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Effect of Growth and Quality of Credit on Loan Loss Provisioning Decisions of listed commercial banks in Kenya

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Abstract: This study aimed at examining the effect of loan growth and credit quality on loan loss provision of commercial banks in Kenya. The study employed descriptive research survey design. The target population of the study encompassed 11 listed commercial banks in Kenya. All the 11 listed commercial banks in Kenya formed the sample size as the study was a census of listed banks in Kenya. Secondary data was extracted from CBK Annual reports and Audited financial statements of individual listed commercial bank in Kenya. Both descriptive and inferential statistics were used. Inferential analysis involved; correlation analysis to test the relationship between banks' growth and quality of credit and loan loss provision of commercial banks in Kenya. Simple OLS, REM and FEM models were used to establish the causal effect relationship between independent variables and loan loss provision of listed commercial banks in Kenya. The findings show that quality of loans had a statistically significant effect on loan loss provision. However, the effect of loan growth on loan loss provision was not statistically significant at 5% level of significance. The study recommends to the management of listed commercial banks to take into consideration their quality of loans when setting loan loss provisions to cover any eventual loan losses.
Key words: Loan Loss Provision, Quality of credit, credit Growth and Commercial Banks.

Keywords: Loan Loss Provision, Credit Quality, Loan Growth

1. Introduction

The activity of lending to customers represents a core function of banks, and is an integral part of the academic literature that explains why banks exist (Bhattacharya and Thakor 1993). Some financial systems have been classified as "bank-based" because most of the funds needed for investment are channeled from households to firms through financial intermediaries (Levine, 2002). Lending which may be on short, medium or long-term basis is one of the services that commercial banks do render to their customers. In other words, banks do grant loans and advances to individuals, business organizations as well as government in order to enable them embark on investment and development activities as a mean of aiding their growth in particular or contributing toward the economic development of a country in general. Commercial banks are the most important savings, mobilization and financial resource allocation institutions. Consequently, these roles make them an important phenomenon in economic growth and development. In performing this role, it must be realized that banks have the potential, scope and prospects for mobilizing financial resources and allocating them to productive investments. Therefore, no matter the sources of the generation of income or the economic policies of the country, commercial banks would be interested in giving out loans and advances to their numerous customers. The overall observation of risks facing the banking sector is that while market risk can be easily managed through hedging activities, credit risk has emerged as a new management challenge to financial institutions (Gonzalez-Paramo, 2010). Loan loss is by far the most significant risk faced by banks and the success of their business depends on accurate measurement and efficient management of this risk to a greater extent than any other risks (Gieseche, 2004). Coyle (2000) defines loan loss as losses from the refusal or inability of credit customers to pay what is owed

in full and on time. Loan loss risk is the exposure faced by banks when a borrower defaults in honouring debt obligations on due date or at maturity. This risk interchangeably called 'counterparty risk' is capable of putting the bank in distress if not adequately managed. To measure banks' lending activity, bank's loan growth rate has used by most researchers which is defined similarly to Foos et al. (2010) and Altunbas et al. (2011) as a bank's loan growth rate in a year. This takes account of the fact that high rates of loan growth reflect excessive risk-taking if all other banks have lower growth rates. If banks raise lending by lowering their lending standards, relaxing collateral requirements or a combination of both, higher rates of loan growth are associated with greater risk (Foos et al., 2010). Loan losses are not only argued to harmfully affect the financial performance of commercial banks, but they also have other far-reaching repercussions. This is due to the fact that, other potential borrowers may be denied to access credit facilities since part of the funds that could be extended as loans by the commercial banks are lost due to failure by past customers to pay back loans borrowed. The loan losses also affect the economy of a country which explains the rationale behind the setting of guidelines by the central bank for enabling financial institutions to alleviate loan losses. Kenyan banks are not an exception on the problem of loan losses. Statistical information from CBK annual bank supervisory report of 2015 and 2014 shows that loan losses categories of total loans increased by 27.0 per cent in 2015 from 80 billion in 2014 to 102 billion Kenyan shillings in 2015 (CBK,2015). The increases have been alleged to have been occasioned by deteriorating asset quality, challenges in the business environment and increased interest rates. However, no study has been carried to support the assertions. This current study goes one step further by analysing the effect of a growth and quality of credit on loan loss provisioning decisions among listed commercial banks in Kenya.

