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REVISITING FUNDING DECISIONS IN MICROFINANCE: THE MEDIATING INFLUENCE OF LOAN GROWTH ON FINANCIAL PERFORMANCE IN KENYA

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Abstract

The study examined the mediating effect of Loan Growth on the nexus between funding strategy and financial performance of Deposit Taking-Microfinance Institutions (DT-MFIs) in Kenya. The Modigliani-Miller Theorem and information asymmetry theory informed the study. Positivist approach and descriptive research design informed the sourcing and analysis of data from 13

DT-MFIs regulated by the Central Bank of Kenya (CBK). Annual panel data was sourced from 2013 to December 2022 as reported in banking supervisory reports by the CBK. Panel Generalised Least Squares (GLS) models were adopted to correct for group heteroskedasticity and cross-sectional dependence. The panel regression analysis showed that the funding strategy had a significant effect on all proxies of financial performance of DT microfinance institutions in Kenya. Loan growth had a strong and inverse mediating effect on the relationship between funding strategy and the financial performance of DT-MFIs in Kenya. The study concluded that funding decisions, as captured by the funding strategy adopted, significantly explained the financial performance of DT-MFIs in Kenya. Further, loan growth diminishes the beneficial impacts of funding strategies on the financial performance of DT- MFIs in Kenya. This implies that although diversified funding frameworks can offer the essential financial capacity for expansion, swift growth in the loan book brings about heightened credit risk, greater loan-loss provisioning, and a possible decline in asset quality, which ultimately leads to reduced profitability and financial stability. Therefore, DT-MFIs are required to strike a balance between their growth aspirations and rigorous credit risk management to ensure that the expansion of loans enhances rather than detracts from performance, thereby emphasising the importance of careful lending practices, effective screening processes, and controlled scaling.

Keywords: Funding Strategy; Loan Growth; Financial Performance; Deposits Funding; Wholesale funding; Equity Funding; Return on Assets; Financial Distress; Z-score

INTRODUCTION

Globally, microfinance has been acknowledged as an effective means for promoting financial inclusion and alleviating poverty. Lapteacru (2019) observed that the recent financial performance of banking institutions is influenced by several critical factors, such as funding strategy, loan growth, credit quality, and firm size. Research indicates that there is a significant relationship between funding strategy and the financial performance of banking institutions, with financial performance being directly related to deposit funding (Erdem & Ozorhon, 2015). Furthermore, studies have suggested an inverse relationship between financial performance and loan growth (Obuya & Olweny, 2017). Deposit Taking–Microfinance Institutions (DT-MFIs) are essential components of Kenya's financial landscape, providing credit and financial services to low-income households and micro-enterprises that commercial banks often overlook. Their capacity to gather deposits, issue loans, and foster enterprise development positions them as vital contributors to financial inclusion and poverty alleviation (Ledgerwood et al., 2013). Nonetheless, their sustainability is largely reliant on the efficacy of their funding strategies and

the performance of their loan portfolios. The funding strategy, which includes a combination of deposits, equity, external borrowing, and retained earnings, affects the institution's cost of capital, liquidity capacity, and risk exposure (Muriu, 2022). Funding strategy for banking institutions is the mix of financing sources necessary to acquire and maintain assets such as loan advances, bonds and bills, properties, and equipment, among other assets (Gariba et al., 2018). In the realm of microfinance, where operational and credit risks are inherently elevated, the configuration and stability of funding sources are crucial in influencing financial performance.

Loan growth is a key operational feature of DT-MFIs, as lending activities represent their main source of revenue. Kashif et al. (2016) defined loan growth as the banks' growth in customer loans, and it acts as an indicator for bank lending behaviour. A swift increase in the loan portfolio can boost interest income and expand market reach; however, it also heightens exposure to credit risk, monitoring expenses, and the likelihood of loan defaults if not paired with robust risk-management practices (Wang et al., 2021). Research indicates that aggressive expansion of the loan portfolio can lead to a decline in asset quality and a reduction in profitability when the capabilities for screening, monitoring, and collection are overstretched (Srairi, 2025). On the other hand, controlled and well-executed loan growth enhances financial performance by stabilising cash flows, minimising loan loss provisions, and bolstering institutional resilience. This dual aspect of loan growth implies that its impact on firm performance is dependent on both internal processes and external funding circumstances. In Kenya, the microfinance sector has seen substantial growth following the implementation of the Microfinance Act of 2006, along with subsequent regulatory reforms by the Central Bank of Kenya (CBK).

