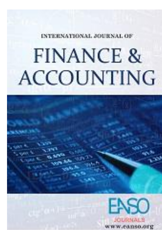

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Original Article

Credit Risk Assessment and Loan Repayment among Development Financial Institutions. A Case of Kenya Industrial Estates Limited

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ABSTRACT

The informal sector of the Kenyan economy continues to remain the largest employer of a majority of the population. However, it is bedevilled by a variety of challenges, chief of them being inadequate access to credit. To address this, the government has set up development financial institutions such as Kenya Industrial Estates (KIE) and mandated them with the role of availing loans to the sector in order to spur economic growth. The low rate of loan repayment advanced by Development Financial Institutions (DFIs) has necessitated the need to investigate the cause(s) of this adverse trend. This research was undertaken to probe how credit risk assessment affects loan repayment in development financial institutions, with Kenya Industrial Estates Ltd as a case study. The specific objectives were to find out how borrowers' character and capacity affect loan repayment at KIE. A descriptive design guided the study with primary data being obtained through a questionnaire, whose reliability was tested and found to be acceptable with a Cronbach alpha of 0.795. A census was conducted on all 28 branches in Kenya. Two respondents from each branch were selected purposively to result in a total of 56 respondents. Regression analysis suggested that borrowers' character and capacity positively and significantly affected loan repayment. The null hypotheses for the two variables were subsequently rejected. Spearman's correlation coefficient for the two predictor variables further revealed that they influenced loan repayment positively. The study concludes that borrowers' character and capacity have a profound effect on loan repayment among DFIs. The study recommends that DFIs need screen borrowers' credit history and debt-to-income ratio thoroughly before advancing loans in order to improve loan repayment.

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INTRODUCTION

Lending institutions operating in credit markets are susceptible to default compared to sellers in standard markets who deal in goods and services. This is because while lenders sell products (loans) whose payment is made at a later date, sellers in standard markets receive payment at the point of sale for cash sales. Lenders thus largely rely on borrowers' good faith in repaying their loans (Chege, 2021). Credit risk, thus is the statistical chance of a borrower reneging on their obligation to pay the loan leading to loss of the lent amount. A borrower's promise to repay their loan is an insufficient and unreliable safeguard, as pledges are frequently reneged (Mburu & Muathe, 2020). This may cause a lending firm to incur a huge Non-Performing Loans (NPLs) portfolio occasioned by default. In light of this, it thus becomes prudent for lenders in general and Development Financial Institutions (DFIs) in particular to develop a sound and objective policy for assessing potential borrowers' creditworthiness to forestall default. This process of vetting loan applicants by gauging their willingness and ability to repay loans with the aim of mitigating default constitutes a credit risk assessment (Fabozzi, 2003). A borrower's willingness to honour the repayment terms is indicated by their character, while their ability is indicated by their capacity to generate cashflows (Saunders & Allen, 2010). Character is measured by a borrower's credit history, with credit reports being readily sourced from reputable Credit Reference Bureaus (CRBs). Capacity is indicated by a borrower's financial capability to repay the loan and it is measured by the debt-to-income (DTI) ratio (Saunders & Allen, 2010).

Loan repayment is the return of cash or cash equivalents obtained on credit by a borrower to a lender. The repayment is made periodically and includes both principal and interest payments. The initial amount borrowed is known as the principal. A borrower is charged the interest for the privilege of obtaining and utilising funds. Loans may be settled in full at any time. However, some contracts impose an early repayment penalty to deter this and ensure that interest is paid (Brealey, 2006). Loan repayment is indicated by the Non-Performing Loans (NPL) to Total Loans (TL) ratio. An inverse relationship exists between NPL/TL ratio and loan repayment. The greater the NPL ratio, the lower the loan repayment and vice versa.

Objectives of the Study

The two specific objectives of the study were;

- To determine the extent to which the character of the borrower affects loan repayment of KIE loans
- To establish the extent to which borrower's capacity to generate cash flow affects loan repayment of KIE loans

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Significance of the Study

The research findings will help KIE management and DFIs, in general, to objectively appraise loan applicants and thus minimise default rates. Ultimately, NPLs will be reduced to acceptable levels, and the performance of the institutions will improve as default declines. The study findings will also serve to add knowledge to the credit risk universe of knowledge, broadening the theoretical framework of credit risk management.

