

Effectiveness of Credit Appraisal on management Non-Performing Loans in Kenyan Commercial Banks

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Abstract: The purpose of this study was to determine the effectiveness of credit appraisal on management of Non-Performing Loans in Kenyan Commercial Banks. The specific objectives were to determine the effect of borrower's income, credit rating, credit history and collateral issued on the management of non-performing loans recorded in corporate, business and personal sections of Kenyan Commercial Banks. The study was guided by the Theory of Information Asymmetry and Credit Scorecard Theories. An explanatory research design was adopted, using simple random and stratified sampling techniques in the collection of data. Data was collected from a sample size of 222 credit officers working in 41 commercial Banks in Kenya by use of self-administered questionnaires. Cronbach alpha and factor analysis were applied to test the reliability and validity of the research instruments respectively. A multiple regression model using SPSS (version 23) was used to analyze the obtained data and test the hypotheses. The findings revealed that credit appraisal ($\beta = .302$) had a positive and significant effect on the management of Non-performing Loans. Based on the new findings, the management of commercial banks and policymakers should develop effective credit appraisal strategies, policies and techniques that make borrowing affordable hence attracting credit-worthy borrowers to the banks.

Keywords: Credit Appraisal, Borrower's income, Credit rating, Credit history, Collateral, Non-Performing Loans

I. INTRODUCTION

The success of commercial banks largely depends on the effectiveness of their appraisal techniques in reducing NPLs and generating income from interest on loans extended to borrowers. In the recent past, there has been an upsurge in Non-Performing Loans (NPLs) in all the credit sections in commercial banks Ndero et al. (2019). In their quest to manage default rates and NPLs, commercial banks have developed credit appraisal policies that evaluate the borrower's income, credit history and collateral offered before loans are issued to their customers (Njeru et al., 2017). According to (Githama and Gachanja, 2020), a Non-Performing Loan (NPL) is a loan that has been in default for a period of ninety days. Credit appraisal, therefore, is the assessment of the creditworthiness of a prospective borrower and his intention to repay the loan (Dudhe, 2017).

The origin of lending can be traced back to 3000 years ago during the historical period of the industrial revolution (Amery, 2018). During this time, production and commercial activities were hastened and were accompanied by the need for large capital outlays for various commercial activities and the use of payday loans by the then-farmers (Amery, 2018). Since the

captains of these industries could not cope with the sudden financial demand, they opted to borrow funds from the then-banking institutions (Akinboade and Makina, 2010). Credit appraisal techniques were therefore adopted to guide the process involving the transactions between the banks and the borrowers. This was done by assessing the past credit history, the borrower's profile, the borrower's income and the collateral offered so that they could make informed decisions as to whether to give them loans or not.

One fundamental method used by banks to generate money is through borrowing money from depositors at a lower interest rate and lending the borrowed funds at a higher interest rate (Agovino et al., 2022). According to Nguyen et al. (2017), to make a profit, commercial banks invest customer deposits in various short and long-term investments which are then issued as loans hence the more loans they extend to customers, the more profit they make. Pastory (2020) contends that in today's competitive financial environment and the growing trends in NPLs, the management in commercial banks has contended with the fact that appraising the customers' applications is a vital factor.

In Kenya, most banks use various evaluative criteria when appraising loan applications. Credit appraisal is a vital technique in the evaluation of loan applications and can be conceptualized as a factor in the management of NPLs. According to Muiruri (2015), credit appraisal is vital in making decisions that lead to granting credit facilities to borrowers. Some of the credentials which are evaluated are borrowers' income, credit history and the security issued in terms of collateral. Although past studies have proposed that credit appraisal may have a direct influence on NPL, no study has taken an explanatory approach to examine the effectiveness of credit appraisal and the management of NPLs. This study, therefore, seeks to fill this gap.

