Influence of Credit Risk Management on Financial Performance of Commercial Banks in Kenya

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Abstract

The last couple of years saw the banking industry in Kenya grow tremendously with huge increase in their profitability which was termed as good performance. The banking industry was however shocked after the Central Bank of Kenya put three banks under statutory management within a period of nine months (August 2015, October 2015 and April 2016).The level of non-performing loans has also been on an increase over the last couple of years and this brings to question whether the factors believed to affect the performance of commercial banks in Kenya are actually true and if true, to what extent do they affect the financial performance of the banks. One of the main sources of bank profitability is derived from their lending activities which exposes the banks to credit risk. Credit risk management is therefore one of the factors that is essential in the performance of banks due to their lending activities. This study was therefore carried out to establish the influence that credit risk management has on the financial performance of commercial banks in Kenya thus enable the stakeholders determine the level of attention that they should place on credit risk management. The study was made through a combination of theory and empirical work. Descriptive research design was employed for this study as the data studied was based on what had already happened. Data was collected using census method for the period: January 2007 to June 2017. Quarterly analysis of the ten and half year period was deemed sufficient to provide updated results of credit risk management on financial performance of banks. Data used was solely quarterly secondary data which was gathered through quantitative approach. Statistical analysis was used to determine if there was any relationship between the banks financial performance and credit risk management. The findings have been presented in tables, charts and regression equation. At the end of the study, the indicators of credit risk management which were, Capital adequacy, Cost of Loans, Non-performing loans and the loans to asset ratios explained up to 77.64% of the financial performance of commercial banks in Kenya which was measured by ROA (Return on Asset). Continued management of credit risk should be emphasized and introduction of new techniques to curb this risk such as introduction of credit derivatives into the Kenyan market should be considered so as to protect and promote the banking industry. The influence of other factors such as the effect of interest rate capping on financial performance of the commercial banks should also be considered and other risks faced by the banks such as fraud and its effects on the financial performance of the commercial banks and the strategies to mitigate this risk should be enforced.

Keywords: Credit Risk Management, financial performance, Commercial banks in Kenya, interest rate capping, credit derivative

1.0 Introduction

The purpose of every business including banks is to maximize its shareholders wealth and run on positive growth year in, year out. Casu, Girardone and Molyneux (2006) define a bank as a financial institution that offers loans, deposits and payment services. The banks must have sufficient funds in order to properly meet the demand of the economy and at the same time ensure that the shareholders are well compensated. However, banks like any other business are faced by various risks on their day to day activities and if these risks are not monitored and curbed, can negatively affect these institutions. Businesses must therefore manage the uncertainties that would interfere with the realization of these objectives. Cade (2013) defines risk in the banking industry as exposure to uncertainty of income.

Casu et. al (2006) identifies one of the microeconomic reasons for bank failure as poor banking practices which include inadequate capital, inadequate credit risk assessment resulting in non-performing loans, insufficient diversification on the lending portfolio and excessive mismatching of maturity and currency. Credit risk is the principal cause of bank failure. It is therefore essential for banks to set up credit risk management strategies so as to protect itself from failure. Credit risk management is therefore essential as it leverages earnings from lending to a borrower on the existence of risk and uncertainty.

Up to mid-2016 the banks in Kenya were selling their loan products more as compared to deposits. This is because lending is considered as the principal business for banks. According to the CBK Bank Annual Supervision Report, (2014) the banking industry profit almost tripled between year 2008 and year 2013. The profitability was attributed to growth in the credit portfolio, investment in government securities, commissions and earnings from foreign exchange trading. Loans and advances contributed to over 50% of net assets of banks in Kenya in the last few years. As at end of December 2007, the gross loans and advances were at Kshs. 533.8

billion, a 12.8% increase from end of December 2006 which had total gross loans at Kshs. 473.1 billion. (CBK Bank Annual Supervision Report, 2007). This increase in the loans has been continuous over the years as the banks continued selling their loan products more and more. As at end of December 2016, the total loans from all the banks was Kshs. 2286.5 billion, a 5.6% increase from the total loans as at December 2015 which were Kshs.2,165.3 billion. (CBK Bank Annual Supervision Report, 2016). This means value of the gross loans and advances from beginning of 2007 to end of 2016 increased by more than 4 times.

