additional research can be done on the impact of IFRS 9 implementation on the financial performance of commercial banks in Kenya, once implemented in 2018.

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APPENDICES

Commercial Banks Listed at the Nairobi Securities Exchange

Diamond Trust Bank Kenya Ltd

National Bank of Kenya Ltd

Equity Bank Ltd

Family Bank Limited

NIC Bank Ltd

Barclays Bank of Kenya Ltd

CFC Stanbic Bank Ltd

Standard Chartered Bank Kenya Ltd

Kenya Commercial Bank Ltd

I & M Bank Ltd

Co-operative Bank of Kenya Ltd

Source: CBK August 2016

Barclays Bank Ratios

Ratios					
For the Fiscal Period Ending	**12 months Dec-31-2012**	**12 months Dec-31-2013**	**12 months Dec-31-2014**	**12 months Dec-31-2015**	**12 months Dec-31-2016**
Profitability					
Return on Assets %	5.0%	3.9%	3.9%	3.6%	3.0%
Return on Equity %	30.9%	24.6%	23.7%	21.5%	18.0%
Return on Common Equity %	30.9%	24.6%	23.7%	21.5%	18.0%
Shareholders Value Added	5,346.3	4,398.0	4,143.4	3,716.7	2,472.8
Margin Analysis					
SG&A Margin %	35.5%	37.5%	49.5%	52.0%	55.7%
Net Interest Income / Total Revenue %	66.5%	70.6%	72.9%	74.7%	80.5%
EBT Margin %	47.7%	44.7%	45.7%	42.9%	39.1%
Earnings from Cont. Ops Margin %	32.0%	28.6%	31.2%	30.7%	26.7%
Net Income Margin%	32.0%	28.6%	31.2%	30.7%	26.7%
Net Income Avail. for Common Margin %	32.0%	28.6%	31.2%	30.7%	26.7%
Normalized Net Income Margin %	29.8%	27.9%	28.6%	26.8%	24.4%
Asset quality					
Nonperforming Loans / Total Loans %	3.3%	2.8%	3.4%	3.1%	4.3%
Nonperforming Loans / Total Assets %	1.9%	1.6%	1.9%	2.0%	2.9%
Nonperforming Assets / Total Assets %	1.9%	1.6%	1.9%	2.0%	2.9%
Nonperforming Assets / Loans and OREO %	3.3%	2.8%	3.4%	3.1%	4.3%
Nonperforming Assets / Equity %	12.1%	10.5%	11.4%	11.9%	17.9%
Allow. for Credit Losses / Net Charge-offs %	368.7%	369.6%	364.5%	506.8%	587.4%
Allow. for Credit Losses / Nonperf. Loans %	77.5%	92.2%	81.8%	94.6%	94.7%
Allow. for Credit Losses / Total Loans %	2.6%	2.6%	2.8%	3.0%	4.1%
Net Charge-offs / Total Avg. Loans %	NA	NA	NA	NA	NA
Prov. for Loan Losses / Net Charge-offs %	19.2%	143.9%	143.5%	200.9%	321.9%
Capital And Funding					
Avg. Common Equity / Avg. Assets %	16.1%	15.8%	16.4%	16.7%	16.4%
Avg. Total Equity / Avg. Assets %	16.1%	15.8%	16.4%	16.7%	16.4%
Total Equity + Allowance for Loan Losses / Total Loans %	30.2%	29.2%	32.5%	29.4%	28.2%
Gross Loans / Total Deposits %	76.6%	78.0%	78.4%	91.0%	96.9%
Net Loans / Total Deposits %	74.6%	75.9%	76.2%	88.2%	92.9%
Tier 1 Capital Ratio %	22.7%	15.2%	15.7%	15.7%	15.7%
Total Capital Ratio %	25.0%	15.9%	16.0%	18.4%	17.9%
Tier 2 Capital Ratio %	2.3%	0.7%	0.2%	2.7%	2.1%
Coverage Ratio %	77.5%	92.2%	81.8%	94.6%	94.7%
Interbank Ratio	71.9%	68.2%	83.2%	238.5%	25.8%

