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**The Effect of Leverage on The Asset Quality of Deposit Taking
Microfinance Banks in Kenya**



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The Effect of Leverage on The Asset Quality of Deposit-Taking Microfinance Banks in Kenya

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ABSTRACT

Purpose: This study investigated the effect of leverage on the asset quality of deposit-taking microfinance banks in Kenya.

Methodology: The study central premise was based on the agency, moral hazard and institutional theories. The study's target population was 14 deposit taking microfinance banks in Kenya with each individual bank panel data collected from their audited reports for the years 2019 to 2023. Longitudinal design was the most ideal given the balanced panel data of the banks. Panel data regression was used in determining the causality between the predictor and response variables.

Findings: Correlation results showed that leverage ($r = 0.316$, $p = 0.007$) had a positive correlation with asset quality. Hypotheses results indicated that leverage ($p = 0.027$, $\beta = 1.052$) exerted a positive and significant effect on asset quality.

Unique Contribution to Theory Practice and Policy: The study recommends that banks management should accumulate more leverage up to the optimal leverage position to lower the agency cost between shareholders and stockholders. Through, additional leverage banks can be incentivized to monitor borrowers through debt, since it forces them to exercise control over profitable enterprises to pay off maturing commitments, and thus improve the asset quality.

Keywords: *Leverage, Asset Quality, Deposit-Taking Microfinance Banks*

INTRODUCTION

Banks occupy a central position in the global financial system by mobilizing savings, facilitating credit creation, and supporting economic growth. However, increasing lending activities expose banks to credit risk, particularly when borrowers fail to meet their repayment obligations, resulting in non-performing loans (NPLs) that deteriorate asset quality (Erdas & Ezanoglu, 2022). Among the internal factors influencing asset quality, leverage has attracted considerable attention because it determines the extent to which banks rely on debt relative to equity in financing their operations. While leverage enhances financial intermediation by expanding lending capacity, excessive leverage increases banks' exposure to credit and solvency risks during periods of economic distress (Abdelaziz et al., 2022). Evidence from developed and emerging economies indicates that highly leveraged banks tend to experience higher levels of loan defaults and deterioration in asset quality due to increased risk-taking and weaker loss-absorption capacity (Piffer, 2023). Consequently, understanding the relationship between leverage and asset quality has become an important concern for regulators and banking practitioners seeking to maintain financial system stability.

Across Africa, maintaining sound asset quality remains a significant challenge as banks continue to experience rising non-performing loans despite regulatory reforms aimed at strengthening financial resilience. Although many African banking systems have improved capitalization and prudential supervision, increasing reliance on borrowed funds has heightened leverage-related risks, particularly among smaller financial institutions with limited capital buffers. Studies from countries such as Tunisia, South Africa, and the Middle East and North Africa region suggest that excessive leverage weakens banks' ability to withstand credit shocks, thereby increasing loan defaults and impairing asset quality (Bouslimi et al., 2024; Abdelaziz & Helmi, 2022; Ntabanyane, 2022). Deposit-taking microfinance banks are particularly vulnerable because they primarily serve low-income households and microenterprises whose repayment capacity is highly sensitive to economic fluctuations. These findings underscore the need to examine how leverage influences asset quality within the African microfinance banking context, where institutional characteristics differ considerably from those of conventional commercial banks.

In Kenya, the banking sector remains the primary source of financing for businesses and households, making asset quality a critical determinant of financial sector stability. Recent trends indicate a steady rise in non-performing loans across both commercial banks and deposit-taking microfinance banks, signalling increasing credit risk. According to the Central Bank of Kenya, the non-performing loan ratio for deposit-taking microfinance banks increased from 9.5% in 2019 to 14.5% in 2022, reflecting a substantial deterioration in asset quality (CBK, 2023). During the same period, rising loan defaults contributed to increased impairment provisions and financial losses among several microfinance banks (CBK, 2021). Since leverage influences banks' lending capacity, funding structure, and exposure to credit risk, understanding its effect on asset quality is essential for enhancing the financial soundness and sustainability of Kenya's deposit-taking

microfinance banking sector. This study therefore examines the effect of leverage on the asset quality of deposit-taking microfinance banks in Kenya.