The recorded increase in gross loans and advances in the last few years contributed to increase in the profitability of the banks in these years and also the strong capitalization levels of the banks due to capital injections and profit retention. Although the banks in Kenya had posted good profits, there was an increase in the level of non-performing loans which decreased the asset quality of the banks. There have been varied reasons as to the cause of increase in non-performing loans over the years with increase in non-performing loans in 2016 attributed to challenging business environment due to delayed payments from the public and private entities and poor weather conditions hence led many businesses to fail in meeting their financial obligations. (CBK Bank Annual Supervision Report, 2016). This increase in non-performing loans over the years means more focus is therefore needed in credit analysis and credit risk management as credit risk affects the banks financial performance, growth and existence.

The key drivers of bank performance are earnings, efficiency, risk-taking and leverage. The bank must be able to determine the composition and volatility of its earnings. It should be efficient in the way it generates income from its assets and profit from the income. A bank should be able to balance its risk taking so as to generate earning and also be able to leverage so as to gain from upswing. (European Central Bank, 2010). The banks therefore need to balance carefully the risk they undertake in acquiring income as without careful consideration, the risk may eat into the investment and destabilize the banking sector. The non-performing loans which are the loans that aren't repaid as per the agreement between the customers and the banks are a major indicator of the credit risk faced by the banks. Although the profitability of the commercial banks in Kenya has been on an upward trend, the increase in non-performing loans reduced the profit that these banks would have reported as the returns they expected are reduced due to failure of customers to meet their obligations as agreed. The increase in non-performing loans over the last few years means credit risk management in the banks needs to be looked at, focusing on the factors the banks and the Central Bank of Kenya have identified as indicators of credit risk and its management. It is therefore a key area that needs to be studied further to determine the level of attention that the banks should employ. The study therefore investigated the credit risk management strategies employed by the banking industry in Kenya and the effect these strategies have had on the performance of the commercial banks. Specifically, the study sought to: Identify the indicators of credit risk management in Kenyan banks, Identify the indicators of banks financial performance that relate to credit risk management and establish the influence that credit risk management has on banks performance.

2.0 Literature Review

According to Hopkin P (2013), no individual looks for risk, rather everyone is seeking rewards which can only be achieved by taking risk. Organizations develop high risk strategies which are motivated by the reward that these strategies will generate. Apostolik, Donohue and Went (2009) states that the banking sector experiences three main types of risk. These are operational risk, market risk and credit risk. Operational risk is the risk of loss resulting from inadequate or failed internal processes, systems and people or from external sources. Market risk is the risk of loss to the bank due to movement in market prices as a result of changes in interest rate, foreign exchange rates, and equity and commodity prices. Credit risk is the potential loss a bank would suffer if a borrower fails to meet their obligation in accordance with the agreed terms. This may be in paying interest on the loan or repaying the amount borrowed. The primary risk faced by banks is credit risk which is a major cause of concern in the banking industry.

Brown and Moles (2008), state that management of credit risk requires both quantitative and qualitative approach. Basel Committee on Banking Supervision (2000), explains that the credit risk management's goal is to maximize a bank's risk-adjusted rate of return by maintaining credit risk exposure within acceptable parameters. Basel summarizes the credit risk management process into five main principles which are: establishment of an appropriate credit risk environment, operating under a sound credit-granting process, maintaining an appropriate credit administration, measurement and monitoring process, ensuring adequate controls over credit risk are in place and finally having the credit risk management supervised by supervisors who ensure the various principles are in place and are enforced. Padmalatha (2010)

Due to the need to gain high returns, risk must be undertaken and this has led to the development of various strategies and theories that try to examine or monitor these risks and ensure profit is made. These includes the default theory which presented the basis for measuring and managing credit risk exposure, was first introduced by Robert Merton in 1974, portfolio theory introduced by Harry Markowitz in 1952 which is widely used to date, Capital Asset pricing Model developed by William Sharpe in 1964 and John Lintner in 1965 which builds on the

portfolio theory and the Arbitrage Pricing Theory developed by Richard Roll and Stephen Ross (1976). By employing some of the risk management models that have been developed by the theories propounded, such as the use of the portfolio theory and the arbitrage pricing theory, the banks can identify the best sectors to lend to and at the same time spread the risk of default. These models have been found to be useful in portfolio management in various financial sectors which according to Bennet P. (1999), can also be used in banking to minimize the credit risk faced.