II. LITERATURE REVIEW

2.1 Non-Performing Loans

Over the years, commercial banks in Kenya have strived to grow their asset book and maximize their profits but have witnessed a setback due to a financial crisis created by a tremendous increase in Non-Performing Loans (Waweru and Kalani, 2008). Due to these diverse effects, Commercial Banks, have sought to determine the major causes of the NPLs and the extent to which these loans control a country's financial growth. Ahmed et al. (2021) define NPLs as those loans that have

exceeded ninety days and no longer generate income. A Non-Performing Loan (NPL) is a loan where the principal amount and the underlying interest are not paid on the maturity date and there is no anticipation for future payment (Adusei, 2018).

According to IFRS 9, financial instruments are classified into three categories thus, performing, underperforming and non-performing to represent the quality of credit exposure. The negative impact of NPLs can translate into lower interest income and the deterioration of bank profitability threatening financial stability. Ombaba (2013) argued that NPLs affect operational efficiency which further affects the liquidity, profitability and competitive functioning of banks. Further, it affects the attitude of bank personnel as they effect credit delivery and expansion. Consequently, Commercial Banks have key performance indicators (KPI) that they use to measure the extent of NPLs in their institutions. These are Loans to Deposit Ratios (LDR), Provisions for doubtful debts and provisions for bad debts. A study by (Minton et al. (2014) indicated that the optimal ratio of LDR should be between 80% to 90%. Avetisyan (2018), noted that bad debts are calculated by a direct write-off while provisions for doubtful debts are usually set aside from the company's profits to cover for an expected liability. This study looks at the effectiveness of credit appraisal in the management of NPLs.

2.2 Credit Appraisal

Credit appraisal is the assessment of the creditworthiness of a prospective borrower and his intention to repay the loan (Dudhe, 2017). It is an assessment done before issuing any loan to prospective borrowers. Often times the lender appraises the borrower's payment history, the collateral security cover and establishes if the income can sustain the sought loan. To safeguard commercial banks against potential losses, the problems associated with loan repayment ought to be identified at an early stage. This may be achieved through a proper credit monitoring system which provides a basis for prompt corrective measures when early warning signs of deterioration in repayment are noted (Nithin ,Kumar and Patel, 2019).

Credit rating is an opinion used to detect credit worthiness of an entity, debt or financial obligation (Weissova et al., 2015). Likewise, credit history, borrower's income and collateral are key indicators used as a criterion for measuring credit appraisal (Sohilauw et al., 2019). Credit history is an important factor as it records the borrower's past borrowings and details of repayment of transactions (Inganga et al., 2014). The borrower's income indicates that the individual has a sound financial standing and can repay their loans (Agu and Okoli, 2013). On the other hand, collateral is the document a lender will seek for security in case of loan defaults (Purohit and Kulkarni, 2011). Under these circumstances, the lender is likely to earn confidence in individuals and grant them loans.

Based on the above discussion, the following Hypothesis is developed:

H1: *Credit appraisal significantly and positively influences management of Non- Performing Loans.*

III. METHODOLOGY

3.1 Research Design

The study used explanatory research design since it was found suitable for determining the effectiveness of variables describing credit appraisal.

3.2 Study area and Target Population

The sampling frame comprised 41 commercial banks registered in Kenya. The study was carried out between 2nd December 2021 to 15th February 2022 targeting credit officers from corporate, business and personal credit sections of commercial banks. Table 3.1 gives a summary of the survey done by the researcher.

Table 3.1: Target Population

Category	No of Respondents	% of Respondents
Corporate credit officers	65	13%
Business credit officers	230	46%
Personal credit officers	205	41%
Total	500	100%

Source: Research survey (2022)

3.3 Sampling Technique and Sample Size

Stratified random sampling was used in collecting data from credit officers of the 41 commercial banks in Nairobi County. Yamane (1967) formula was used to determine the sample size. The questionnaires were distributed according to the number of respondents as shown in table 3.2 below.

$$n = N / [1 + N (e^2)]$$

Where:

N = Population size

n = Sample size

e = the level of precision (0.05).

