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Non-performing Loans as a Determinant of Financial Performance of Deposit Taking Microfinance Institutions in Nairobi City County, Kenya

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Abstract:
Financial performance of any financial institution is an important measure of its stability and sustainability. This study assesses the effect of non-performing loans on financial performance. The study used theoretical underpinnings to identify the factor and used survey research to determine its effect on Deposit Taking Microfinance Institution (DTMIs) that were registered by the year 2012. Purposive sampling was used to identify the sample from the list the DTMIs registered by Central Bank of Kenya. The study applies both qualitative and quantitative methods of data analysis. A pilot study was first conducted to test the reliability of the research tool, corrections made and then used for the research. The questionnaire was used to collect data from a purposive sample of 60respondents out of which 52 gave responses. Statistical Packages for Social Sciences (SPSS), R-Statistical software and Ms Excelwere used for data analysis and results presented using tables and figures. The results were consisted with the alternative hypothesis of the study.

Keywords: *Non-performing loans, Portfolio at risk, Net non-performing loans*

1. Introduction

A profitable microfinance industry is vital in maintaining a stable micro- banking system. Low profitability weakens the capacity of Deposit Taking Microfinance Institutions to absorb negative shocks, which subsequently affect their solvency. Profitability of MFIs is determined by the way they are run given the environment in which they operate, risk management capabilities, their competitive strategies, quality of their management and levels of capitalization (Laffont & Guessan, 2000). Financial performance of a firm normally originates from the financial position and structure of the firm. This information is derived from the financial statement which is the yard stick to evaluate and monitor performance. Business executives use financial statements to draft a comprehensive financial plan that will maximize share-holders wealth and minimize possible risks that may pre-exist. Financial Statements evaluate the financial position and performance of a firm. These statements are prepared and produced for external stakeholders for example: shareholders, government agencies and lenders (Rahaman, 2010). . This reiterates the importance of studying the financial performance of Deposit Taking Microfinance Institutions. Financial performance measures how well a firm is generating value for the owners.

2. Background

The individual and cumulative financial performance of DTMIs affects the economy of Kenya. Central Bank of Kenya in their annual supervision report, 2013 points out that an increase in net non-performing loans in the banking sector specifically for the microfinance banks, is an indicator of inefficiencies in the system. The DTMIs have undergone transformation in order to improve efficiency. The desire to serve clients better is the motivation for most MFIs transforming from non-regulated microfinance institution to DTMIs which are regulated. This was envisioned as an easier way to mobilize funds, greater outreach and a more efficient way of service delivery. The increase in non-performing loans poses a risk on the DTMIs and the performance of the DTMIs also pose a risk on the economy; there exists a two-way relationship.

2.1. Objectives of the Study

The objective of the study is to determine the effect of non-performing loans on the financial performance of Deposit Taking Microfinance Institutions (DTMIs) in Nairobi City County, Kenya.

2.2. Research Question

How do non-performing loans affect the financial performance of Deposit Taking Microfinance Institutions (DTMIs) in Nairobi City County, Kenya?

2.3. Research Hypothesis

The research has the following null hypothesis

Ho: Non-performing loans do not significantly affect the financial performance of Deposit Taking Microfinance Institutions (DTMIs) in Nairobi City County, Kenya.

3. Theoretical Framework

Non-performing loans can be explained in terms of both the lender and the borrower of funds. They comprise of the loan portfolio, net -non-performing loans and loan to deposits ratio. The overall cost of capital can be captured using, Theory of Internal Controls, information asymmetry and the moral hazard theory.

3.1. Theory of Internal Controls

A system of effective internal control is a critical component of an organization's management and a foundation for its safe and sound operation. A system of strong internal control can help to ensure that the goals and objectives of an organization will be met, that it will achieve long-term targets and maintain reliable financial and managerial reporting. Such a system can also help to ensure that the organization will comply with laws and regulations as well as policies, plans, internal rules and procedures, and reduce the risk of unexpected losses and damage to the organization's reputation (Barnabas,2011).Effective and efficient Internal controls require a lot of resources to implement and maintain. They require intensive monitoring and are highly dependent on the operational environment of the financial institution which is expensive to put in place (Monyi, Namusonge and Sakwa, 2016). High maintenance costs associated with internal controls translate to a high interest rate to cover the costs incurred which result in non-performing loans.