The importance attached to credit risk management has seen various studies carried out to establish the effect credit risk management has had on the financial performance of banks in various parts of the world. Mwangi (2012) carried out research on the effects of credit risk management on the financial performance of commercial banks of Kenya. From her research she found that there was a relationship between the financial performance of commercial banks in Kenya and the credit risk management strategies in place. This was due to the fact that the banks that had fewer NPLs were more profitable meaning they had better credit risk management policies. Ogilo (2012) on his study on the impact of credit risk management on the financial performance of Commercial Banks in Kenya concludes that capital adequacy, asset quality, management efficiency and liquidity (CAMEL) have weak relationship with financial performance of banks in Kenya. Earnings have a strong relationship with financial performance. He however recommends the use of CAMEL model as a representation of credit risk management. Musyoki and Kadubo (2011) on their study of impact of credit risk management on commercial banks in Kenya for the period 2000-2006 found that the risk management in general contributed 35.6% to the performance of banks in Kenya. They recommended that banks should put more emphasis on risk management and that further research should be done to efficiently manage credit risk hence improve bank financial performance. Kithinji (2010) from her studies found that only 38.7% of the commercial bank's profit is influenced by credit and level of non-performing loans. She therefore concludes that most of the profit of commercial banks is not influenced by the amount of credit and nonperforming loans and proposes that the stakeholders should concentrate on other factors other than focusing more on amount of credit and non-performing loans. Aduda and Gitonga (2011) in their study on the relationship between Credit Risk Management and profitability among the Commercial Banks in Kenya found that credit risk management affects profitability. They also found that majority of banks and microfinance institutions in Kenya used credit management principles. Onuonga (2014) in her analysis of profitability of Kenya's Top Six Commercial Banks found that bank size, capital strength, bank operation expenses, ownership, and the ratio of loans to assets are the major significant determinants of the profitability of the top six commercial banks in Kenya. In her study she found that improvement in capital strength of commercial banks leads to higher profits. She therefore proposes that the government policies in Kenya should encourage commercial banks to raise their assets and capital base. Luqman (2014) from his study on the effects of credit risk management on the performance of commercial banks in Nigeria found that banks profitability is inversely influenced by the levels of loans and advances, non-performing loans and deposits thereby exposing the banks to great risk of illiquidity and distress. He recommends that bank management need to be cautious in setting up a credit policy that will not negatively affects profitability and also that they need to know how credit policy affects the operation of their banks to ensure judicious utilization of deposits and maximization of profit. Kurawa and Garba (2014) in their evaluation of the effect of Credit Risk Management on the profitability of Nigerian Banks looked at cost of loans as one of the independent variables. They found that CLA had a strong positive relationship with profitability of the banks which was measured by ROA. The more the cost of loans increased the more the ROA also increased. They therefore recommended that the banks needed to practice credit risk control as the loan losses and the operating expenses affected the profitability of the Nigerian banks. Awoke (2014) used loan to total assets ratio as an indicator of credit risk management as it measures the exposure level of the bank to credit risk. This is because the banks with higher loan to total asset ratio have a higher exposure to credit risk. He found that this had a positive relationship with the bank performance and recommends that the Ethiopian banks need to increase their loan book but should be done with sound credit planning to ensure profitability of the banking sector. Poudel (2012) found out that credit risk management is crucial in the performance of commercial banks in Nepal as it contributed up to 22.6% of the bank performance. He recommends that banks need to allocate more funds to default rate management and try to maintain capital adequacy at the optimum level. Some researchers looked at individual variables, which are believed to be credit risk management strategies, in relation to bank performance. Such as, Okafar (2011), who carried out a study on the effect of capital adequacy on banks performance, found that capital adequacy is not a significant determinant of performance for strong and weak banks in Nigeria. He states that minimum capital requirements helps to build strong capital base but for the banks to actually perform well they must devise ways to build capacity strong enough to take risks that will determine their capital requirements and also add value to their shareholders.

From the various studies, the majority have been of the opinion that the variables studied in this research influenced the performance of the banks studied. The main indicator of credit risk management used across all the studies was the non-performing loans ratio which had a negative significant relationship with financial

performance. The majority of the researchers recommended that banks need to enforce and focus more on effective credit risk management strategies, although a few researchers such as Kithinji (2010) was of a contrary opinion.