Despite the advancements made, DT-MFIs in Kenya continue to record poor financial performance. The financial performance of DT-MFIs, assessed through return on assets, has shown a negative trend in three out of the last four years. In 2023, the DT-MFIs reported a ROA of -4.8%, -1.8% in 2022, -1% in 2021, -3.0% in 2020, and 0.4% in 2019. Additionally, the CBK annual supervisory report indicated that only seven institutions achieved profitability in 2023, while the remaining ten DT-MFIs incurred losses. The downturn in financial performance in 2023 coincided with a 2.7 percent decrease in deposit funding, dropping from Ksh. 46.5 billion in 2022 to Ksh. 43.8 billion in 2023. Furthermore, equity funding fell from Ksh. 8.7 billion in 2022 to Ksh. 6.8 billion in 2023. Loan growth also experienced a decline, decreasing by 9 percent from Ksh. 39.3 billion in 2022 to Ksh. 37.4 billion. Therefore, the subpar performance among DT-MFIs can be partially attributed to these factors. Therefore, there is an ongoing challenge concerning funding costs, credit risk, portfolio quality, and financial sustainability. The reliance of

DT-MFIs on expensive wholesale funding, variable deposit levels, and restricted access to long-term capital complicates the optimisation of funding strategies (CBK, 2023).

Consequently, comprehending how funding choices affect financial performance necessitates a more in-depth investigation into the mechanisms by which these strategies convert into operational results. It is increasingly acknowledged that the connection between funding strategy and financial performance may not be straightforward, but rather mediated by the manner in which institutions utilise funded resources, especially through the expansion of their loan portfolios. A well-designed funding strategy may improve performance only when loan growth is managed, sustainable, and in harmony with risk-management practices. In contrast, misaligned or overly aggressive loan expansion could undermine the advantages of an otherwise effective funding strategy. This theoretical scenario highlights a significant knowledge gap in the Kenyan microfinance literature, where there has been limited empirical focus on mediating pathways. Thus, investigating the mediating role of loan growth in the relationship between funding strategy and the financial performance of DT-MFIs in Kenya was both timely and pertinent. The examination enhanced the understanding of how operational choices influence the efficacy of funding strategies and offer evidence to inform policy reforms, managerial decisions, and regulatory oversight within the microfinance sector.

Study Objectives

a) To examine whether the funding strategy affects the financial performance of Deposit-Taking-microfinance institutions in Kenya.
b) To establish whether loan growth mediates the nexus between funding strategy and the financial performance of DT- microfinance institutions in Kenya.

Study Hypotheses

H_{O1}: Funding strategy does not affect the financial performance of Deposit-Taking-microfinance institutions in Kenya.

Ho_{1a}: Funding strategy has no significant effect on the ROA of DT-MFIs in Kenya.

Ho_{1b}: Funding strategy has no significant effect on the Z-score of DT-MFIs in Kenya

H_{O2}: Loan growth does not mediate the nexus between funding strategy and the financial performance of DT- microfinance institutions in Kenya.

Ho_{2a}: Loan growth has no significant mediating effect on the relationship between funding strategy and ROA of DT-MFIs in Kenya

Ho_{2b}: Loan growth has no significant mediating effect on the relationship between funding strategy and the z-score of DT-MFIs in Kenya.

LITERATURE REVIEW

Theoretical Framework

The Modigliani–Miller (MM) theory provides a valuable framework for analysing the connection between funding strategies, loan growth, and the financial performance of Deposit-Taking Microfinance Institutions (DT-MFIs) in Kenya. According to the foundational MM propositions, a firm's value and financial performance remain unaffected by its financing decisions in a scenario of perfect capital markets. In this ideal environment characterised by the lack of taxes, bankruptcy costs, information asymmetry, and transaction frictions, funding strategies would not significantly impact outcomes such as return on assets, return on equity, loan-loss provisioning, or institutional solvency. Rather, it is operational efficiency and investment performance that would solely dictate firm outcomes (Modigliani & Miller, 1958). Nevertheless, the operational context of DT-MFIs significantly contrasts with the frictionless environment posited by MM. Microfinance institutions in Kenya operate within a landscape characterised by substantial information asymmetry between lenders and borrowers, regulatory limitations set by the Central Bank of Kenya, considerable credit risk, and notable costs related to loan delinquency and financial distress. These elements create a scenario where financing decisions do affect financial performance, contradicting the MM irrelevance proposition. In practice, a funding strategy equips DT-MFIs with the necessary resources to expand their loan portfolios. However, while MM theory posits that the composition or cost of these funds should not affect performance, empirical evidence suggests otherwise. Rapid loan growth, driven by specific funding mixes, can overwhelm screening and monitoring systems, exacerbate information gaps, and heighten exposure to default risk. Consequently, this increases loan-loss provisioning and undermines key performance indicators, such as solvency as indicated by the Z-score. Thus, loan growth serves as the operational conduit through which funding decisions impact financial outcomes.