Objective of the Study

1. To establish the effect of credit growth on loan loss provisioning decisions of listed commercial banks in Kenya.
2. To find out how quality of credit affects loan loss provisioning decisions among the listed commercial banks in Kenya.

Hypotheses of the Study

H_{O1}: credit growth has no significant effect on loan loss provision of listed commercial banks in Kenya.
H_{O2}: Quality of credit advanced has no significant effect on loan loss provision of listed commercial banks in Kenya.

2. Literature Review

2.1 Empirical Review

Following definition by Bouvatier and Lepetit (2008), bank loan growth is defined as the actual change in the ratio of total loans to total assets. Igan and Pinheiro (2011) explored the risks posed by rapid credit growth recognizing the two-way causality between credit growth and bank soundness. In doing so, the researchers bring together macro-level studies examining the drivers of credit growth and micro-level analyses focusing on the impact of credit growth on bank soundness. The paper separately analyzes the relationship between credit growth and bank soundness during booms and non-boom periods, shedding light on why financial crises tend to be preceded by credit booms. The authors show that rapid credit growth during the last decade weakened banks and it became less dependent on bank soundness. Pakhchanyan and Sahakyan (2014) analyzed the impact of abnormal loan growth on banks' solvency, profitability and riskiness. The study finds that favorable macroeconomic performance and abnormal loan growth positively affect subsequent loan losses. Further, their findings support their hypothesis regarding abnormal loan growth, suggesting that banks with aggressive risk-taking behavior suffer more from loan losses. Berger and Udell (2004) tested the institutional memory hypothesis using data from individual US banks over the interval 1980-2000, drawing data from several different sources. The study finds that the coefficient on this variable is positive, statistically significant and economically significant for the growth of both types of commercial loans, providing strong evidence in support of the institutional memory hypothesis. The finding that premiums decline as loan growth increases for small banks is consistent with the implication of the hypothesis that the loan officers in these banks may be less able to recognize potential loan problems and place lower-quality borrowers in higher-quality risk pools as time passes since their last bust. In a paper by Köhler (2011), the researcher analyzed the impact of loan growth and business model on bank risk in 15 EU countries. Researcher show that banks with high rates of loan growth are riskier. Results further indicate that banks become riskier if aggregate credit growth is excessive.

Quality of loans is proxied using non-performing loans to total loans. A loan is non-performing when payments of interests and principal are past due by 90 days or more, or at least 90 days of interest payment have been capitalized, refinanced or delayed by agreement, or payments are less than 90 days overdue, but there are other good reasons to doubt that payment will be made in full (IMF, 2009). Non-performing loan can be measured in logarithm form too. Obuya and Olweny (2017) examined the effect of bank's lending behavior on loan losses of listed commercial banks in Kenya. The study employed descriptive research survey design. The target population encompassed 11 listed commercial banks in Kenya. The study was a census of listed commercial banks in Kenya. The data was extracted from CBK Annual reports and Audited financial

statements of individual commercial bank in Kenya. Descriptive analysis involved mean, standard deviation, minimum and maximum while for inferential analysis; correlation analysis was used to test the relationship between banks' lending behavior and loan losses of commercial banks in Kenya. The findings showed that total customer loans and quality of loans had a statistically significant effect on loan losses. Pinho and Martins (2009) studied the determinants of generic and specific provisions in Portuguese banking. The study found different provisioning policy behavior between domestic and foreign-regulated banks, which was associate with different home-country regulatory environments. Further results suggest that domestically-regulated banks did also react to higher generic provisioning requirements by lowering their discretionary component every time they had to reinforce specific provisions, in what we called a "substitution effect" between the two types of provisions. Isa and Yaziz, (2011) carried out a study to derive the determinants of loan loss provisions of commercial banks in Malaysia. This paper suggests in loan loss provisions; non-performing loans, interest income, loans and advances, net profit, and the Gross Domestic Product, as well as moderating effect of credit risk management and the intervening effect of relevance and faithful representation are determinants of the loan loss provisions. The moderating variable being credit risk management to strengthens the relationship between the independent variables and the dependent variable.