3.2. Information Asymmetry Costs Theory

Literature on asymmetry of information indicates that borrowers have an informational advantage over lenders since borrowers have more information about the investment projects they want to undertake leading to moral hazard and adverse selection (Schnabl and Hoffmann, 2008). Brealey, Leland and Pyle (2012) explains the adverse selection and the classic 'lemon' problem where lenders cannot identify good borrowers from bad borrowers and this leads to higher interest rate that reflects the average quality of the good and bad borrowers. Kumar (2008) points out that in the case where the funds provider is the firm, it will have more information about the firm than new equity holders; thus new equity holders will expect a higher rate of return on their investments, implying that it will cost the firm more to issue fresh equity shares than using internal funds. High information asymmetry therefore translates to a high cost of capital.

3.3. The Moral Hazard Theory

Arko (2012) refers to moral hazard as the risk in which a party to a transaction provides misleading information about its assets, liabilities or credit capacity, or has an incentive to take unusual risks in a desperate attempt to earn a profit before the contract settles. Usually a party to a transaction may not enter into the contract in good faith, thus providing misleading information about its assets, liabilities or credit capacity. It is postulated that, moral hazard problems may be occasioned by asymmetric information which makes it difficult to distinguish between good and bad borrower. It is also noted that moral hazard has led to substantial accumulation of NPLs.

Adewale *et al*. (2010) asserts that NPLs may be caused by less predictable incidents; they indicate that moral hazards resulting from generous government guarantees could lead to loan default. It is arguable that DTMIs with relatively low capital, just like other mainstream financial institutions, may respond to moral hazard incentives by increasing the riskiness of their loan portfolio. The foregoing is bound to result in higher non-performing loans on average in the future. As further reinforced by another study's argument -microfinance banks that tend to take more risks, including in the form of excess lending ultimately incur losses. Still in tandem with moral hazard, higher equity-to-assets ratio results in lower NPLs.

3.4. Effect of Non-performing loans on Financial Performance

International Monetary Fund (IMF, 2009) stipulates that a non-performing loan is any loan in which interest and principal payments are more than 90 days overdue; or more than 90 days' worth of interest has been refinanced. On the other hand the Basel Committee (2001) puts non-performing loans as loans left unpaid for a period of ninety days. Loan is the major asset of most financial institutions from which they generate income. Loan portfolio constitutes the largest operating assets and source of revenue of most financial institutions. The quality of loan portfolio determines the financial performance of firm. The loan portfolio quality has a significant impact on the financial performance of the firm. A review or evaluation assessing the credit risk associated with a particular asset. These assets usually require interest payments such as a loans and investment portfolios. How effective management is in controlling and monitoring credit risk can also have an effect on the what kind of credit rating is given, (Kashyap, *et al.,* 2002).

The Non-Performing Loans are measured using Net-non-performing loans (NNPLs) and Loan-to-Deposit Ratio (LDR) as outlined in the disclosures of the financial institutions. The higher the net non-performing loans, the higher the rate of default, and hence, the lower the financial performance of the DTMI.

3.5. Conceptual Framework

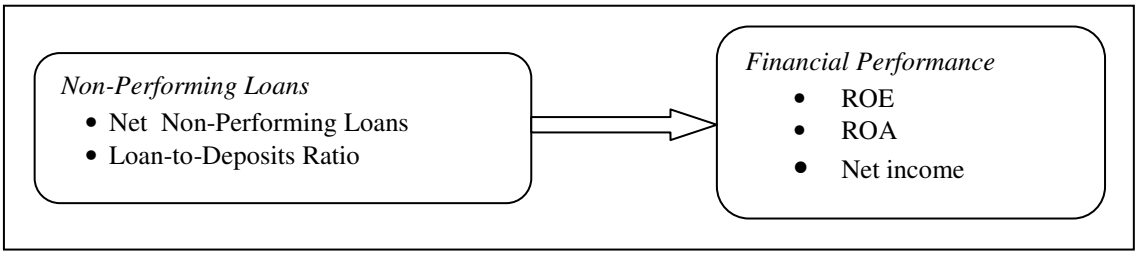

Figure 1: Conceptual Framework

4. Methodology

4.1. Research Design

The study used explanatory descriptive research design with a longitudinal dimension. Explanatory studies look for explanations of the nature of certain relationships where hypothesis testing provides an understanding of the relationships that exist between variables. A descriptive research design helps provide answers to the questions of who, what, when, where, and how associated with a particular research problem. It is a description of the state of affairs as it exists (Orodho & Kombo, 2001). It is used to obtain information concerning the current status of a phenomenon and to describe what exists with respect to variables or conditions in a situation. Sekaran and Bougie, (2011) concurs with Orodho & Kombo (2001) by asserting that descriptive study is undertaken in order to ascertain and be ableto describe the characteristics of the variables of interest in a situation. This approach therefore helped in describing the status of financial performance and its determinants in the DTMIs

4.2. Sample and Sample Size

Out of the population of 71 employees in the relevant category (portfolio managers and officers) in all the 9 DTMIs the researcher arrived at a purposive sample of 60 respondents was drawn from a population of 9 DTMIsas at December 2012. Yumane (1967) suggested that a theoretical sample may be used. Theoretical samples purposively select organizations that exhibit the desired features that focus on the researcher's study.