Further, the theory of information asymmetry offers a significant conceptual framework for comprehending the mediating function of loan growth in the connection between funding strategy and the financial performance of Deposit-Taking Microfinance Institutions (DT-MFIs) in Kenya. Central to this theory is the premise that financial markets are marked by unequal access to information among lenders and borrowers, as well as between financial institutions and their external financiers. This asymmetry influences both the cost and structure of financing, as well as the quality of lending decisions, thereby affecting institutional performance (Akerlof, 1970; Stiglitz & Weiss, 1981). Within the realm of DT-MFIs, the funding strategy dictates the sources and composition of capital, such as deposits, commercial loans, equity injections, or donor credit lines needed by MFIs institution. Information asymmetry plays a role in how these

various funding sources are valued and allocated. For example, external lenders frequently view microfinance institutions as high-risk due to a lack of transparency, inadequate disclosures, and the perceived instability of low-income markets. As a result, DT-MFIs that exhibit greater information opacity may encounter elevated funding costs or limited access to long-term capital, which hinders their capacity to sustainably grow loan portfolios (Conning & Morduch, 2011). Conversely, institutions that exhibit stronger governance, enhanced reporting, and improved credit-risk management can bridge information gaps and obtain more advantageous funding arrangements. Therefore, information asymmetry indirectly influences funding strategy and the circumstances under which loan growth takes place.

Empirical Literature

The connection between funding strategy and financial performance has consistently garnered academic interest (Agu & Nwankwo, 2019; Anachoni & Jagongo, 2020; Ofori-Sasu et al., 2019; Tchuigoua et al., 2017). Funding strategy is frequently defined through deposit funding, wholesale funding, and equity financing, with empirical evidence indicating complex effects on performance. Deposit funding typically has a positive effect on essential performance metrics such as return on assets (ROA) and return on equity (ROE) (Anachoni & Jagongo, 2020), while wholesale funding may adversely affect performance due to increased financing costs or short-term commitments (Shibutse et al., 2019). Equity financing is generally linked to improved financial performance, although some research indicates a negligible effect, underscoring context-dependent differences (Agu & Nwankwo, 2019). Numerous studies have investigated these associations across various financial institutions and settings. For example, Anachoni and Jagongo analysed annual data from 2012 to 2018 and discovered that deposits, funding, and liquidity had a significant impact on ROA (Anachoni & Jagongo, 2020). Tchuigoua et al. studied 173 MFIs and found that subsidised MFIs attained higher ROA, whereas borrowing-based MFIs demonstrated greater self-sufficiency (Tchuigoua et al., 2017). Nonetheless, both studies faced limitations in their analytical methods, such as ANOVA for Tchuigoua et al., and a relatively brief time frame for Anachoni and Jagongo (2020), which restricted the capacity to assess the magnitude and directional influence of funding strategy on financial performance (Tchuigoua et al., 2017). Likewise, research conducted in Nigeria and Kenya (Agu & Nwankwo, 2019; Ofori-Sasu et al., 2019; Shibutse et al., 2019) suggests that funding sources impact performance, yet methodological constraints such as the application of OLS or univariate analyses, limited sample sizes, and a narrow scope of performance indicators (e.g., technical efficiency or net interest income) reduce the generalizability of their findings.

The function of loan growth as a mediating element has been investigated, although the evidence remains inconclusive. Loan growth, typically quantified as a percentage change in loans and advances, can improve financial performance by boosting interest income and expanding market reach (Antwi, 2019; Dang, 2019). Nevertheless, uncontrolled or excessive loan growth has been linked to higher loan-loss provisions, reduced ROA, and worsening bank solvency (Fahlenbrach et al., 2018; Foos et al., 2010; Soedarmono et al., 2017). In Kenya, Obuya and Olweny discovered that the size and quality of the loan portfolio influence loan losses, but the impact of loan growth was minimal, likely due to methodological limitations such as OLS estimation, which may not sufficiently address panel heterogeneity (Obuya & Olweny, 2017). Additional research in Vietnam, Armenia, and Ghana indicates that the timing of loan defaults and macroeconomic factors can influence the relationship between loan growth and financial performance (Antwi, 2019; Dang, 2019; Pakhchanyan & Sahakyan, 2014).