Statement of Problem

Leverage is expected to enhance banks' lending capacity by enabling them to mobilize additional financial resources for credit creation while maintaining acceptable levels of asset quality through prudent risk management. However, excessive reliance on debt financing may expose banks to greater credit risk, resulting in increased non-performing loans (NPLs) and deterioration of asset quality (Piffer, 2023). In Kenya, asset quality among deposit-taking microfinance banks (DTMFBs) has continued to deteriorate, with the NPL ratio increasing from 9.5% in 2019 to 13.4% in 2020, 13.7% in 2021, and 14.5% in 2022 (Kenya Bankers Association, 2023). Similarly, the coverage ratio for loan impairment declined despite rising NPLs, while several DTMFBs, including Rafiki DTM, Milano Financial Services Ltd, SMEP, and Jamii Bora, consistently recorded high portfolio-at-risk levels over the past three years (Mukuru & Thuo, 2023). The deteriorating asset quality has compelled DTMFBs to write off substantial amounts of bad debts, including Ksh. 510 million in non-performing loans in 2022, contributing to declining profitability, with only four of the fourteen licensed DTMFBs reporting profits while the remainder incurred losses ranging from Ksh. 8 million to Ksh. 522 million (Kenya Bankers Association, 2023). Consequently, deteriorating asset quality affects not only the financial sustainability of DTMFBs but also borrowers, depositors, investors, regulators, and micro, small and medium enterprises that rely on these institutions for financial services.

Empirical studies examining determinants of asset quality have produced inconclusive findings and reveal important contextual gaps. For instance, Salas et al. (2024) investigated the determinants of non-performing loans using cross-country data from Europe, Asia, and Africa, limiting the applicability of the findings to the Kenyan context. Munyua (2022), focused on determinants of financial performance rather than asset quality, while Ramírez, Cervantes Zepeda, and Bernal Ponce (2019) examined macroeconomic factors among microfinance institutions that differ from deposit-taking microfinance banks regulated by the Central Bank of Kenya. Furthermore, Kuria, Kiboi, and Macheru (2024) and Kimotho (2023) treated asset quality as an explanatory variable rather than the outcome variable of interest. More importantly, limited empirical evidence has isolated the effect of leverage on the asset quality of Kenyan deposit-taking microfinance banks. This study therefore seeks to fill this gap by examining the effect of leverage on the asset quality of deposit-taking microfinance banks in Kenya.

LITERATURE REVIEW

Theoretical Framework

Agency Theory was advanced by Jensen and Meckling (1976) and it explains the conflicts of interest that arise between managers (agents) and owners or debt holders (principals) due to the separation of ownership and control. The theory posits that managers may pursue personal interests at the expense of shareholders' wealth unless appropriate monitoring mechanisms are in place. One such mechanism is leverage, which disciplines managers by imposing fixed debt obligations and reducing discretionary use of free cash flows. Consequently, debt financing lowers agency costs by encouraging managers to make prudent investment and lending decisions that safeguard the interests of debt holders and shareholders. In the banking sector, Agency Theory suggests that leverage influences asset quality by promoting stronger borrower screening and loan monitoring, thereby ensuring timely repayment of interest and principal. Higher debt commitments compel bank managers to exercise greater discipline in credit risk management, thereby minimizing non-performing loans and improving asset quality (Ang et al., 2000). This theory is therefore relevant to the present study as it explains how leverage can shape the asset quality of deposit-taking microfinance banks in Kenya through its influence on managerial behaviour and credit monitoring practices.

Conceptual Framework

The independent variable leverage was used to drive this study. Asset Quality was the dependent variable.



Figure 1: Conceptual Framework

Empirical Review

In Tehran, Sarhangi (2023) examined the relationship between bank leverage, asset quality, and systematic risk among 10 firms listed on the stock exchange. The study adopted a descriptive research design and utilized secondary data extracted from audited financial reports covering the period 2010–2019. Econometric techniques were employed to analyze the data. The findings indicated that bank leverage had no significant effect on asset quality and exerted minimal influence on the relationship between leverage and systematic risk. However, the study was conducted among listed firms in Iran rather than deposit-taking microfinance banks operating

under Kenya's regulatory environment. Consequently, its findings may not be generalizable to Kenyan DTM banks, necessitating a context-specific investigation.

In Vietnam, Kim, Quoc, and Trung (2022) investigated the effect of debt on asset quality among 35 banks during the COVID-19 period (2010–2020). The study relied on primary data collected through surveys and interviews administered to 50 credit management experts and established that leverage significantly and negatively influenced asset quality through increased non-performing loans. The findings were consistent with Agency Theory and Stakeholder Theory. Nevertheless, the study employed perceptual primary data rather than objective financial statement data and was undertaken during the exceptional circumstances of the COVID-19 pandemic, which may have influenced lending behaviour. The present study addressed this methodological gap by using audited panel financial data from deposit-taking microfinance banks in Kenya.