4.3. Sampling Procedures

Simple random sampling was then used to select proportional samples of respondents comprising of portfolio managers and credit officers from each of the sampled DTMI. Simple random sampling is a probability sampling design in which every element in the population is accorded equal and independent chance of being selected into the sample. This minimizes selection bias hence the sampling error. All the DTMIs have headquarters in Nairobi hence this justified the study's scope.

4.4. Data collection Methods

Primary and secondary data collection methods were used; Primary data was collected using self- administered questionnaire. These facilitated the collection of information based on opinions and ideas. The secondary data was drawn from the CBK annual supervision reports, journals and other publications.

4.5. Pilot Study

A pre-test of the research instrument was done on a small sample of three DTMIs selected using convenience sampling. This was to evaluate the reliability of the research tool. The study was carried out on the DTMIsnot included in the research sample. This facilitated the improvement of the questionnaires and secondary data collection sheet.

4.6. Data Analysis

The primary data yielded a response rate of 86.67% indicating excellent response rate and a Cronbach's alpha of 0.809indicating high reliability of the data collection instruments used. The sample constituted of 61.5% female respondents and 38.5% male respondents. 11.54% of the sampled officers were portfolio managers while 88.46% were credit officers.

4.6.1. Financial Performance

Financial performance was the study's dependent variable. Using a 5-point Likert scale it was found that;

i) Regardless of the changes in the operating environment, the DTMI will still grow in its profits.
ii) DTMIs are not at the verge of closing any of its branches due to financial constraints. As such they are not in any financial crisis that would result to some or all of their branches being closed down.
iii) There are no plans at the DTMIs to increase investment in new technology so as to aid efficient operations and service delivery. This is a major cause for alarm since lack of investment and adaptation to the changes in the dynamic world of technology may lead obsolete and irrelevant methods of service delivery products in the long run.

iv) DTMIs do not always have enough cash flow to finance any of its client's projects. This indicates limitation of cash flow within the DTMIs hence limitation in their ability to meet their immediate customer needs.
v) There is consistent growth in the annual net income of the DTMI. As such, despite the challenges identified previously, the DTMIs have recorded a consistent growth in their annual net income over the years.

4.6.2. Non-Performing Loans (NPLs)

The study hypothesized non-performing loans as a determinant with a significant effect on the financial performance of the DTMIs. It was found that;

i) There exist lending policies at the DTMIs that are geared towards the minimization of NPLs.
ii) Provision for NPLs is actually done at the DTMI branches.
iii) There is a constant contact between the customers and the DTMI personnel that establishes the customer's ability to repay loans. This essentially goes a long way in ensuring that the rates of defaulting hence NPLs are minimized.
iv) Loan repayment adjustments are done according to the terms of agreement between the DTMI and the customer. This is with the aim of making sure that the customer is able to repay the loan without defaulting.
v) There does not exist thorough loan documentation systems in the DTMIs that leave no loophole for exposure to loan defaulting.
vi) The cleanliness of loan collateral is usually scrutinized thoroughly and ascertained in the DTMIs

4.6.3. Secondary Data

Secondary data on the indicators of financial performance and non-performing loans were gathered from the CBK for all the nine sampled DTMIs, through the annual bank supervision reports for years 2013 and 2014.

In the year 2013, the mean net income of the DTMIs stood at Sh. 65.56 Millions, the mean ROE stood at 0.5% and ROA at -1.89%. The skewness values ranged from -1.4 to 1.151 (Std. Error = 0.717) which indicate slight negative/positive skewness.

In the year 2014, the mean net income of the DTMIs stood at Sh. 86.11 Millions, the mean ROE stood at -3.56% and ROA at -1.21%. The skewness values range from -1.424 to 1.300 (Std. Error = 0.717) which indicate slight negative/positive skewness. This skewness is also not significant since the coefficients lie within the range; ± 2 * Std. Error, i.e. [-1.434, 1.434]. As such, the data are approximately normally distributed.