This study based on the previous studies looked at how the financial performance of commercial banks in Kenya as indicated by Return on asset (ROA) was influenced by the loans advanced to customers to the total assets held, the cost of loans, the non-performing loans ratio and the capital adequacy of the bank. The ROA was selected as it measures the efficiency of use of bank's potential and gives an indication of capital intensity of a company. The loans to total assets (LTAR) indicated the extent to which the bank is loaned up as compared to the assets held. The non-performing loans ratio (NPLR) indicates the bank's asset quality while Capital Adequacy (CA) measures a bank's ability to meet its obligations relative to its exposure to risk.

3.0 Research Methodology

Descriptive research design was adopted for this study. Descriptive research is whereby the researcher investigates a problem by studying variable in retrospect. In this type of research, the researcher has no control over the variables and can only report what has happened. (Kothari, 2004).This research design was considered appropriate for this research as the study involved study of variables that had already occurred and were in record. The target population for this study comprised of the all the banks that were in operation from January 2007 to June 2017 so as to get a comprehensive view of their contribution to the overall bank performance in the ten and half years under study. The period selected for the study was also deemed to produce more current results for the research. The quarterly data regarding the variables under study were collected. This period was deliberately chosen as it could give current data and it contained large quantity of data for the study to draw conclusive and accurate results.

Data was collected using census method from secondary sources. Tabulation was used in collecting the Secondary data from the financial reports of the banks and the CBK reports that are publicly available. Other related articles were also used to aide in studying of the data. The data collected was in relation to the profitability of the bank, the variables believed to indicate credit risk management and any other data that related to the performance of the commercial banks in relation to their financial performance. Statistical analysis was used to analyze the data. Linear regression formula was used to determine the relationship between the dependent and independent variables as follows:

$Y1 = a1 + \beta1 X1 + \beta2 X2 + \beta3 X3 + \beta4 X4 + \varepsilon$

Where:

Y1, represent the commercial banks profitability measured by ROA.

The higher the profitability the better performing a bank will be assumed to be.

a1 = constant

$\beta1$, $\beta2$, $\beta3$, $\beta4$ = coefficients of the determinants of the functions

X1 = NPLR (Non-performing loans/Gross loans ratio)

X2 = CA (Capital Adequacy) =Core Capital/Total Risk Weighted Asset

X3 = LTAR =Loan and advances/Total assets

X4 = CLA (Total operating cost/total amount of loans)

ε = Error term

Pearson Correlation Coefficient was used to measure the strength of the relation between the variables. Prior expectation of the model was that all the independent variables would have a positive relation to the measures of bank profitability except for the NPLR which was expected to have a negative relationship with bank performance. The significance of the test was set at $\alpha=0.05$. The co-efficient of determination (R^2) which is the sum of squares due to regression divided by the sum of total squares was calculated in the study to show the percentage the variation in the dependent variable was explained by the variations in the independent variables. The F statistics was used to test the significance of the relationship between the independent and dependent variables.

4.0 Data and Empirical Results

The study carried out a descriptive analysis of the research variables (Non-Performing Loan Ratio - NPLR, Capital Adequacy - CA, Loan to Total Asset Ratio – LTAR and Cost per loan Asset - CLA) on the Kenyan commercial banks. The average quarterly values for the industry dataset was used for the period in study (January 2007 – June 2017). From the findings, the period between January 2007 and June 2017 recorded an average of 0.034, 0.0669, 0.2003, 0.5893 and 0.0384 for ROA, NPLR, CA, LTAR and CLA respectively. The highest standard deviation for the period was approximately 0.024, in measuring LTAR, while the lowest was at 0.0073 in measuring ROA, hence depicting a small variance in the data collected per quarter for the last ten and half years. The least values recorded for ROA, NPLR, CA, LTAR and CLA were 0.024, 0.043, 0.17, 0.54 and 0.0325 respectively while the highest values were 0.047, 0.1, 0.233, 0.64 and 0.049 respectively.

The study sought to determine whether there exists an association between the variables; both independent and dependent variables using the quarterly values for the variables, in the period of study. The study employed Pearson correlation. The significance level was set at 5% with a 2- tailed test.

The results were summarized as shown in table 4.1 below.