Alhassan, Andoh, and Kyereboah-Coleman (2019) investigated the determinants of poor asset quality among 25 Ghanaian banks during the period 2005–2010. Using financial distress data, the study found that leverage, loan growth, bank size, market structure, and persistence of non-performing loans significantly contributed to poor asset quality. However, the study examined leverage alongside several institutional and market-level determinants in conventional banks during a financial distress period, making it difficult to isolate the specific effect of leverage on asset quality. Moreover, the findings may not reflect the operational realities of Kenya's deposit-taking microfinance banks.

In Kenya, Mukuru and Thuo (2023) examined the relationship between leverage and non-performing loans among 13 microfinance banks using secondary data obtained from Central Bank of Kenya reports and audited financial statements for the period 2016–2021. Employing a descriptive research design, the study established a positive and significant relationship between leverage and non-performing loans and concluded that reducing debt levels would improve asset quality. However, the study focused on non-performing loans rather than asset quality as the dependent variable and covered only six years of data. The current study extended this work by examining leverage using asset quality as the outcome variable among all licensed deposit-taking microfinance banks over the period 2019–2023.

METHODOLOGY

This research opted for longitudinal research design because of the panel data that was collected. The population was the 14 deposit taking microfinance banks. Instead of sampling the 14 banks, the study selected the entire target population. This is because there were only a small number of microfinance banks (less than 50), making it necessary to use the entire population to attain a higher accuracy. The duration of study ranged from 2019-2023, and data was collected for this period. Secondary data in this context is information on the financial position of DTMs publicly published by its management in audited reports. Diagnostic tests were done to detect departures or

violations of the regression model assumptions. Diagnostic tests were done to detect departures or violations of the regression model assumptions. The panel data regression model was used in the study-combining cross section data and time series where the same unit cross section is recorded at many times.

$$Y_{it} = \beta_0 + \beta_1 X_{1it} + \varepsilon$$

Y = Asset Quality measured as non-performing loans to gross loans

β_0 = Constant term

β = regression coefficient to be estimated

X_1 = Leverage measured as debt to equity

i = Microfinance banks (Cross - section dimension) ranging from 1 to 14

t = Time index: (Years (time - series dimension) ranging from 2019 to 2023).

ε - error

RESULTS

Descriptive Statistics

Table 1 below reports the mean, standard deviation, maximum, minimum, and observation of the data. Descriptive statistics are presented after preparing the data for analysis. A total of 69 observations were used in the analysis.

Table 1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
Leverage	69	0.176918	0.109876	0.023729	0.514852
Asset Quality	69	0.27822	2.685214	-22	0.769231

The above table reveals leverage measured using debt to equity- ranges from 2.3729 % to 5.1485, with a mean of 17.69%. This shows that the MFBs are lowly leveraged and largely rely on customer deposits for funding. The standard deviation of 0.109 is lower than the mean, an indication of low volatility for the variable leverage over time between the MFBs. Institutions at the upper extreme may face heightened financial risk, potentially amplifying exposure to credit losses and affecting asset quality during adverse conditions.

Correlation Analysis

In Table 2, the results of the correlation analysis are presented. The DTM bank's asset quality reported strong positive correlation with leverage ($r = 0.316$, $p = 0.007$).

Table 2: Pearson Correlation Test

		Asset quality	Leverage
Asset quality	Pearson Correlation	1	.316
	Sig. (2-tailed)		.007
Leverage	Pearson Correlation	.316	1
	Sig. (2-tailed)	.007	

Panel Regression Analysis

A panel regression data analysis was done to determine the casual association between the predictor variable and the explanatory variable- asset quality.

Table 3: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.5018 ^a	.2518	.2050	.66699

a. Predictors: (Constant), Leverage

As observed in Table 3, the R square is 0.2518, revealing that 25.18 % of deviations in asset quality occur due to leverage. This implies that other variables that are not part of the study accounted for the remaining 74.82% in asset quality variations.

Table 4: ANOVA with Asset Quality as Dependent Variable

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	9.58188978	4	2.39547244	5.38	.0008 ^b
	Residual	28.4724158	64	.444881498		
	Total	38.0543056	68			

Table 4 shows, an F value of 5.38 and $p < 0.05$, suggesting that the model was adequate (fit) for this study. Therefore, we infer that leverage influenced asset quality of DTM banks.