Justification of the Study

Existing empirical literature on how credit risk assessment affects loan repayment among financial institutions has a fundamental gap; it is almost exclusively centred on commercial banks (Derban, Binner, & Mullineux, 2005). DFIs have been largely ignored by past researchers despite their high default rates and the indispensable role they play in developing economies like Kenya. Taking cognisance of this fact, this study will seek to narrow this existing inadequacy in knowledge by focusing on DFIs in general and KIE in particular.

Statement of the Problem

The Auditor General's report for the financial year ended 2020/21 revealed that KIE made a loss amounting to approximately Ksh. 800 million (Auditor-General, 2021). This was largely due to a non-performing loan portfolio, accounting for 65 per cent of total loans. This loan repayment has adversely affected KIE, thus the need to investigate the cause. A review of the audited financial statements of KIE over the last four financial years reveals an adverse loan repayment rate. In the 2021/22 financial year NPLs stood at 71 per cent of total loans advanced. This was an increase from 65 per cent in 2020/21. The figure for NPLs was 63 per cent and 57 per cent, respectively for the 2019/20 and 2018/19 financial years. This trend may continue unabated unless studies are conducted to establish the cause. Despite the fact that KIE has been accruing an increasing NPL portfolio over the past years according to its financial statements, there are no studies which have been carried out to ascertain the cause of this loss. This study will therefore seek to empirically bridge this gap

LITERATURE REVIEW

Theoretical Review

Pandey (2005) proposed that lenders ought to consider the character, capacity, and collateral of borrowers before advancing credit. These 3Cs were eventually expanded to include conditions and capital to give rise to the 5Cs model. The 5Cs are used by financial institutions in assessing customers' creditworthiness. A borrower's creditworthiness is inferred after evaluating their scores on each of the 5Cs. The 5Cs model therefore anchored the study as two of the Cs (character and capacity) were used as predictor variables. Character is determined by a borrower's credit history, which can readily be sourced from credit reference bureaus (CRBs) (Pandey, 2005). Capacity is indicated by a borrower's financial capability to repay the loan and it is measured by the debt-to-income (DTI) ratio.

Empirical Review

Obae (2022) probed the link between credit assessment practices and loan performance. Adopting a descriptive research approach, a census was conducted on commercial banks in the Kenyan market via a questionnaire to gather primary data. Client appraisal was among the predictor variables of the study. It was found that assessing the borrower's character during the client's appraisal had an impact (M = 4.83, SD = 1.12) on loan performance. This study failed to take into account the importance of the borrower's capacity during the client appraisal process. Besides character, the current study considered capacity as a vital variable during appraisal. As such the deficit in knowledge will be bridged.

Chenya (2018) carried out a study to determine the effect of credit analysis on financial performance.