To determine whether the observations of financial performance indicators are dependent on years, and to rule out the possibility of years being a confound in the analysis, a two-way Analysis of variance (Two-Way ANoVA) was conducted at 5% significance level to test the hypotheses;

H_{01}: Variation in years does not affect the financial performance of the DTMIs
H_{02}: Variation in the indicators of financial performance does not affect the financial performance of the DTMIs
H_{03}: There is no statistically significant interaction between years and indicators of the financial performance of the DTMIs

The P-value for "Years" (0.58838) is greater than the significance level of the test (0.05). Also, the computed F-statistic (0.29586) is much less than the critical F-statistic (3.99092). For these reasons, H_{01} fails to be rejected. This implies that variation in years does not affect the financial performance of the DTMIs.

P-value for "Indicators" (0.00112) is less than the significance level (0.05). Also, the computed F-statistic (6.01828) is greater than the critical F-statistic (2.74819). For these reasons, H_{02} is rejected. This implies that variation in the indicators affects the financial performance of the DTMIs.

The P-value for the "Interaction" (0.93120) is greater than the significance level (0.05). Also, the computed F-statistic (0.14706) is less than the significance level (0.05). H_{03} is therefore not rejected, and the interaction between years and the indicators of financial performance is not statistically significant. These results of the two-way ANoVA rule out the possibility of years being a confound variable in the explanation of the variations in the financial performance of the DTMIs.

4.6.4. Model Variables and their Indicators

The study examined three indicators of financial performance of the DTMIs, and two indicators of non-performing loans.

Variable	Financial Performance (Dependent)	Non Performing Loans (Independent)
Indicators	• Net Income • ROE • ROA	• Net non-performing loans • Loan to Deposit Ratio

Table 1: Model variables and indicators

In order to determine the strongest hence the preferred indicator of financial performance of the DTMIs, an explorative correlation analysis was conducted using the Pearson's product moment coefficient of correlation.

		Year 2013			Year 2014		
		Net Income	ROE	ROA	Net Income	ROE	ROA
Net Income	Pearson Correlation	1	.646	.418	1	.536	.397
	Sig. (2-tailed)	.	.060	.263	.	.137	.290
ROE	Pearson Correlation	.646	1	.897(**)	.536	1	.985(**)
	Sig. (2-tailed)	.060	.	.001	.137	.	.000
ROA	Pearson Correlation	.418	.897(**)	1	.397	.985(**)	1
	Sig. (2-tailed)	.263	.001	.	.290	.000	.
	Sig. (2-tailed)	.711	.575	.567	.783	.607	.599
NNPLs	Pearson Correlation	.961(**)	.546	.372	.928(**)	.499	.365
	Sig. (2-tailed)	.000	.128	.325	.000	.171	.334
Loan to Deposit Ratio	Pearson Correlation	.346	.017	.014	-.283	.359	.450
	Sig. (2-tailed)	.361	.965	.972	.461	.343	.224

Table 2: Correlation matrix

The only strong correlation among the proposed indicators of financial performance is that between ROE and ROA (0.897 and 0.985 for 2013 and 2014 respectively). This indicates that ROE and ROA are more or less equal measures of financial performance of the DTMIs, and so they can be used interchangeably. The correlation between each of these and the net income is relatively weak; 0.646 and 0.418 respectively for 2013, and 0.536 and 0.397 respectively for 2014. As such, neither ROE nor ROA can substitute net income as an indicator of financial performance.

It is further observed that the correlations between each of the indicators of non-performing loans and ROE as well as ROA are all weak (less than 0.7). On the other hand, most of the correlations between the indicators of non-performing loans and the net income are relatively strong (greater than 0.7). This implies that net income is best explained by the listed indicators of non-performing loans than the ROE and ROA. Further, it implies that variations in the net income as a measure of financial performance can be explained significantly by the variations in the indicators of non-performing loans. Consequently, net income was selected as the strongest and the preferred measure of financial performance of the DTMIs.

It is also observed that Net-Non-Performing Loans (NNPLs) have the strongest correlation with net income in both years (0.961 and 0.928 respectively). The correlation between loan to deposit ratio and the net income is very weak (0.346 and -0.283 respectively). As such, NNPLs was selected as the measure for non-performing loans.