1 = Constant

$$\text{Thus } n = 500 / [1 + 500 (0.05)^2] = 222$$

The sample size to be used in this was determined as 222 respondents

Table 3.2 Sample Size Determination

Category	No. of respondents	Sample size	% Share of respondents
Corporate credit officers	29	222	13% (0.13)
Business credit officers	102	222	46% (0.46)
Personal credit officers	91	222	41% (0.41)
Total	222	222	100% (1)

Source: Research survey (2022)

3.4 Types of data, Sources and collection instruments

Primary data was collected using closed-ended questionnaires, self-administered to the credit officers. The questionnaire was

guided by the objectives of studies adopted by (Owino, 2013) (BoninandValério, 2016); with the first section measuring the demographic variables of the respondents such as designation and tenure. On the other hand, the second section used a 5-point Likert scale of (1) strongly disagree to (5) strongly agree which represented the measurements of the independent variable (Credit appraisal) and dependent variable (Non-performing Loans).

IV. DATA ANALYSIS

4.1 Response Rate

The data was obtained from questionnaires that were self-administered to a sample of 222 credit officers in 41 commercial banks within Nairobi County. Only 214 questionnaires were returned indicating a response rate of 96%. The other 8 were not returned but 2 were returned but wrongly filled and had to be excluded from the final tally. The sample size of 212 respondents showed a good representation of the study population as it met the recommended adequacy rate of 50% (Simiyu et al., 2019). Table 4.1 below summarizes the above information.

Table 4.1: Response Rate

Category	No. of Questionnaires	Percentage
Effective Questionnaires	212	95%
Unreturned Questionnaires	8	4%
Returned but Defective	2	1%
Total	222	100%

Source: Research, (2022)

4.2 Demographic Characteristics of Respondents

The study used 212 valid questionnaires which comprised 95% (n=212) to carry out the analysis. The respondents were credit officers from the 41 commercial banks found in Nairobi County. The majority of respondents were Business Credit Officers at 45.8%, Personal Credit Officers at 41% and Corporate Credit Officers at 13.2% indicating that the respondents held competent roles commensurate with their tasks. The majority of respondents (40.1%) had worked for less than 5 years, (38.2%) respondents had worked for 6-10 years and (21.7%) respondents had worked for over 10 years indicating adequacy in experience and skills required for such roles. Table 4.2 shows the composition of the demographical characteristics

Table 4.2 Demographic Characteristics of Respondents

Demographic factor		No. of Respondents	% of Respondents
Designation	Corporate credit officers	28	13.2
	Business credit officers	97	45.8
	Personal credit officers	87	41.0
	Total	212	100

Tenure			
	Below 5 years	85	40.1
	6-10 years	81	38.2
	Above 10 years	46	21.7
	Total	212	100

Source: Research Data, (2022)

4.3 Descriptive Statistics for Non-Performing Loans

The dependent variable in this study was NPLs which were measured using a 5- Likert Scale. The constructs which measured this variable were Loans to Deposit Ratio (LDR), Provisions for doubtful debts and Provisions for Bad Debts. Both provisions of doubtful and bad debts showed a high prevalence of NPLs since they both had the highest mean score of 4.25 and each scored a standard deviation of .938 and .972. The study also showed that there was an effective use of LDR to evaluate NPLs levels which had a mean score of 3.44 and a standard deviation of 1.289. This shows that the respondents moderately agreed that a high ratio of LDR increases NPLs since it had a mean score of 3.41 and a standard deviation of 1.337. Table 4.3 summarizes the statistics obtained from the sampled variables.

Table 4.3 Mean and Standard Deviation for NPLs

Measuring item	Mean	Std. Deviation
A high rate of provisions increases NPLs in our bank	3.97	1.092
Provisions for doubtful debts have no effect on NPLs	4.03	1.057
Provisions for doubtful debts decrease NPLs	4.25	0.938
There is an effective use of LDR to evaluate	3.44	1.289
A high ratio of LDR increases NPLs.	3.41	1.337
A lower percentage of LDR reduces NPLs	3.45	1.282
LDR has no effect of LDR on NPLs	3.51	1.330
Bad debts are a positive indicator of NPLs	4.15	1.054
A high rate of bad debts indicates high levels of NPLs	4.25	0.972
Bad debts have no effect on NPLs	4.09	1.089
The bank still records high levels of NPLs despite procedures	4.08	1.101

Source: Research Data (2022)

4.4 Descriptive Statistics for Credit Appraisal

Credit Appraisal was measured using five questions which were asked using questionnaires on a five-point scale. Table 4.4 below shows that most of the respondents agreed that the credit appraisal policy was effectively used in the bank with the highest mean of 4.37 and a standard deviation of 0.733. This was followed by credit history as an effective indicator of the borrower's repayment behavior with a mean value of 4.33 and a standard deviation of .627. Loans secured by collateral and credit rating techniques were also seen as effective with mean values of 4.24,4.23 and standard deviations of .817 and .825 respectively. The borrowers' income was also effective in this

study with a mean score of 4.21 and a standard deviation of .799.