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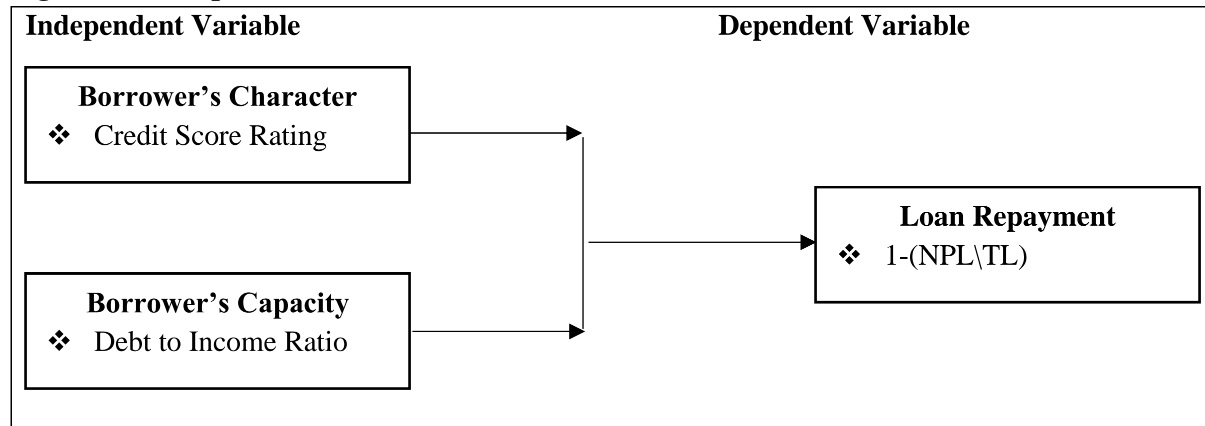
Primary data was sourced from microfinance institutions in Eldoret town via a questionnaire, with 240 respondents being sampled. Credit analysis was operationalised using the 5C's of credit appraisal, while financial performance was measured using Return on Assets (ROA). A positive and significant relationship was found to exist between the variables (t=7.147, P=0.000<0.05). While this study used the 5Cs as a predictor variable for financial performance, the current study focuses on how a borrower's character and capacity affect loan repayment. The current study therefore seeks to address this knowledge gap by using a different dependent variable Njeru (2017) investigated how effectively client appraisal affected loan performance with capacity being one of the study variables. Data was sought from banks operating in Kenya. A descriptive design was preferred by the researcher with primary data being obtained via a questionnaire. Findings indicated that client appraisal had a substantial effect on loan performance among commercial banks. This suggests that borrowers' capacity takes precedence in evaluating their creditworthiness. While DFIs and commercial banks both operate in the lending arena, there is a marked difference in their corporate objectives and philosophies. Commercial banks are largely profit-driven, privately owned enterprises that offer loans at market rates on a commercial basis. In contrast, state-owned DFIs are mandated to improve the socio-economic welfare of communities through business development services and affordable credit. Thus, this study focused on a state-owned DFI whose corporate dynamics are different from those of commercial banks to bridge the knowledge gap.

Muthoni (2020) probed how credit management practices affected loan performance among banks. Empirical evidence was sourced from all 44 banks in Kenya with an explanatory positivist approach being used. Client appraisal was found to have no major impact on loan performance. The study only evaluated internal institution-centred policies that guide lending and debt collection, with client appraisal not being thoroughly interrogated. Specifically, the study only considered the borrower's credit history (character) as the overarching factor to consider when appraising clients. The current focus is on two of the five Cs and their effect on loan repayment

Conceptual Framework

The model shown below depicts variables and their measures that are considered in credit risk assessment. These are the character and capacity of the borrower. Loan repayment is the dependent variable. The implication of this is that when the scores of characters and capacity are high, they will lead to high loan repayment. The reverse is expected if the scores are low.

Figure 1: Conceptual Framework



Source: Researcher (2023)

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METHODOLOGY

A descriptive design guided the study with primary data being obtained through a questionnaire, whose reliability was tested in a pilot study and found to be acceptable with a Cronbach alpha of 0.795. Secondary data was sourced from the financial statements of KIE using a document review guide. A census was conducted on all 28 branches in Kenya. Two respondents from each branch were selected purposively, bringing a total of 56 respondents, of whom 44 responded. This positive response rate of 78 % exceeded the recommended threshold of 50% (Mugenda & Mugenda, 2003). The research instruments were checked before entry to ensure no missing data. The data was coded before being analysed via the Statistical Package For Social Sciences (SPSS v 26). This involved the use of descriptive statistics such as mean and standard deviation. Correlation and regression analysis were conducted to gauge the nature of the relationship between the variables and the influence of the independent variables on the dependent variable. Loan repayment was the dependent variable, while capacity and character were the independent variables. The inferentiality was tested at a 0.05 significance level. Findings were presented in tables and charts.

RESULTS AND DISCUSSION

The researcher sought responses from the selected KIE staff on how borrowers' character affects loan repayment. *Table 1* shows the findings.