Table: 4.1

		ROA	NPLR	CA	LTAR	CLA
ROA	Pearson Correlation	1	-0.8336	0.3388	0.361	-0.2538
	Sig. (2-tailed)		0.00	0.0279	0.0186	0.1045
NPLR	Pearson Correlation	-0.8336	1	-0.2763	-0.3468	0.1213
	Sig. (2-tailed)	0.0000		0.0762	0.0242	0.444
CA	Pearson Correlation	0.3388	-0.2763	1	-0.413	0.271
	Sig. (2-tailed)	0.0279	0.0762		0.0064	0.0822
LTAR	Pearson Correlation	0.361	-0.3468	-0.413	1	-0.2121
	Sig. (2-tailed)	0.0186	0.0242	0.0064		0.177
CLA	Pearson Correlation	-0.2538	0.1213	0.271	-0.2121	1
	Sig. (2-tailed)	0.1045	0.444	0.0822	0.177	

Source (researcher, 2017)

From the table, the matrix of coefficients of correlation reveal that the correlation between the independent variables was weak with values ranging from -0.413 to 0.271. Although the correlations were weak, LTAR had significant correlation with NPLR and CA with significance levels of less than 0.05. The significance of LTAR to NPLR was 0.024 while for LTAR to CA was 0.006. This shows that the total loans to the total assets influenced both the Capital Adequacy of the banks as well as the non-performing loans. The correlation between the other independent variables was not significant at α=0.05.

Three of the independent variables: that is non-performing loans ratio, capital adequacy and loans to total assets ratio had significant correlation with dependent variable; return on asset. NPLR had the strongest negative correlation of -0.8336 with significance of 0.00. CA and LTAR had positive medium correlation with ROA, with correlation figures of 0.3388 and 0.361 respectively. The significance levels were both below 0.05 with Capital Adequacy reporting a significance of 0.028 while Loans to Total Assets recorded a significant level of 0.0186 to the dependent variable. CLA had a negative weak correlation of -0.2538 with ROA with a significance of 0.10. This means the correlation between CLA and ROA was not significant.

According to Vieira (2017) high correlation among predicator variables can produce inaccurate results as the high correlation could be due to the variables being the same thing. To check if the multicollinearity will affect the regression model, tolerance test is undertaken. The tolerance test measures the proportion of change in a predicator that is not accounted for by the other predicators in the model. He states that as a general rule, a tolerance of less than 10% is problematic as it indicates that the predicator variance is not unique.

Due to the significant correlation between LTAR with NPLR and CA, it was essential to carry out further test to determine if the collinearity would have an issue with the model that was used in the study. The study therefore conducted a multicollinearity test on the independent variables using the tolerance test. The findings were summarized as below.

Table 4.2: Multicollinearity Test

Variable	Tolerance
Non-Performing Loan Ratio	0.646
Capital Adequacy	0.585
Loan to Total Asset Ratio	0.599
Cost per Loan Assets	0.885

Source (researcher, 2017)

From the table 4.2 above, all the tolerance values were greater than 0.1 (NPLR=0.646, CA=0.585, LTAR=0.599 and CLA=0.885). This implies that the significant multicollinearity witnessed among the independent variables will not affect the model. This is because more than 10% of the change in the independent variables is not attributed to the change in the other independent variables. Thus implies that the variables coefficients of regression would still count.

To determine the overall effect of NPLR, CA, LTAR and CLA on performance of commercial banks in Kenya, a multiple regression analysis was conducted. The results were as presented in tables 4.3, 4.4 and 4.5.

Table 4.3: Regression Statistics

Regression Statistics	
Multiple R	0.8811
R Square	0.7764
Adjusted R Square	0.7523
Standard Error	0.0036
Observations	42

Source (Researcher, 2017)

Table 4.3 above is the regression model summary which indicates the coefficient of determination which shows the extent to which the independent variable influences the dependent variable. From the results, the R square value was 0.7764. This means that 77.64% of the financial performance of Commercial banks in Kenya from January 2007 to June 2017 as measured by ROA can be explained by the NPLR, LTAR, CA and CLA. The results of the study had a reliability of 75.23% as indicated by the adjusted R square.