Despite these findings, several gaps remain in the literature. Firstly, numerous studies have concentrated solely on profitability metrics such as ROA and ROE, while overlooking alternative measures of financial performance like loan-loss provisions or bank stability (Obuya & Olweny, 2017; Soedarmono et al., 2017). Secondly, previous research frequently utilises short time frames or limited sample sizes, which may not adequately capture structural changes or the long-term impacts of funding strategies and loan growth. Thirdly, there is a scarcity of empirical evidence investigating loan growth as a mediating factor between funding strategies and financial performance, particularly in the context of DT-MFIs in Kenya, which function under distinct regulatory, market, and operational circumstances. Lastly, most studies fail to break down funding strategies into their individual components, such as deposit funding, wholesale funding, and equity funding, while evaluating their effects on performance, leaving the differential effects of each source largely unexplored.

This research addresses existing gaps by exploring the mediating influence of loan growth on the connection between funding strategy and the financial performance of DT-MFIs in Kenya. By integrating various indicators of financial performance, including ROA and the Z-score, the research encompasses both profitability and institutional stability. Additionally, by investigating the mediating function of loan growth, the study sheds light on the operational processes through which funding strategy impacts financial results. The emphasis on DT-MFIs in Kenya offers context-specific insights to the existing literature, acknowledging the distinct challenges associated with managing credit risk, information asymmetry, and regulatory compliance within a rapidly changing microfinance landscape. This methodology provides both theoretical and practical contributions, presenting evidence to guide funding and growth strategies that enhance performance and sustainability in Kenyan DT-MFIs.

Conceptual Framework

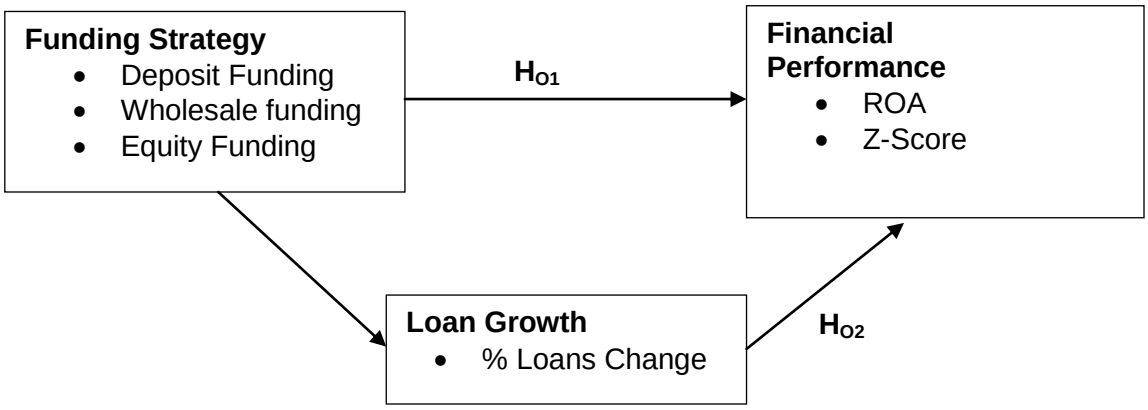

Figure 1: Conceptual Framework

The conceptual framework (Figure 1) established for this research aims to investigate how funding strategies impact the financial performance of Deposit-Taking Microfinance Institutions (DT-MFIs) in Kenya, with loan growth acting as a mediating variable.

This framework combines both theoretical and empirical perspectives to offer a thorough understanding of how financial resources are converted into institutional outcomes. Funding strategy, which serves as the independent variable in this research, pertains to the composition and sources of funds that DT-MFIs employ to support their lending and operational functions. It is assessed through three primary dimensions: deposit funding, wholesale funding, and equity funding. Each of these funding sources carries unique implications for institutional performance, influencing both profitability and risk exposure. Loan growth is identified as a mediating variable within this framework, as the mere availability and structure of funding do not entirely dictate financial performance. Loan growth, quantified as the percentage change in total loans over a specified period, reflects the degree to which the institution can broaden its lending portfolio. The mediation hypothesis is based on the premise that funding strategy impacts the institution's lending capacity, which subsequently influences critical performance metrics. Effectively managed loan growth can bolster profitability and institutional stability by augmenting interest income and enhancing operational scale. In contrast, swift or mismanaged loan growth may heighten credit risk, escalate loan-loss provisions, and jeopardise financial stability.