2.2 Theoretical Framework

Information asymmetry theory: This strand of theory proposed by Akerlof (1970) and Stiglitz and Weiss (1981) is based on the notion that the borrower is likely to have more information than the lender about the risks of the project for which they receive funds. This leads to the problems of moral hazard and adverse selection (Matthews and Thompson, 2008). These problems reduce the efficiency of the transfer of funds from surplus to deficit units. The banks overcome these problems in three respects: First by providing commitment to long-term relationships with customers, secondly through information sharing and thirdly through delegated monitoring of borrowers. Under direct financing, it is necessary for a lender to collect information to try to redress the information asymmetry. Information asymmetry theory is considered relevant in this study on the effect of growth and quality of credit on loan loss provisioning decisions of listed commercial banks in Kenya. The problem of moral hazard associated with the theory leads to borrowers concealing material information concerning their ability to pay and risks associated with the investment and the bank lending out credit without having complete information about borrower. The banks end up giving low quality loans that result to increase in loan losses. At the same time due to the problem of adverse selection associated with information asymmetry, the banks end up charging high interest rates to covers for increased risk of default due to opaqueness of customer credit history thereby leading even more default as borrowers cannot afford rising interest rates therefore increased non-performing loans. Increasing non-performing loans leads to rising loan losses and doubtful loans of the commercial banks in Kenya.

3. Methodology

In this study, the researcher used descriptive research survey design. According to Greener (2008), descriptive research design is a design that is used when the researcher wants to describe specific behaviour as it occurs in the environment without any attempt to manipulate them or change their status. The study described the effect of growth and quality of credit on loan loss provision of listed commercial banks in Kenya. The target population for this study was all the 11 listed commercial banks in Kenya that operated between 2011 and 2015. This study was a survey of the 11 listed commercial banks in Kenya. This therefore means that all the 11 listed and registered commercial banks in Kenya were subjected to the study. The sample of this study will therefore be the 11 listed commercial banks in Kenya. The period of study was five years that is 2011, 2012, 2013, 2014 and 2015. Due to the nature of financial studies, the researcher used secondary data sources. Secondary data was sourced from statistics maintained by the central bank of Kenya which is the regulatory body which supervises the banking industry in Kenya. Loan loss provisions, GDP, total loans to customers, banking loan diversification are some of the key financial data which were sourced from CBK and Audited financial statements of listed commercial in Kenya. The data was to be analysed in order to examine how lending behaviour of affect loan losses of listed commercial banks in Kenya. For the purpose of this study, data reliability and validity was ensured by collecting information and data from official sources such as annual audited accounts of banks and bank supervisory reports from CBK and corporate websites. The data collected was examined before analysis commenced for completeness and consistency. The panel data was entered into STATA version 14 and SPSS version 21. The panel data was analysed using descriptive statistics, correlation analysis, and multiple regression analysis. Descriptive statistics was used to summarize and explain the study variables as observed in the banks. Descriptive statistics included measures of central tendencies and dispersion. Inferential statistics included bivariate Pearson correlation, multiple regressions, ANOVA and coefficient of determination. This analysis enabled the testing the effect of banks' lending behaviour on loan losses of listed commercial banks in Kenya. The results were presented in tables with their associated explanations. The empirical model used is shown in regression equation (1).

$$LNLLP_{it} = \beta_0 + \beta_1 LGt_{i\,t} + \beta_2 NPLTCL_{it} + \beta_3 GDP_{\,t} + \varepsilon_i \quad \text{Equation (1)}$$