Table 4.4: ANOVA Table

	Df	SS	MS	F	Significance F
Regression	4	0.001679	0.00042	32.12237	0.00
Residual	37	0.000483	0.00		
Total	41	0.002162			

Source (researcher, 2017)

The study also sought to determine whether the means of the variables are statistically significantly different from each other. An analysis of variance (ANOVA) was carried out and the results are as depicted in table 4.4 above. The F value of 32.12 with significance value of 0.00(< 0.05) reveals that not all of the means are equal. This further confirms that the influence of the four independent variables on the dependent variable is statistically significant and therefore the model selected is better than the intercept only model.

Table 4.5: Table of Coefficients

	Coefficients	Standard Error	t Stat	P-value
Intercept	0.003201	0.026024	0.123011	0.902765
NPL	-0.25104	0.037534	-6.6884	0.00
CA	0.136281	0.044986	3.029378	0.004451
LTAR	0.066958	0.03073	2.178924	0.03578
CLA	-0.49954	0.194408	-2.56956	0.014347

Source (researcher, 2017)

The study then sought to establish the regression equation between the independent and dependent variables. Table 4.5 presents the value of the coefficients of predictor variables; NPLR, CA, LTAR and CLA. From the table, the derived regression model is:

$Y = 0.00320 - 0.25104X_1 + 0.13628X_2 + 0.06696X_3 - 0.4995X_4$

Where; Y – Performance of commercial banks (Represented by ROA)

X_1 - NPLR

X_2 - CA

X_3 – LTAR

X_4 – CLA

Table 4.5 indicates that the coefficients of the regression model were significant at α=0.05 other than the intercept value with p=0.902765 which means only the intercept value that is not different from zero. The results also indicate that a unit increase in the value of NPLR, with no change in the rest of the independent variables, results to decrease in the performance of the commercial banks as measured by ROA by 0.25104. Similarly, with the other predictor variables being held constant, a unit increase in the value of CA leads to a 0.13628 increase in the value of the ROA performance of the commercial banks. A unit increase in the value of LTAR results to a 0.06696 increase in the value of the ROA of the commercial banks while a unit increase in CLA, with the other predictor variables remaining constant, results to 0.4995 decrease in the performance of commercial banks in Kenya as measured by ROA.

The findings of the study reveal that performance of financial banks in Kenya as measured by ROA has significant relationship to the indicators of credit risk management under study. It had a strong negative relationship with Non-Performing Loans Ratio (R= -0.8336), a positive medium relationship to the Loans to Asset Ratio (R=0.3610) and Capital Adequacy (R= 0.33877). The relationship between Cost of Loans and Return on asset was however a weak negative relationship (R= -0.25376) that was not significant at α=0.05. These findings signify that an increase in Non-performing loan and increase in the cost of loans result to a decrease in the performance of commercial banks in Kenya while increase in Capital Adequacy and increase in the Loans to total assets of the commercial banks in Kenya would result in increase in the financial performance.

NPLR negative influence on the financial performance of commercial banks in Kenya with a value of -0.83359 agrees with the various studies done previously, such as that of Musyoki and Kadubo (2011) who in their study found that the default rate had the highest impact on the performance of commercial banks as it had the most significant and negative relationship with the bank performance. This also agrees with the findings of Poudel (2012) who found that default rate had the highest impact as it contributed up to 56% of the bank performance. The findings however disagree with the study and conclusions done by Kithinji (2010) who from her studies found that only 38.7% of the commercial bank's profit is influenced by credit and level of non-performing loans. She therefore concluded that most of the profit of commercial banks is not influenced by the amount of credit and non-performing loans and proposed that the stakeholders should concentrate on other factors that could have contributed to 61.3% of the financial performance of banks in Kenya.

Capital Adequacy had a medium positive relationship to the return on assets with a value of 0.33877. This was significant with p value of 0.028 which was less than the significant value chosen of $\alpha=0.05$. This agrees with similar previous studies carried such as the study done by Onuonga (2014) who in her study found that improvement in capital strength of commercial banks leads to higher profits. The study also agrees with study by Poudel (2012) who found from his study that CA contributed to 25% of the bank performance. The study however contradicts some previous studies such as that carried out by Okafar (2011) who found that capital adequacy is not a significant determinant of performance for strong and weak banks in Nigeria.