APPENDIX C

Standard Chartered Bank Ratios

Ratios					
For the Fiscal Period Ending	**12 months Dec-31-2012**	**12 months Dec-31-2013**	**12 months Dec-31-2014**	**12 months Dec-31-2015**	**12 months Dec-31-2016**
Profitability					
Return on Assets %	4.5%	4.5%	4.7%	2.8%	3.7%
Return on Equity %	31.4%	27.7%	27.2%	15.5%	21.1%
Return on Common Equity %	30.7%	27.2%	26.7%	15.1%	20.7%
Shareholders Value Added	5,378.3	5,665.4	6,366.9	2,037.7	4,605.0
Margin Analysis					
SG&A Margin %	42.1%	41.0%	40.9%	53.1%	45.7%
Net Interest Income / Total Revenue %	68.9%	72.5%	70.5%	87.0%	74.2%
EBT Margin %	57.9%	59.0%	59.1%	46.9%	54.3%
Earnings from Cont. Ops Margin %	40.4%	40.9%	42.5%	31.4%	35.5%
Net Income Margin%	40.4%	40.9%	42.5%	31.4%	35.5%
Net Income Avail. for Common Margin %	39.6%	40.2%	41.8%	30.5%	34.8%
Normalized Net Income Margin %	36.2%	36.9%	36.9%	29.3%	33.9%
Asset quality					
Nonperforming Loans / Total Loans %	1.8%	2.9%	NA	12.1%	11.7%
Nonperforming Loans / Total Assets %	1.1%	1.7%	NA	6.3%	6.0%
Nonperforming Assets / Total Assets %	1.1%	1.7%	NA	6.3%	6.0%
Nonperforming Assets / Loans and OREO %	1.8%	2.9%	-	12.1%	11.7%
Nonperforming Assets / Equity %	7.2%	10.5%	-	35.6%	33.6%
Allow. for Credit Losses / Net Charge-offs %	1,040.3%	895.3%	NM	1,527.7%	843.3%
Allow. for Credit Losses / Nonperf. Loans %	83.7%	60.4%	NA	35.8%	37.2%
Allow. for Credit Losses / Total Loans %	1.5%	1.7%	2.8%	4.3%	4.3%
Net Charge-offs / Total Avg. Loans %	NA	NA	NA	NA	NA
Prov. for Loan Losses / Net Charge-offs %	405.1%	305.6%	NM	1,331.5%	283.9%
Capital And Funding					
Avg. Common Equity / Avg. Assets %	14.3%	16.1%	17.4%	17.9%	17.7%
Avg. Total Equity / Avg. Assets %	14.3%	16.1%	17.4%	17.9%	17.7%
Total Equity + Allowance for Loan Losses / Total Loans %	26.6%	28.9%	34.6%	38.4%	39.0%
Gross Loans / Total Deposits %	84.9%	81.6%	78.2%	68.7%	67.8%
Net Loans / Total Deposits %	83.7%	80.2%	76.0%	65.7%	64.8%
Tier 1 Capital Ratio %	16.0%	17.0%	16.0%	17.5%	17.5%
Total Capital Ratio %	18.0%	21.0%	20.0%	21.2%	20.9%
Tier 2 Capital Ratio %	1.7%	3.3%	4.0%	3.6%	3.4%
Coverage Ratio %	84.4%	59.6%	32.8%	45.1%	54.9%

APPENDIX D

Equity Bank Ratios

Ratios					
For the Fiscal Period Ending	**12 months Dec-31-2012**	**12 months Dec-31-2013**	**12 months Dec-31-2014**	**12 months Dec-31-2015**	**12 months Dec-31-2016**
Profitability					
Return on Assets %	5.5%	5.1%	5.5%	4.5%	3.7%
Return on Equity %	31.3%	28.1%	29.7%	25.5%	21.5%
Return on Common Equity %	31.3%	28.1%	29.7%	25.6%	21.7%
Shareholders Value Added	7,447.9	7,609.7	10,231.1	9,186.9	7,380.0
Margin Analysis					
SG&A Margin %	30.4%	32.7%	33.3%	29.9%	32.2%
Net Interest Income / Total Revenue %	68.0%	67.1%	62.2%	63.3%	72.9%
EBT Margin %	49.5%	48.2%	47.7%	44.7%	43.4%
Earnings from Cont. Ops Margin %	34.3%	33.7%	36.6%	32.3%	28.9%
Net Income Margin%	34.3%	33.7%	36.6%	32.3%	28.8%
Net Income Avail. for Common Margin %	34.3%	33.7%	36.6%	32.3%	28.8%
Normalized Net Income Margin %	30.9%	30.1%	29.8%	27.9%	27.0%
Asset quality					
Nonperforming Loans / Total Loans %	3.1%	5.2%	4.3%	3.4%	6.8%
Nonperforming Loans / Total Assets %	1.8%	3.3%	2.8%	2.2%	4.0%
Nonperforming Assets / Total Assets %	1.8%	3.3%	2.8%	2.2%	4.0%
Nonperforming Assets / Loans and OREO %	3.1%	5.2%	4.3%	3.4%	6.8%
Nonperforming Assets / Equity %	10.0%	17.9%	15.0%	12.9%	22.9%
Allow. for Credit Losses / Net Charge-offs %	NA	NA	NA	NA	NA
Allow. for Credit Losses / Nonperf. Loans %	99.5%	64.9%	77.4%	83.7%	58.5%
Allow. for Credit Losses / Total Loans %	3.1%	3.4%	3.3%	2.8%	4.0%
Net Charge-offs / Total Avg. Loans %	NA	NA	NA	NA	NA
Prov. for Loan Losses / Net Charge-offs %	NA	NA	NA	NA	NA
Capital And Funding					
Avg. Common Equity / Avg. Assets %	17.6%	18.1%	18.5%	17.5%	16.9%
Avg. Total Equity / Avg. Assets %	17.6%	18.1%	18.5%	17.6%	17.1%
Total Equity + Allowance for Loan Losses / Total Loans %	33.7%	32.5%	32.1%	28.5%	33.3%
Gross Loans / Total Deposits %	83.4%	90.9%	90.2%	91.6%	82.2%
Net Loans / Total Deposits %	80.8%	87.8%	87.2%	89.0%	78.9%
Tier 1 Capital Ratio %	23.0%	21.0%	19.0%	19.0%	18.0%
Total Capital Ratio %	32.0%	26.0%	21.0%	20.0%	19.0%
Tier 2 Capital Ratio %	9.4%	4.6%	2.4%	1.8%	1.0%
Coverage Ratio %	99.5%	64.9%	77.4%	83.7%	58.5%
Interbank Ratio	-	-	-	-	-