Table 5: Random Effect Panel Regression Estimates

Asset Quality	Coef.	Std. Err.	t	P> t	95% Confidence Interval	
Leverage	1.0524	0.4613	2.28	0.027	0.1297	1.9752
_cons	9.5338	21.5684	0.44	0.661	-33.7466	52.8141
sigma_u	9.8745					
sigma_e	8.1639					
Rho	0.5943					

The coefficient results in Table 5 show that leverage ($p = .027$, $\beta = 1.052$) influenced asset quality positively, with a significant positive relationship. The model with the coefficients embedded is as follows:

$$\text{Asset Quality} = 9.534 + 1.052 (\text{Leverage})$$

Hypotheses Testing

The null hypothesis H_{01} : leverage has no significant effect on asset quality of deposit taking microfinance. Table 5 outcome reveals p-value of $0.027 < 0.05$, leading to the H_{01} being rejected. Leverage has a positive influence on the asset quality of DTM banks ($B = 1.052$). The association is also significant ($p = 0.027$).

Our findings support the agency theory, which asserts that leverage ratios can be used to lessen conflict in owner-manager relationships (Frierman & Viswanath, 1994), as banks can monitor borrowers through debt. It forces them to exercise control over their profitable enterprises in order to pay off maturing commitments. Banks are able to control NPLs and improve their asset quality.

This study findings parallel, Sarhangi (2023) who established that bank leverage had a positive impact on the asset quality of banks in Teheran. The findings contradict Mukuru and Thuo (2023) who established that reducing microfinance banks' debt ratio would result in fewer nonperforming loans and thus improve the bank's asset quality. Akin to that, Alhassan, et al. (2019) established that leverage contributed to poor asset quality of Ghanaian banks. Further, Kim, Quoc and Trung (2022) study results indicated that leverage had an adverse effect on NPLs and asset quality.

Descriptive analysis was employed to examine leverage and asset quality in order to provide a preliminary assessment of the risk profile of deposit taking microfinance banks prior to inferential analysis. Leverage reflects the extent of debt financing and exposure to financial risk. Descriptive

statistics such as means, ranges, and dispersion measures facilitate understanding of variability in leverage levels across institutions and over time. Additionally, asset quality indicators are often skewed and influenced by institutional and borrower specific factors, making descriptive examination necessary to highlight distributional characteristics and trends. This preliminary analysis also supports data diagnostics by identifying outliers or extreme observations, thereby strengthening interpretation, and informing subsequent econometric modelling.

SUMMARY, CONCLUSIONS AND RECOMMENDATIONS

Summary of Findings

The researcher assessed how leverage is associated with asset quality and the significance of this association if any for DTM banks in Kenya. Results of correlations indicated leverage had a positive link with asset quality. The relationship was also significant. For the regression random effect model, leverage also influenced asset quality positively, signifying that accumulating more debt by DTM banks contributed to an increase in their asset quality by 0.116. This influence was also significant.

Conclusions

The study concluded that leverage contributes to higher asset quality of DTM banks in Kenya. This suggests that MFBs could be incentivized to act more in the interests of debtholders when they possess higher leverage by monitoring borrowers.

Recommendations

Results also indicated that leverage contributed to higher asset quality amongst DTM banks. The study suggests that banks accumulate more leverage up to the optimal leverage position to lower the agency cost between shareholders and stockholders. Through additional leverage MFBs can be incentivized to monitor borrowers through debt, since it forces them to exercise control over profitable enterprises to pay off maturing commitments, and thus improve the asset quality.

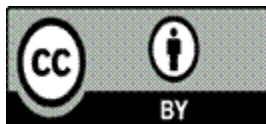
Suggested Area for Further Research

This research focused on leverage and there are other bank factors that can be examined in future; Internal factors such as management competency and cost-efficiency; industry factors such as competition and bank-risk taking; and inflation, GDP and interest rates. These factors can affect the borrowers' ability to repay loans, thus influence asset quality. Thus, future research should consider examining these additional factors. Researchers in the future can also include the non-deposit-taking microfinance bank population which doesn't accumulate deposits but may have a lot to contribute to the alleviation of poverty amongst the vulnerable groups. Moreover, comparative research between DTM banks and non DTM banks may provide a more accurate and verifiable answer to the research question.

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