The loans to total assets had a significant medium positive relationship with return on assets for the period under (January 2007-June 2017) for the commercial banks in Kenya with R value of 0.361 with a p value of 0.0186. This concurs with similar studies such as those done by Awoke (2014) who also used loans to total assets ratio as an indicator of credit risk management where he found that this had a positive relationship with the bank performance and recommends that the Ethiopian banks need to increase their loan book. This however contradicts with the study done by Kithinji (2010) in her study of credit risk management and profitability of commercial banks for the period 2004-2008 where she found that the amounts of credit was high and relatively volatile while the profits were low and stable. She states that for the banks keen to make a profit, it was not necessary to focus more on amount of credit.

The relationship of the cost of loans to return on asset was a weak negative correlation of -0.25376 with a significance of 0.1045 which means it was not statistically significant. These results disagree with various arguments made by previous researchers such as the study carried out by Kurawa and Garba (2014) where in their results they found that the cost of loans, as a measure of credit risk management has a significant and positive influence on the financial performance of commercial banks. However, the findings of the study are consistent with the results by Poudel (2012) who found that cost of loans is not a significant measure of banks' financial performance and recommends instead that banks should concentrate in default rate management and maintenance of optimal capital adequacy levels. The study also agrees with the study carried out by Okafar (2011) who stated that capital adequacy ratio has no major effect on performance of banks

5.0 Conclusions

The key purpose of this study was to assess the influence of credit risk management on the financial performance of commercial banks and get a current view. This evaluation was done through investigating both the financial performance and credit risk management variables. This was used to find out the degree to which credit risk management influences the financial performance of banks. One of the main motivators of the study was the continuing debate on the level of effectiveness and the nature of effect of credit risk management on performance of banks. There had also been continuous emphasizes by the banks regulator for the banks to manage their credit risk and at the same time there was increase in the level of non-performing loans which is a key indicator of credit risk in banks.

The study revealed that there exists a significant influence between the independent variables on the performance of commercial banks as indicated by the computed F-statistic of 32.12237 with significance value of 0.00 in Table 4.4. This therefore implies that there the population means of the variables under study were statistically significant hence the variables under study were different. From Table 4.3, that summarizes the goodness of fit of the regression model, the value for R-squared is 0.7764 for the quarterly period from January 2007 to June 2017, which means that the independent variables (NPLR, CA, LTAR and CLA) explain up to 77.64% of the variations in the financial performance of the commercial banks. The study further reveals that an increase in the independent variables: Non-performing Loan and Cost per loan Assets led to a decrease in the financial performance of banks as measured by ROA while an increase in the Capital Adequacy and Loan to Total Assets led to an increase in the financial performance.

Therefore, credit risk management measured by a combination of: Non-Performing Loans ratio, Capital Adequacy, Loans to Total Asset Ratio and Cost of loans have a significant influence on the financial performance of commercial banks in Kenya. This further led to the conclusion that the model employed can be utilized as a proxy in measuring credit risk management. The study further concluded that Non-Performing

Loans ratio had the greatest significant negative influence to the financial performance of commercial banks in Kenya while Capital adequacy and Loans to total assets has a medium significant positive effect on the banks financial performance. This further implies that Kenyan banks need to put in place effective plans in dealing with credit risk management and work on minimizing their bad loans so as to improve on their financial performance. The banks could also provide more credit facilities as increase in their loans to total assets will lead to an increase in the financial performance of the banks. This should however be carefully managed to avoid an increase in the Non-performing Loans. This calls for the banks to have an appropriate credit analysis processing in place to ensure that they lend good loans to avoid affecting the banks financial performance as measured by ROA. Pertaining the effect of Capital Adequacy, the study concluded that this variable positively influenced the performance of the banks .This implies that banking institution that increase their capital adequacy had a better performance hence CA contributes to strengthen the banks financial position. Cost of loans had a weak negative relationship to the return on asset but was not significant at $\alpha= 0.05$. Combined with the other variables, it was significant and therefore banks need to continue managing their expenses and maintain them within a level that will not have a major influence on the return on assets of the banks. Therefore the general conclusion of the study is that the predictor variables considered in this study are vital in explaining performance of Kenyan commercial banks and also good indicators of credit risk management.