Where: LNLLP: Natural logarithm of Loan Loss Provision, LG: Loan Growth, GDP: Gross Domestic Product, NPLTCL = Non-performing Loans to Total loans, β_0 =intercept term, β_1, β_2 and β_3, , = are the coefficients of the independent variables respectively, *i*= 1, 2…….11: Number of banks, *t* = 2011,2012,2013,2014 and 2015 and $\boldsymbol{\varepsilon_i}$ = Error term

Table 1: Operationalization of Variables

Variable	Notation	Measurement/proxies	Possible sign
Dependent variable			
Loan loss provision	LNLLP	Natural logarithm of loan loss provisions	Loan losses
Independent variables			
Loan growth	LG	Total customer loans to total Assets ratio	+
Quality of loans	NPLTL	Non-performing loans to total loans ratio	_
Economic growth	GDP	% change in GDP	_

Table 1 shows how the variables will be measured by showing the proxies of the variables used in the study by the researcher. The table also shows the priori signs of the relationships between the variables of the study.

To ensure the Classical linear regression model is robust, the model assumptions tested in this study included; Linearity; Normality; Homoscedasticity; Multicollinearity and Autocorrelation just as in study by (Ongore and Kusa, 2013). To check for normality, Shapiro-Wilk W test was used. The researcher used measure of goodness of fit to test if the model is linear. If the data points all lie on the same line, OLS provides a perfect fit to the data. The researcher used the Variance Inflation Factor (VIF) for to test for multicollinearity where a VIF of 5 or 10 and above indicates a multicollinearity problem (*Verbeek, Marno, 2012)*. The study employed Breusch-pagan / cook-Weisberg test to check that the residuals of the model were not auto correlated since independence of the residuals is one of the basic hypotheses of regression analysis.

4. Results and Discussion

4.1 Descriptive Analysis

The aim of the descriptive statistics was to describe the general distributional properties of the data, to identify any unusual observations or any unusual patterns of observations that may cause problems for later analyses to be carried out on the data.

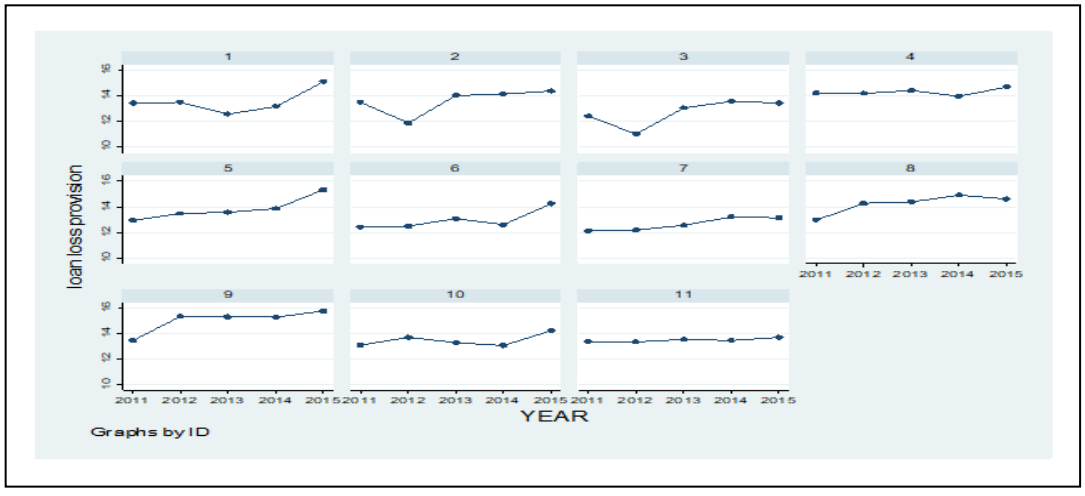

Figure 1: loan loss provision for the listed commercial banks in Kenya

The main problem of the study was the increasing problem of loan losses. Figure 1 shows the changes in loan loss provision among the 11 listed commercial banks in Kenya. The general trend is that loan loss provision has been on the rising trend in the last three years.