KCB Bank Ratios

Ratios					
For the Fiscal Period Ending	**12 months Dec-31-2012**	**12 months Dec-31-2013**	**12 months Dec-31-2014**	**12 months Dec-31-2015**	**12 months Dec-31-2016**
Profitability					
Return on Assets %	3.5%	3.8%	3.8%	3.7%	3.4%
Return on Equity %	24.7%	24.4%	24.2%	25.0%	22.2%
Return on Common Equity %	24.7%	24.4%	24.2%	25.0%	22.2%
Shareholders Value Added	6,284.2	8,014.1	8,535.3	10,235.4	9,170.1
Margin Analysis					
SG&A Margin %	35.1%	33.2%	33.1%	37.3%	35.7%
Net Interest Income / Total Revenue %	73.0%	70.4%	69.0%	69.1%	71.6%
EBT Margin %	41.0%	45.7%	45.7%	46.8%	44.6%
Earnings from Cont. Ops Margin %	29.1%	30.6%	32.3%	34.5%	30.0%
Net Income Margin%	29.1%	30.6%	32.3%	34.5%	30.0%
Net Income Avail. for Common Margin %	29.1%	30.6%	32.3%	34.5%	30.0%
Normalized Net Income Margin %	25.6%	28.5%	28.6%	29.2%	27.9%
Asset quality					
Nonperforming Loans / Total Loans %	6.7%	8.1%	6.3%	6.6%	9.7%
Nonperforming Loans / Total Assets %	4.0%	4.9%	3.8%	4.2%	6.5%
Nonperforming Assets / Total Assets %	4.0%	4.9%	3.8%	4.2%	6.5%
Nonperforming Assets / Loans and OREO %	6.7%	8.1%	6.3%	6.6%	9.7%
Nonperforming Assets / Equity %	27.2%	30.3%	24.3%	28.9%	40.1%
Allow. for Credit Losses / Net Charge-offs %	NA	NA	NA	NA	NA
Allow. for Credit Losses / Nonperf. Loans %	60.2%	46.2%	56.4%	41.4%	33.3%
Allow. for Credit Losses / Total Loans %	4.0%	3.8%	3.5%	2.7%	3.2%
Net Charge-offs / Total Avg. Loans %	NA	NA	NA	NA	NA
Prov. for Loan Losses / Net Charge-offs %	NA	NA	NA	NA	NA
Capital And Funding					
Avg. Common Equity / Avg. Assets %	14.1%	15.5%	15.8%	15.0%	15.4%
Avg. Total Equity / Avg. Assets %	14.1%	15.5%	15.8%	15.0%	15.4%
Total Equity + Allowance for Loan Losses / Total Loans %	28.6%	30.5%	29.2%	25.6%	27.5%
Gross Loans / Total Deposits %	74.2%	75.8%	75.1%	79.5%	86.4%
Net Loans / Total Deposits %	71.2%	72.9%	72.5%	77.3%	83.6%
Tier 1 Capital Ratio %	21.3%	18.7%	17.1%	14.1%	16.8%
Total Capital Ratio %	22.7%	22.5%	21.0%	15.4%	19.9%
Tier 2 Capital Ratio %	1.4%	3.8%	4.0%	1.2%	3.0%
Coverage Ratio %	60.2%	46.2%	56.4%	41.4%	33.3%
Interbank Ratio	111.7%	156.4%	92.2%	87.7%	122.1%