Table 4.4 Mean and Standard Deviation for Credit Appraisal

Measuring Items	Mean	Std. Deviation
Borrower’s income is an indicator of possible default leading to NPLs	4.21	0.799
Credit history is an effective indicator of a borrower’s repayment behavior	4.33	0.627
Credit rating technique is an effective strategy for mitigating the occurrence of NPLs	4.23	0.825
Loans secured by collateral are always repaid	4.24	0.817
There is an effective credit appraisal policy used by	4.37	0.733

Source: Research data (2022) n=212 *Scale: 1= strongly disagree; 5=strongly agree.

4.5 Reliability Test for Variables

NPLs had 11 items measuring the three constructs; LDR, Provisions for doubtful debts and Provisions for bad debts on a 5-Likert Scale. The average Alpha value of .890 was within the acceptable range recommended for the study (DiGabriele, 2011). The results, therefore, indicated that all the items for the analysis were retained.

Credit appraisal had 4 constructs; Borrower’s income, Credit history, credit rating and collateral which were measured on a 5-point Likert scale to obtain the opinions of the targeted respondents. The study showed a Cronbach Alpha of 0.839 suggesting that the internal consistency displayed by this

variable was also reliable and acceptable. This further indicated that all the items which were used for analysis were retained as illustrated in **Table 4.5** below.

Table 4.5 Reliability Statistics

Variables	Number of items	Cronbach Alpha value
Non-Performing Loans	11	0.890
Credit Appraisal	4	0.839

Source: Research data (2022)

4.6 Factor Analysis

Factor analysis was performed on each variable with the use of the Extraction Principal Component (EPC) method before performing data analysis and hypotheses testing. According to Gabriel and Ronald (2017), factor analysis should be conducted to investigate the validity of each construct by way of a purification process, where items in the questionnaire are reduced to load the correct Kaiser Mayer Olkin (KMO) measure and Bartlett test of sphericity. The items with factor loadings of <0.5 were omitted from the analysis to increase construct validity which measures the degree to which a scale measures what it intends to measure. The results revealed that both NPLs and Credit Appraisal had KMO values of 0.839 and 0.732 respectively which was above the threshold of 0.5. The Bartlett test of sphericity indicated a Chi-Square of 1380.893 for NPLs, 1622.420 for Credit Appraisal and a p =.000 for both variables. These results indicated that factor analysis gave a suitable outcome of validity.

Table 4.6 Factor Analysis

Variables	Scale items	Factor Loadings	Eigen Value	% of Variance	KMO	Chi Square	p- Value
NPLs	There is an effective use of LDR to evaluate levels of NPLs	.839	2.738	74.659	.859	1380.893	.000
	A High ratio of LDR increases NPLs in our bank	.831					
	A lower percentage of LDR reduces NPLs in our bank	.856					
	There is no effect of LDR on NPLs	.875					
	Bad debt is an indicator of NPLs	.706					
	A high rate of bad debts indicates low levels of NPLs	.869					
	Bad debts have no effect on NPLs	.854					
	The bank still records high levels of NPLs despite writing off bad debts	.831					
	A high rate of provisions increases NPLs	.722					
	Provision for doubtful debts has no effect on NPLs	.812					
	Prov. for doubtful debts decreases NPLs	.829					
Credit Appraisal	Borrower’s income is an indicator of possible default leading to NPLs	.523	3.133	56.621	.732	1622.420	.000
	Credit history is an effective indicator of a borrower’s repayment behavior	.767					
	Credit rating is an effective strategy of mitigating the occurrence of NPLs	.899					
	Loans secured by collateral are always repaid	.891					
	There is an effective appraisal policy used the bank	.808					

Source: Research data (2022)

4.7 Correlation Analysis

Studies by Gogtay et al. (2017) suggest that correlation analysis is a statistical analysis that determines the extent to which two numerical variables are correlated with each other. According to De Sá et al. (2021), a linear correlation coefficient that is > 0 indicates a positive relationship whereas values $p < 0$ signifies a negative relationship. A value of zero indicates no relationship between two variables, X and Y.