4.2 Correlation Analysis

The researcher carried out correlations to assist explains the relationship between growth and quality of credit and loan loss provisions of listed commercial banks in Kenya. The researcher used pairwise Pearson Correlation to establish the relationship as shown in Table 2.

Table 2 : Pairwise Pearson Correlation Coefficients

		NPLTCL	LG	GDP	LNLLP
LNLLP	R	.6986*	-.1400	0.4562*	1
	Significance	.0000	0.3080	0.0005	
	N	55	55	55	55

*. Correlation is significant at the 0.05 level (2-tailed). Independent variables: Natural Logarithm of Total Customer loans (LNTCL), Non-Performing Loans to Total Customer Loans (NPLTCL) Loan Growth (LG), Gross Domestic Product (GDP) and dependent: Natural Logarithm of Loan Loss Provision (LNLLP)

Loan growth and loan losses: Table 02 shows the relationship between loan growth and loan loss provision of the 11 listed commercial banks in Kenya. Pair wise Pearson correlation coefficient was calculated at 5% level of significance. Pearson's correlation coefficient (r) indicated that there was a statistically insignificant negative correlation between loan Loss provision and loan growth ($r = -0.1400$, $p = 0.3080$ and $\alpha = 0.05$). This negative association could be explained by the fact that listed banks are usually tire one banks with strict control from CBK and NSE. Quality of Loans and Loan Losses: Table 02 indicated that there was a strong positive statistically significant correlation between quality loans and loan loss provision ($r = 0.6986$, $p = 0.000$ and $\alpha = 0.05$). suggesting that an increase in the stock of poor-quality loans leads to an increase in loan losses. This positive correlation could be explained by the fact that increase in the stock of poor-quality loans is associated with banks not recovering loans which become toxic or impaired assets hence increases in loan losses and such banks must increase loan loss provision with increase in stock of poor quality loans. Gross Domestic Product and Loan Losses: Table 02 further shows that there was a statistically significant positive correlation between Gross Domestic Product and loan losses ($r = 0.4562$, $p = 0.0005$ and $\alpha = 0.05$). This suggests that an increase in Gross Domestic Product is associated with an increase in loan losses. This positive correlation could be explained by the fact that increasing gross domestic product means increasing positive business climate, this could make banks to offer more loans which will eventually lead to increasing loan loss provisions to cover the expected loan losses before they are experienced.

4.3 Model Specification Tests

The study performed tests on statistical assumptions of the suitability of choice of regression model and assumptions regression model of choice including: test of ordinary regression assumption and statistic used. These tests included test of normality, linearity, multicollinearity, homoscedasticity and autocorrelation. **Test for relevant regression model**: The data being panel in nature, the researcher wanted to establish the suitable model between Simple Ordinary Least Squares (OLS) model and the Random Effect Model (REM). Breusch and Pagan Langrangian Multiplier test for random effect was performed. The test helps in deciding between Random effect regression and simple OLS regression. The null hypothesis in the LM test is that variances across entities like the listed banks in this case is zero. This is a no significance difference across. With p value being greater that chi 2 (p=.4732) The null hypothesis is accepted and conclude that REM is not appropriate therefore the study can run the simple OLS regression in estimating the coefficient of regressors. **Test for multicollinearity**: Multicollinearity was tested by computing the Variance Inflation Factor (VIF) and its reciprocal, the tolerance. O'Brien (2007) suggested that a Variance Inflation Factor (VIF) greater than 10 are a sign of multicollinearity; the higher the value of VIF's, the more severe the problem. Results show that all the variables had a variance inflation factors (VIF) of less than two (LG=1.79 and NPLTCL= 1.17 and GDP=1.32) and overall VIF of 1.4. These results show that multicollinearity problem was very low.**Test for Heteroscedasticity:** The test was assessed through the use of Breusch-pagan / cook-Weisberg test. Cook-Weisberg test is a null hypothesis test that the variances are constant. Acceptance of hypothesis shows the variances of estimators are constant and there is homoscedasticity. The results show that p value was greater than chi2 (= .7342 chi2=.12) hence the hypothesis that variances are constant was accepted thus, it can be concluded that there was no heteroscedasticity. **Test for Normality of Regressors:** Normality was tested using the Shapiro-Wilk W test which has power to detect departure from normality due to either skewness or kurtosis or both. Shapiro-Wilk test assesses whether data is normally distributed. When the p-value is greater than chi 2, then one fails to reject the null hypothesis and don't accept the alternative hypothesis. All the variables out of the do meet the Shapiro-Wilk W test of being rejected hence the distribution is normal. **Test for Linearity**: A final test was test for linearity of study random variables. The researcher used measure of goodness of fit to test if the model is linear. A value of R^2 that is nearly equal to zero indicates a poor fit of the OLS line. The value of R was 0.755 this shows a good fit and linear random study variable.