The study recommends that the Kenyan commercial banks should consider the variables studied, that is: Non-Performing Loan, Capital Adequacy, Cost of Loans and Loan to Total Asset Ratio which the study has established has having significant influence to the financial performance of the commercial banks in Kenya as measured by Return on Asset. Non-performing loans had the greatest influence on the return on asset with a negative relationship. The banks therefore need develop strategies of minimizing the huge increase in the non-performing loans as they reduce the financial performance of the banks. There is need for the banks to design an efficient and convenient system of credit risk management that captures management support, a credit risk environment that is conducive for setting up monitoring and have enough controls over credit risk. The cost of loans as measured by the expenses to the gross loans had a negative relationship too to the bank performance and hence the banks should also establish strategies that will not only reduce the institution's exposure to risk but also reduce their expense so as to enhance the performance and sustain competitiveness of the institution.

Further, Kenyan banks should continue selling their loan products and also come up with more competitive loan products so as to increase the loans to the total assets held. This is because with a large loan book, but one that ensures the banks have put in place correct strategies on credit risk management through carrying out effective credit evaluation before issuing loans to their customers, they are able to increase their returns. The study also recommends that banks should strive to ensure they have held adequate capital as it strengthens the institutions and have a positive influence on the financial performance of the banks. With the introduction of the derivatives market in Kenya, the banking sector should also consider introducing credit derivatives in the Kenyan market which can help caution them against credit risk. The banks through the Nairobi Securities Exchange (NSE) derivatives market, NEXT, the Capital Market Authority (CMA) and CBK can develop credit derivatives which can trade at the derivatives market so as to offer an alternative risk management tool and strategy to deal with credit risk.

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Appendices

COMMERCIAL BANKS VALUES FOR VARIABLES UNDER STUDY FOR EACH QUARTER FROM JANUARY 2007 TO JUNE 2017

PERIOD	ROA	NPLR	CA	LTAR	CLA
Q12007	0.025	0.1	0.17	0.57	0.035
Q22007	0.027	0.08	0.19	0.56	0.0375
Q32007	0.026	0.09	0.18	0.57	0.04
Q42007	0.027	0.095	0.19	0.58	0.0375
Q12008	0.026	0.07	0.2	0.54	0.04
Q22008	0.026	0.087	0.19	0.57	0.0375
Q32008	0.028	0.08	0.22	0.54	0.04
Q42008	0.024	0.09	0.21	0.57	0.0425
Q12009	0.026	0.089	0.22	0.56	0.04075
Q22009	0.029	0.09	0.21	0.58	0.0375
Q32009	0.026	0.083	0.2	0.59	0.0425
Q42009	0.026	0.09	0.21	0.56	0.04
Q12010	0.036	0.06	0.22	0.55	0.0375
Q22010	0.034	0.07	0.2	0.6	0.0425
Q32010	0.036	0.06	0.22	0.56	0.0375
Q42010	0.036	0.061	0.2	0.57	0.04
Q12011	0.044	0.043	0.21	0.62	0.0375
Q22011	0.043	0.046	0.2	0.6	0.0325
Q32011	0.044	0.046	0.19	0.61	0.035
Q42011	0.047	0.045	0.2	0.59	0.0325
Q12012	0.045	0.043	0.21	0.59	0.0375
Q22012	0.047	0.045	0.2	0.62	0.035
Q32012	0.047	0.046	0.22	0.6	0.0425
Q42012	0.046	0.045	0.23	0.58	0.04
Q12013	0.045	0.05	0.232	0.58	0.04
Q22013	0.037	0.053	0.233	0.58	0.041
Q32013	0.034	0.052	0.229	0.58	0.0378
Q42013	0.036	0.052	0.21	0.59	0.04
Q12014	0.034	0.056	0.18	0.6	0.036
Q22014	0.035	0.057	0.175	0.6	0.0374
Q32014	0.034	0.054	0.178	0.62	0.037
Q42014	0.034	0.054	0.192	0.6	0.038
Q12015	0.033	0.057	0.192	0.61	0.036
Q22015	0.032	0.057	0.189	0.6	0.035
Q32015	0.033	0.054	0.187	0.64	0.036
Q42015	0.029	0.057	0.188	0.61	0.049
Q12016	0.034	0.062	0.188	0.62	0.04
Q22016	0.042	0.068	0.189	0.62	0.0383
Q32016	0.033	0.089	0.19	0.59	0.0375
Q42016	0.025	0.09	0.18	0.61	0.038
Q12017	0.029	0.095	0.194	0.62	0.033
Q22017	0.028	0.099	0.196	0.6	0.04