4.6.5. Regression Results

To determine the functional relationship between financial performance of the DTMIs and non-performing loans, a simple linear regression model was developed for each year and then for the two years. The model structure;

$$FINPERF = \beta_0 + \beta_1 NPL + \varepsilon$$

Where: FINPERF is the financial performance of a DTMI
NPL is the Non-Performing Loans in the DTMI

The regression model for year 2013:

$$FINPERF = -13.53 - 0.696NPL$$

It is observed that in the year 2013, the net income that was not influenced by non-performing loans was Sh. (13.53) Million. Further, net income decreased by Sh. 0.696 Million for every Sh. 1 Million increase in the non-performing loans. The model is associated with R = 0.961 indicating a very strong association between financial performance and non-performing loans. The coefficient of determination, R^2 = 0.924 = 92.4% indicating a very high explanatory power hence an excellent model. The Durbin-Watson statistic was obtained as d = 2.302. This is a value close to 2 (i.e. d ≃ 2) indicating the absence of serial correlation/autocorrelation. The obtained F-statistic = 85.281 is greater than the critical F-statistic obtained from the F-distribution table; $F_{0.05,4,4}$ = 6.3882. Also, the P-value obtained, sig = 0.000 is much less than the significance level, α = 0.05. Therefore the model is statistically significant. The computed t-statistic for non-performing loans (9.235) is greater than the critical t-statistic (2.776) implying that non-performing loans are a significant predictor of the DTMIs' financial performance.

The regression model for year 2014:

$$FINPERF = -31.67 - 0.827NPL$$

In the year 2014, the net income that was not influenced by non-performing loans was Sh. (31.67) Million. In addition, net income decreased by Sh. 0.827 Million for every Sh. 1 Million increase in the non-performing loans. The model is associated with R = 0.928 indicating a very strong association between financial performance and non-performing loans. The coefficient of determination, R^2 = 0.862 = 86.2% indicating a very high explanatory power hence an excellent model. The Durbin-Watson statistic was 2.805 indicating absence of serial correlation/autocorrelation. The obtained F-statistic = 43.653 is greater than the critical F-statistic (6.3882). Also, the P-value obtained, sig = 0.000 is much less than the significance level, α = 0.05. Therefore the model is statistically significant. The

computed t-statistic for non-performing loans (6.607) is greater than the critical t-statistic (2.776) implying that non-performing loans are a significant predictor of the DTMIs' financial performance.

The regression model for years 2013 and 2014 average data:

$$FINPERF = -21.276 - 0.758NPL$$

On the average data, the net income that is not influenced by non-performing loans was Sh. (21.276) Million. Further, net income decreased by Sh. 0.728 Million for every Sh. 1 Million increase in the non-performing loans. The model is associated with R = 0.943 indicating a very strong association between financial performance and non-performing loans. The coefficient of determination, R^2 = 0.89 = 89% indicating an excellent model. The Durbin-Watson statistic was 2.566 indicating absence of serial correlation/autocorrelation. The obtained F-statistic = 56.586 is greater than the critical F-statistic (6.3882). Also, the P-value obtained, sig = 0.000 is much less than the significance level, $\alpha = 0.05$. Therefore the model is statistically significant. The computed t-statistic for non-performing loans (7.522) is greater than the critical t-statistic (2.776) implying that non-performing loans are a significant predictor of the DTMIs' financial performance.

4.7. Discussion

Within the DTMIs, there exist lending policies that are geared towards the minimization of NPLs, although there does not exist a thorough loan documentation systems that leaves no loophole for exposure to loan defaulting. However, loan repayment adjustments are usually done according to the terms of agreement between the DTMIs and the customers, and there is a constant contact between the customers and the DTMI personnel that establishes the customer's ability to repay loans. This is with the aim of making sure that the customers are able to repay their loans without defaulting. Further, the cleanliness of loan collateral is usually scrutinized thoroughly and ascertained in the DTMIs and provision for NPLs is actually done at the branches.

Regression analysis results indicated that NPLs are statistically significant determinants of the financial performance of a DTMI. An increase in the NPLs leads to a significant fall in the financial performance of a DTMI. Consequently, the research hypothesis that NPLs have no significant effect on financial performance of DTMIs in Nairobi City County is rejected.

4.8. Conclusion

Lack of thorough loan documentation systems (that ensure no loophole for exposure to loan defaulting) leads to the increased net non-performing loans, which significantly impact negatively on the financial performance of the DTMIs. Further, there exists a significant inverse relationship between non-performing loans and financial performance of DTMIs. This implies that implementation of the existing policies of managing non-performing loans with the aim of minimizing them can go a long way in lifting the financial performance of the DTMIs.

4.9. Recommendations

From the study findings, it was deduced that DTMIs had effective policies to manage non-performing loans. Further, there exists a significant inverse relationship between non-performing loans and financial performance of DTMIs. The results recommend the management of non-performing loans with the aim of minimizing them can go a long way in lifting the financial performance of the DTMIs. This calls for strong loan systems that can establish the ability of the loanee to repay the loan without defaulting as well as the cleanliness of the collateral used as security.

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