4.4 Regression Analysis

Regression analysis was multiple in natures as there were three independent variables. The independent variables were loan growth, quality of loans and Gross Domestic Product. The dependent variable was loan loss Provision. Multiple regression analysis used simple OLS model. They involved calculation of coefficient of determination, Analysis of Variances (ANOVA) and regression coefficients.

Table 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.755[a]	.571	.545	.6586956	.994

a. Predictors: (Constant), economic growth, credit growth, quality of loans

b. Dependent Variable: Loan loss provision

Tables 3 indicate that the model explains 57.1 % of the total variations in loan loss provision as shown by the coefficient of determination (R^2) value of 0.571. The remaining 42.9 % Variations in loan loss provision is explained by other factors not included in the model. It is therefore clear that growth and quality of credit explains 57.1 % variations in loan loss provision.

Table 4: ANOVA

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	29.419	3	9.806	22.602	.000[b]
	Residual	22.128	51	.434		
	Total	51.547	54			

a. Dependent Variable: Loan loss provision

Table 4: shows that the overall significance of the model was 0.000 with an F value of 22.602. The level of significance was lower than 0.05 and this means that quality of credit and credit growth do show statistically significant effect on loan loss provisioning decisions.

Table 5: Coefficients of Independents Variables

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	9.936	1.095		9.071	.000		
	credit growth	-.247	1.049	-.023	-.236	.815	.913	1.095
	quality of loans	57.807	9.269	.616	6.237	.000	.862	1.159
	economic growth	64.191	20.581	.301	3.119	.003	.906	1.104

a. Dependent Variable: Loan loss provision

Table 5: Further shows the coefficients of independent variables (credit growth, quality of credit and economic growth) the values of *p* and values of *t* .The model was thus estimated as shown in equation (2).

Loan Loss Provision = 9.936 -.247 Credit Growth +57.807 Quality of Loans + 64.191 Economic Growth + ε_i……..…….Equation (2)

Model Equation (2) presents the causal effect relationship between growth and quality of credit and loan loss provision of listed commercial banks in Kenya. The value **9.936 is** the intercept term that shows the value of loan loss provision when all the independent variables are held constant. The coefficients of independent variables are explained below. **Effect of Loan growth on loan loss provision**: Table 05 shows the effect of loan growth on loan loss provision. The researcher wanted to test the null hypothesis that credit growth has no significant effect on loan loss provision of commercial banks in Kenya using simple OLS model. It was established that loan growth had a negative statistically insignificant effect on loan loss provision **(β1= -.247, t = -.236, p = .815 and α = 0.05).** hence, we fail to reject the null hypothesis and reject alternative hypothesis. The value β1was negative showing that credit growth has a negative effect on loan loss provision of listed commercial banks in Kenya hence when credit growth changes by one unit, loan loss provision changes by .247 in the reverse direction. The negative relationship should only be expected since studies done by other researchers reveal current loan loss provision is only affected positively by lagged loan growth and not current loan growth as used in this study. Another possible explanation could