Table 1: Descriptive statistics for borrower's character

Statement	N	Mean	SD
KIE conducts background checks on potential borrowers' credit history	44	4.13	0.63
Borrowers who have defaulted in repaying loans from other lenders default in paying their KIE loan	44	4.46	0.69
A borrower's CRB rating determines whether or not they honour future loan repayment terms	44	4.44	0.97
Borrowers with a positive CRB rating adhere to the loan repayment terms	44	4. 01	0.73
Repeat borrowers who have cleared paying past KIE loans on time will repay future loans on time	44	4.08	0.86
Aggregate		4.24	0.72

Respondents affirmed that KIE conducts background checks on potential borrowers' history (M = 4.13, SD = 0.63). A majority of them concurred with the statement that borrowers who had defaulted in repaying loans from other lenders also defaulted in repaying KIE loans (M = 4.46, SD = 0.69). Respondents indicated that a borrower's CRB rating was strongly linked to whether or not they repaid future loans on time (M = 4.44, SD = 0.97). Empirical data suggested that borrowers with positive CRB ratings adhere to the loan repayment terms (M = 4.01, SD = 0.73). Lastly, the KIE staff felt that repeat borrowers who had cleared past KIE loans on time would repay future loans on time (M = 4.08, SD = 0.86).

These findings lend credence to the insinuation that a borrower's character determines whether or not they repay their loans on time (M = 4.24, SD = 074). The findings concur with those of Matanda (2010) who found that borrower's character was the most considered of the 5Cs (M = 4.3856, SD = 0.51733) by banks when appraising applicants. The study findings also confirm those of Chege (2021) who found a strong link between the character of borrowers and loan repayment at Agricultural Finance Corporation (AFC). Findings, however,

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differ with Wanyonyi (2008) who found that capacity supersedes character in assessing borrowers' creditworthiness.

The researcher further sought responses from the selected KIE staff on how borrowers' capacity affects loan repayment. *Table 2* shows the findings

Table 2: Descriptive Statistics for Borrower's Capacity

Statement	N	Mean	SD
Borrowers whose businesses generate sufficient cashflows repay their loans on time	44	3.96	1.74
Borrowers still servicing loans from other financial institutions are more likely to default	44	3.46	0.98
The higher a borrower's net salary, the lower the possibility of default	44	4.08	1.45
The higher the borrowers' projected business revenue, the lower the possibility of default.	44	4. 07	0.89
Borrowers with other proven income sources repay their loans better than those without.	44	4.42	1.74
Aggregate		4.04	1.13

Source: Survey data (2023)

Findings indicated that respondents moderately agreed that borrowers whose businesses generate sufficient cashflows repay their loans on time (*M* = 3.96 *SD* = 1.74). KIE staff were also uncertain whether borrowers still servicing loans from other financial institutions were more likely to default (*M* = 3.46 SD 0.98). Respondents, however agreed that the higher a borrower's net salary, the lower the possibility of default (*M* = 4.08 *SD* = 1.45). Most of the KIE staff felt that the higher a borrower's projected business revenue, the lower the possibility of default. (*M* = 4. 07 *SD* = 0.89). The KIE staff were largely in agreement with the statement that borrowers with other proven income sources repay their loans better than those without (*M* = 4.42 *SD* = 1.74).

Overall, the borrower's capacity was found to affect loan repayment with (*M* = 4.04 *SD* = 1.13). The findings confirm those of Wanyonyi (2008) who found a strong link between borrower's capacity and loan repayment among banks. Results also are in agreement with Aliija (2017) that capacity and loan repayment relate positively.

Test for Autocorrelation

Table 3: Durbin – Watson Autocorrelation Test

Model Summary[b]	
Model	**Durbin-Watson**
1	1.897[a]
a. Predictors: (Constant), Character, Capacity,	
b. Dependent Variable: Loan Repayment	

Source:(Survey Data 2023)

The Durbin-Watson statistical test evaluated the independence of each of the two predictor variables. The said test presumes that errors encountered while running regression equations are due to an autoregressive process of the first order occurring at equal time intervals, with values between 0 to 4. A value of 2 suggests that autocorrelation is absent and is considered ideal. Values ranging from 0 to below 2 imply an autocorrelation which is positive. Values ranging between 2 to 4 indicate an autocorrelation which is negative. Therefore, coefficients from 1.5 to 2.5 indicate the absence of autocorrelation, while those between 2.5 to 4 imply a negative autocorrelation. The test produced a value of 1.897,

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thus indicating the inexistence of autocorrelation within the data.