Financial performance, regarded as the dependent variable, is defined as a multidimensional construct that includes both profitability and institutional soundness. It is

evaluated through return on assets (ROA) and the Z-score, which collectively offer a comprehensive evaluation of the MFI's operational efficiency, risk management, and resilience against financial distress. ROA measures profitability in relation to assets. The Z-score acts as an indicator of overall institutional stability and the probability of insolvency. The framework posits both direct and indirect connections between funding strategy and financial performance. Directly, various funding sources are anticipated to affect performance outcomes based on their cost, availability, and risk attributes. Indirectly, it is expected that loan growth will mediate this relationship by converting funding capacity into operational results, thereby influencing profitability, asset quality, and financial stability. Funding strategies that promote controlled and sustainable loan growth are likely to improve financial performance, while those that foster excessive or unbalanced growth may lead to adverse effects.

METHODOLOGY

The research utilised a positivist philosophy, which posits that variables can be measured objectively, independent of the researcher, thus facilitating hypothesis testing through empirical data (Saunders et al., 2009). This methodology was suitable as the study variables (funding strategy, loan growth, asset quality, firm size, and financial performance) were quantifiable using secondary data. A descriptive research design was employed to analyse ex-post facto data, which is fitting when the researcher lacks control over the variables but aims to investigate causal relationships (Kothari, 2004).

The target population consisted of all 13 Deposit-Taking Microfinance Institutions (DT-MFIs) regulated by the Central Bank of Kenya that operated from 2013 to 2022. Given the limited population size, a census approach was implemented, sampling all 13 institutions to eliminate sampling error and ensure thorough coverage (Kothari, 2004). Purposive sampling was utilised to gather pertinent data from audited financial reports essential for calculating the proxies of the study variables.

Data collection involved the extraction of annual financial data regarding funding strategy (deposits, equity, borrowings), loan growth (total loans advanced), total assets, and financial performance (net profit before tax, and Z-score) from CBK supervisory reports covering the period from 2013 to 2022. Panel data was compiled to track the behaviour of each DT-MFI over time, enabling both cross-sectional and temporal analysis (Ongore & Kusa, 2013). The study variables were operationalised as presented in the Table 1.

Table 1: Operationalisation of study variables

Variable	Sub variable and Notation	Measurement	Type of Variable
Financial Performance (Dependent Variable)	Return on Assets (ROA)	Net income before tax ÷ Total assets	Continuous
	Z-Score (Z)	(ROA + Equity/Total Assets) ÷ Standard deviation of ROA	Continuous
Funding Strategy (Independent Variable)	Deposit Funding (Dfund)	Total deposits ÷ Total assets	Continuous
	Wholesale Funding (Wfund)	Total borrowings from banks/other institutions ÷ Total assets	Continuous
	Equity Funding (Efund)	Shareholders' equity ÷ Total assets	Continuous
Loan Growth (Mediating Variable)	Percentage Loan Change (LG)	((Loans at t – Loans at t-1) ÷ Loans at t-1) × 100	Continuous

The process of data analysis included the calculation of variable proxies in Excel, which was subsequently exported to E-Views 10 for additional analysis. Descriptive statistics such as mean, standard deviation, minimum, maximum, skewness, and kurtosis were produced to provide a summary of the data. Diagnostic assessments, including the Hausman test, were performed to identify the suitable estimation model, selecting from fixed effects, random effects, or generalised least squares models. The diagnostic tests showed that the regression models suffered from group heteroskedasticity and cross-sectional dependence. Therefore, the study specifically adopted the Panel Generalised Least Squares (GLS) regression model that corrects for Heteroskedasticity and cross-sectional dependence observed in the models. Panel GLS should be used when panel data exhibit heteroskedasticity, serial correlation, and/or cross-sectional dependence (Hansen, 2022).

Following this, inferential analysis was conducted to evaluate hypotheses, with results displayed through tables, graphs, and explanatory narratives. This approach facilitated a thorough empirical investigation of the mediating role of loan growth in the relationship between funding strategy and the financial performance of DT-MFIs in Kenya. The study was based on the regression model presented in the Table 2.