be the fact listed commercial banks have well trained and experienced credit management teams that ensures that new borrowers have impeccable record in loan repayment. The study findings is in congruence with study by Demirgüc-Kunt and Huizinga (2010) who found no evidence that high rates of asset growth result into greater risk-taking in terms of loan losses. However, Köhler (2011) and **Foos** *et al.,* (2010) showed that loan growth is an important determinant of bank risk. The researcher finds evidence that banks with high rates of loan growth are riskier in terms of loan losses. This may indicate that banks lower their lending standards and collateral requirements to increase loan growth.

Effect of quality of loans on loan loss provision: Table 05 shows the effect of quality of loans on loan loss provision. The null hypothesis that Quality of loans has no significant effect on loan loss provision of listed commercial banks in Kenya. The findings show that Quality of loans had a statistically significant positive effect on loan loss provision ($\beta 3 = 57.807$, $t = 6.237$, $p = .000$ and $\alpha = 0.05$). The null hypothesis was thus rejected and alternative hypothesis accepted. The value $\beta 3$ was positive showing that quality of loans has a positive effect on loan loss provision of listed commercial banks in Kenya. Any increase in the stock of toxic loans by one in the bank leads to increase in loan loss provision by 57.8 units. The possible explanation for this significant positive effect is that when stock of non-performing loans increases as a ratio total loan, the chances of loan losses increases as some of the non-performing loans will eventually turn into loan losses hence banks must increase loan loss provisions in anticipation. Empirical review also show that Nonperforming loans has a significant effect on bank's loan loss provision. This suggests that bank increases their provisions in response to an increase in credit risk (Eng and Nabar, 2007). Therefore, it shows a positive relationship between non -performing loan and bank's loan loss provision, when non-performing loan increases, it will cause bank's loan loss provision to increase. In addition, a study in Asian banks by Packer and Zhu (2012), their result shows that when Asian banks' credit risk asset is higher, the provision will set to be higher.

6. Conclusions

The study aimed at establishing the effect of growth and quality of credit on loan loss provision of listed commercial banks in Kenya. The study findings show that loan growth had statistically insignificant negative effect on loan loss provision. The findings mean that any unitary increase in credit growth leads to declining loan losses. The effect is however statistically insignificant. The negative insignificant effect can be attributed to the fact that the study related current loan losses to current loan growth. Study results also show that quality of credit had statistically significant positive effect on loan loss provision. The effect is significant hence it's a major one meaning when loans become impaired for a long-time chance of impaired loans turning to loan losses is very high. This study has a number of practical implications to various groups in the public including the central bank, management commercial banks and future researchers. Management of commercial banks will find the results of this study useful as they will gain insight on how their lending activities effect loan loss provision. They will able to make business policy changes regarding their lending behaviour to reduce loan losses. One of key policy issue could be to increase loan loss provision with accumulation of toxic loan assets as they prepare for eventual loan losses that may result. The regulator of listed commercial banks that is the CBK will also find this study useful in formulating sector wide policies. The CBK will be able fine tune loan loss provision policies by basing it on quality and growth of credit of individual commercial bank. The risk weighted minimum capital requirements should also be based on the exposure of individual banks to loan losses that eat into capital of a bank. The current study was limited to effect of growth and quality of credit on loans loss provision of listed commercial banks in Kenya. The study was restricted to listed commercial banks and the data was restricted to five years. Another study should be carried out that looks at growth and quality of credit on loan loss provision in all commercial banks in Kenya to establish if results hold also in other commercial banks. Another study should also be carried out using long term data covering over twenty years since some variables can be best observed in a long period of time. Future studies can also relate lagged values of loan growth with contemporaneous loan losses of commercial banks.

Conflicts of Interest

"The authors declare no conflicts of interest."

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