Regression Analysis

The researcher regressed the predictor variables (character, capacity) against loan repayment to determine their level of association *Table 4* shows the results.

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.851[a]	.7242	.5412	.2046

Predictors: a (Constant) Capital, Capacity,

Source: Survey Data (2023)

A positive link between the two predictor variables and loan repayment was found to exist (R = 0.851). Further, the value of R square was found to be 0.7242, implying that borrowers' character and capacity, collateral, and capacity account for a 72.42% variation in loan repayment. The remaining 28.58 % variation is due to other stochastic variables not included in this study

Analysis of Variance

Analysis of variance (ANOVA) test enabled the researcher to test whether the two independent variables were good predictors for loan repayment. The results are illustrated below

Table 5: Analysis of Variance

	Sum of Squares	Df	Mean Square	F	Sig.
Regression	60.232	3	3.617	40.640	.001[b]
Residual	10.122	44	.089		
Total	70. 354	47			

a: Dependent variable: loan repayment
b: Predictors: (Constant), character, capacity.

Source: Survey Data (2023)

The p-value was used as a measure of the F- statistic to test whether the two variables (character and capacity) had a significant effect on the dependent variable (loan repayment). As shown in Table 4.6, a p-value of 0.001(way below 0.05) was obtained at a 95% confidence level and 0.05 level of significance, indicating that character and capacity were good predictors of loan repayment

Test of Coefficients

The researcher tested the impact of character, capacity, collateral, and capital n loan repayment by regression analysis. The results are herein demonstrated in *Table 5.*

Table 6: Regression Analysis

Coefficients[a]						
Model		Unstandardised Coefficients		Standardised Coefficients	T	Sig
		B	Std. Error	B		
1	(Constant)	.105	.412		1.721	.000
	Character	.451	.027	.392	3.241	.001
	Capacity	.411	.049	.307	2.921	.000

a. Dependent variable: Loan Repayment

Source: Survey Data (2023)

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The regression model thus becomes;

$Y=0.105 + 0.451X_1 + 0.411X_2 + \varepsilon$

Where; P = Loan Repayment, X_1 = Character, X_2 = Capacity, ε = error term, a = constant. $\beta_1 ... \beta_2$= Beta coefficients of independent variables

The implication of the equation above is that loan repayment would be 0.105 if all the other factors were kept constant at zero. However, if the rest of the variables remain unchanged, an increase by one unit of borrowers' character would result in a 0.451 increase in loan repayment. Similarly, increasing the borrower's capacity by one unit leads to a 0.411 increase in loan repayment assuming all the other predictor variables remain the same. It is noteworthy that all the variables had p values not exceeding 0.05, thus rendering the four null hypotheses invalid. This led to the unmistakable inference that the character and capacity of borrowers have a profound effect on loan repayment among DFIs in general and KIE in particular.

CONCLUSION

On the basis of the empirical evidence, the researcher concludes that borrowers' character determines whether or not they repay their loans. Borrowers with positive credit scores are less likely to default. Borrowers with adverse credit score ratings, on the other hand portend a risky niche for KIE as they are more likely to default. It was further concluded that the borrower's capacity to generate sufficient cashflows had a profound positive effect on loan repayment. Generating sufficient cashflows enables borrowers to service their loans, lowering their likelihood of default.

Recommendations

It behoves DFIs to rigorously screen potential borrowers' creditworthiness by relying on current formal credit reports from reputable credit reference bureaus. For first-time borrowers with little or inexistent credit history, DFIs ought to require them to provide guarantors of good standing to prevent default

The researcher recommends that DFIs should require borrowers to provide current and certified business bank statements or mobile money transfer records. This will allow a borrower's capacity to generate cashflows to be ascertained. Borrowers with alternative sources of income like salaries should avail of pay slips. A check-off method of deducting monthly instalments from such borrowers will improve loan repayment. Computing borrowers' projected revenue should be objectively done and all relevant factors should be considered

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