Table 2: Regression Models

Sub Hypotheses	Analysis Model	Decision Rule
H_{1a}: Funding strategy has no significant effect on the ROA of DT-MFIs in Kenya.	$ROA_{it} = \beta_0 + \beta_1 Dfund_{it} + \beta_2 Wfund_{it} + \beta_3 Efund + \varepsilon_{it}$ .....(1)	For equations [1-2], if p-values associated with the F test are < 0.05 Reject the Null hypotheses
H_{1b}: Funding strategy has no significant effect on the Z-score of DT-MFIs in Kenya	$Z_{it} = \beta_0 + \beta_1 Dfund_{it} + \beta_2 Wfund_{it} + \beta_3 Efund + \varepsilon_{it}$.....(2) Where ROA and Z-score are Financial Performance proxies Dfund, Wfund and Efund are the funding strategy proxies i= cross-sectional units= 1, 2, 3…....175 t= Current time **ε** = Composite error term β_0= Intercept term βi= coefficients of explanatory variables	
H_{2a}: Loan growth has no significant mediating effect on the relationship between funding strategy and ROA of DT-MFIs in Kenya	$LG_{it} = \beta_0 + \beta_1 Dfund_{it} + \beta_2 Wfund_{it} + \beta_3 Efund + \varepsilon_{it}$…….....(3)	For equation 3, p-values associated with the F test should be < 0.05
	$ROA_{it} = \beta_0 + \beta_1 LG_{it} + \varepsilon_{it}$ .....(4)	For equations [4- 5], p-values of β_1 should be < 0.05
H_{2b}: Loan growth has no significant mediating effect on the relationship between funding strategy and the z-score of DT-MFIs in Kenya.	$Z_{it} = \beta_0 + \beta_1 LG_{it} + \varepsilon_{it}$ .....(5)	
	$ROA_{it} = \beta_0 + \beta_1 Dfund_{it} + \beta_2 Wfund_{it} + \beta_3 Efund + \beta_4 LG_{it} + \varepsilon_{it}$ ……..(6)	If the first two conditions hold, and p-values of β_4 in equations [6-7] are < 0.05, then there is some form of mediation and Null hypothesis two is rejected
	$Z_{it} = \beta_0 + \beta_1 Dfund_{it} + \beta_2 Wfund_{it} + \beta_3 Efund + \beta_4 LG_{it} + \varepsilon_{it}$ .....(7) Where LG = Loan growth (Mediating variable) β_{is} = coefficients of explanatory variables	

RESULTS

Diagnostic Tests

The research adopted the Variance Inflation Factor (VIF) to examine the presence of multicollinearity. All explanatory variables, including Deposit Funding (DFUND), Wholesale Funding (WFUND), Equity Funding (EFUND) and Loan Growth (LG), exhibit VIF values significantly below the generally accepted threshold of 10, and also well under the more stringent threshold of 5 recommended for high-quality econometric analysis (Gujarati & Porter, 2009). The average VIF of 2.780 further substantiates the absence of multicollinearity issues. Consequently, the VIF findings suggest that the regression model is statistically sound, coefficients can be interpreted with confidence, and there is no indication of detrimental multicollinearity that would undermine hypothesis testing or distort the estimated relationships between funding strategy, loan growth, and the financial performance of DT-MFIs in Kenya.

The results of the Levin, Lin and Chu (LLC) unit root tests provide important insights into the time-series properties of the variables used in the study. The results showed that all variables in the study exhibited stationarity ($p<0.05$). Therefore, the LLC test results confirm that the study variables meet the stationarity requirement for panel data analysis, supporting their suitability for econometric modelling. The study undertook a JB test on each regression model based on each proxy of financial performance, and all explanatory variables were included in each of the two models. The regression models showed that the residuals were not normally distributed, as given by p-values lower than the 0.05 level of significance: ROA ($p=0.000$), Z-score ($p=0.000$). Hence, it was evident that the models suffered from non-normality of the residuals. The study thus needed to transform the non-normal variables before they could be used later in regression. After the variables' log transformation, the JB test was undertaken on each model. The transformations based on the zero-skewness log transformation had resulted in normal regression residuals, hence the OLS assumption of normality of residuals was not violated.