Table 4.7 Results for Pearson’s Coefficient

Variable (N=212)	1	2
Non performing Loans	1	
Credit Appraisal	0.609**	1

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

Source: Research Data (2022)

4.8 Hypothesis Testing

A Regression Analysis determines the way changes in the predictor variable relate to those of the dependent variable whereas coefficient analyses indicate whether the relationships are statistically significant (Frost, 2020). The p-value determines whether the coefficients are significantly distinct away from zero. A p-value is the probability index describing the likelihood that data would have occurred by chance (Hinderer III et al., 2019). The study used p-values to determine the association between the dependent and the independent variables. The analysis revealed that Credit Appraisal had a significant effect on Non-performing Loans with a score of ($\beta_2 = .302, p = .000$). Since the p-value is less than 0.05, the null hypothesis is rejected indicating that Credit Appraisal positively and significantly influences Non-Performing Loans in Kenya Commercial Banks.

Additionally, the R squared shows goodness of fit with $R^2 = .745$ indicating 74.5% of the variance explained by the independent variable from the dependent variable. The 74.5% suggest that there is a strong relationship between credit appraisal and NPLs. The F – Value of 202.596 indicates that the model is significant which shows that there is a significant relationship between the predictor variable; Credit appraisal and the dependent variable, (Non-Performing Loans) as shown in **table 4.8** below.

Table 4.8 Regression Results

Variable	β - Coefficient	p-value
Credit Appraisal	0.302	0.000
R^2	0.745	
F-Statistic	202.596	0.000

Source: Research Data (2022)

4.8.1 Effect of Credit Appraisal on Non-Performing Loans

The study hypothesis stipulated that Credit appraisal significantly and positively influences management of Nonperforming Loans in Kenyan Commercial Banks.

According to table 4.9 The findings revealed that Credit Appraisal has a significant $\beta_2 = .302, p = .000$. Since the p-value is less than 0.05, hypothesis H_1 is supported by study findings.

Table 4.9 Regression Results

Hypothesis	Null Hypothesis	Beta	P-Value	Results
H_{02}	Credit Appraisal policy has no significant effect on NPLs in Kenyan commercial banks	.302	0.000	Rejected

Source: Research Data (2022)

V. DISCUSSION AND CONCLUSION

The main objective of the study was to establish the effectiveness of credit appraisal on the management of Non-Performing Loans in Kenyan Commercial Banks. The study findings revealed that Credit Appraisal has a positive and significant effect on NPLs with a $\beta = .302, p = 0.000$. This compares with studies carried out by Saada (2017) and Muskwe (2017) which indicate that Credit Appraisal has a positive relationship with the management of NPLs in Commercial Banks. This study brings new knowledge that credit appraisal is key in managing NPLs and so should be adopted by Commercial Banks. This will present benefits to borrowers who will be empowered to meet their obligations by repaying their loans on time and enhance the profitability of Commercial Banks. The final effect will be a boom in the economic sector and in the long run assist the Kenyan government to achieve Agenda 2030 and the set sustainable development goals.

VI. SUGGESTIONS FOR FURTHER STUDY

Further studies are recommended to use a mixed approach with open-ended questionnaires and analyzing both quantitative and qualitative to reveal other findings influencing the management of NPLs. Future studies also should be carried out on a larger population and a wider scope to present different results. This study looked at bank factors in determining the effectiveness of credit policy on the management of NPLs, however other studies should be done on how macroeconomic factors influences NPLs. Future studies should also be carried out using the Hayes Process Macro model to determine the moderation and mediation effects of credit appraisal on the management of NPLs.

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