Further, the study adopted the Likelihood Ratio (LR) Test to examine the presence of group heteroscedasticity. The findings showed that all the models suffered from the presence of group heteroscedasticity as evidenced by p-values lower than the 0.05 level of significance: ROA ($p=0.000$), Z-score ($p=0.000$). Additionally, the testing for cross-sectional dependence was determined based on residual-based tests [Breusch-Pagan LM test and Pesaran scaled LM]. The results showed that the ROA model suffered from cross-

sectional dependence as given by p-values lower than the 0.05 level of significance (p=0.008). However, Z-Score models did not suffer from cross-sectional dependence as depicted by p-values greater than the 0.05 level of significance (p=0.6070). The Arellano-Bond Serial Correlation Test was adopted to evaluate the presence of autocorrelation. The findings showed that all four models did not show the presence of serial correlations as evidenced by p-values higher than the 0.05 level of significance under AR(1) and AR(2) (ROA, p=0.877, p=0.968; Z-Score, p=0.943, p=0.932. However, given that the models either suffered from heteroskedasticity or cross-sectional dependence, the study adopted the Generalised Least Squares (GLS) model.

Hypotheses Tests

The effect of funding strategy and Loan Growth on the financial performance of the deposit-taking microfinance institutions in Kenya was examined based on the multiple regression models. The study specifically adopted the Panel Generalised Least Squares (GLS) regression model that corrects for Heteroskedasticity observed in the models.

Effect of Funding strategy on Financial Performance of deposit-taking microfinance institutions in Kenya

The first hypothesis (H_{O1}) was that the funding strategy has no significant effect on the financial performance of deposit-taking Microfinance Institutions in Kenya. The null sub-hypothesis under hypothesis one included: $\mathbf{H_{O1a}}$: Funding strategy has no significant effect on the return on assets of deposit-taking microfinance institutions in Kenya. $\mathbf{H_{O1b}}$: Funding strategy has no significant effect on the Z-score of deposit-taking microfinance institutions in Kenya.

The sub null hypotheses would be rejected if the p-values associated with the F test in the multiple regression models are less than 0.05; otherwise, the study would fail to reject the sub null hypotheses. The effect of funding strategy on the financial performance of DT-MFIs in Kenya was examined based on multiple Panel Generalised Least Squares (GLS) regression, where funding strategy was captured by three proxies: deposit funding, wholesale funding and equity funding. Further, the financial performance of DT MFIs was measured based on two proxies, including Return on Assets and Z-Score. Thus, the two financial performance indicators were regressed against deposit funding proxies, with results presented in the Table 3.

Table 3: Effect of Funding Strategy on Financial Performance

Variable	ROA	Z-Score
DFUND	-9.666*	-0.097
	(0.509)	(0.201)
WFUND	-2.058**	-0.011
	(0.622)	(0.181)
EFUND	-0.458	0.134
	(0.308)	(0.108)
C	-2.275***	2.989***
	(0.212)	(0.063)
R^2	0.118	0.217
F-statistic	3.836	7.968
Prob(F-statistic)	0.012	0.000
Observations	90	90
Panels	9	9

Standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Note: Deposit Funding (DFUND), Wholesale funding (WFUND), Equity Funding (EFUND), Return on assets (ROA)

Sub-Hypothesis (H_{O1a}) *Test:* The findings in Table 3 showed that the model (funding strategy) explained 11.8% variation in return on assets of DT MFIs in Kenya (R-squared = 0.118). The residual variation being captured by unobserved variables explained the remaining (88.2%) variation in return on assets. The results further showed that funding strategy (deposit funding, wholesale funding and equity funding) had a significant effect on return on assets of DT MFIs, given that the probability value based on the F-statistic was less than 0.05 (p=0.012). The null sub-hypothesis one (**H_{O1a}**) that *Funding strategy has no significant effect on return on assets of deposit-taking microfinance institutions in Kenya* was rejected, with the study concluding that indeed, funding strategy strongly explained return on assets of DT MFIs in Kenya.

The regression coefficients showed that deposit funding on return on assets was inverse and not significant (β_1= -0.966, p>0.05). The values of the coefficient of deposit funding imply that increasing deposit funding by one unit results in a reduction of ROA by 0.96 units. The effect of wholesale funding on the return on assets of DT MFIs was inverse and significant (β_2 =-2.058, p<0.05). Thus, increasing wholesale funding by one unit resulted in declining ROA by 2.0 units. Finally, the effect of equity funding on return on assets of DT MFIs was negative and not significant (β_3 =-0.458, p>0.1412). Therefore, increasing equity funding by one unit resulted in a

decline in ROA of 0.458 units. The intercept term β_0 captured the return on assets when funding based on deposits, short-term borrowing and shareholders' equity is zero. The regression model in equation 1 was thus estimated as:

$$\mathbf{ROA_{it} = -2.275933 -0.966316\ Dfund_{it} -2.058597\ Wfund_{it} -0.458800\ Efund_{it} + \varepsilon \ldots\ldots\ldots (1)}$$

Sub-Hypothesis (H_{O1d}) Test: The findings depicted in Table 3 showed that the model explained 21.7% variation in the Z-score of DT MFIs in Kenya (R-squared = 0.217505). The residual variation being captured by unobserved variables explained the remaining (79.3%) variation in Z-Score. The results further showed that the funding strategy had a significant effect on the Z-score of DT MFIs, given that the probability based on the f-statistic was less than 0.05 (p=0.000). The null sub-hypothesis one ($\mathbf{H_{O1d}}$) that *funding strategy has no significant effect on Z-Score of deposit-taking microfinance institutions in Kenya* was rejected, with the study concluding that funding strategy strongly explained Z-Score of DT MFIs in Kenya.

The regression coefficients revealed that the effect of deposit funding on Z-Score was inverse and not significant (β_1= -0.097, p>0,05). Therefore, a unitary increase in deposit funding led to 0.09 unit decline in Z-score. The effect of wholesale funding on Z-Score was inverse and not significant (β_2 = -0.011, p>0.05). Further, one unit increase in wholesale funding led to 0.011 unit decline in the Z-score of DT-MFIs. Finally, the effect of equity funding on Z-Score was direct and not significant (β_3 = 0.134, p>0.05). Hence, a unitary increase in equity finding resulted in 0.13 unit increase in Z-Score. The intercept term β_0 captured the Z-score when funding based on deposits, short-term borrowing and shareholders' equity is zero. The regression model in Equation 4 was thus estimated as:

$$\mathbf{Z_{it} = 2.989804 -0.097407\ Dfund_{it} -0.011857 Wfund_{it} + 0.134918\ Efund_{it} + \varepsilon \ldots\ldots\ldots\ldots (2)}$$

Mediating Effect of Loan Growth on Funding Strategy and Financial Performance

The second hypothesis ($\mathbf{H_{O2}}$) was that loan growth has no significant mediating effect on the relationship between funding strategy and the financial performance of deposit-taking microfinance institutions in Kenya. The null sub-hypothesis under hypothesis two included:$\mathbf{H_{O2a}}$: Loan growth has no significant mediating effect on the relationship between funding strategy and return on assets of deposit-taking microfinance institutions in Kenya. $\mathbf{H_{O2}}$: Loan growth has no significant mediating effect on the relationship between funding strategy and Z-score of deposit-taking microfinance institutions in Kenya. The null sub hypotheses two were examined based on 4 steps mediation suggested by Baron and Kenny (1986). In the first step of mediation, p-values associated with the F test (in regression models 1-2) should be less than 0.05. In the second step of mediation, p-values associated with the F test (in regression model 3) should be less than 0.05. In the third step of mediation, p-values of β_1 (in regression models

4- 7) should be less than 0.05. In the fourth step of mediation, p-values of β_4 in regression models 10-13 are less than 0.05, then there are some forms of mediation and the sub-null hypotheses two are rejected. The findings for the four-step mediation process are presented in Tables [4- 5].

Table 4: Mediating effect of Loan growth on the relationship between funding strategy and return on assets of DT-MFIs in Kenya

Variable	ROA	LG	ROA	ROA
DFUND	-9.666*	0.675***	-	-1.169
	(0.509)	(0.150)	-	(0.489)
WFUND	-2.058**	0.203	-	-2.098
	(0.622)	(0.237)	-	(0.592)
EFUND	-0.458	0.525***	-	-0.665
	(0.308)	(0.089)	-	(0.503)
LG	-	-	-0.580***	-0.663
	-	-	(0.113)	(0.111)
C	-2.275***	0.265***	-2.922***	-1.862
	(0.212)	(0.071)	(0.057)	(0.424)
R^2	0.118	0.412	0.229948	0.393
F-statistic	3.836	20.150	26.27806	13.758
Prob(F-statistic)	0.012	0.000	0.000	0.000
Observations	90	90	90	90
Panels	9	9	9	9

Standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Note: Deposit Funding (DFUND), Wholesale funding (WFUND), Equity Funding (EFUND), Loan growth (LG), Return on assets (ROA).

First Step of Mediation (H_{O2a}*):* In the first step of mediating the effect of loan growth on the relationship between funding strategy and return on assets of deposit-taking microfinance institutions in Kenya, the study examined the effect of funding strategy on return on assets. The finding presented in Table 4 showed that the funding strategy had a significant effect on return on assets of DT MFIs, given that the probability based on the F-statistic was less than 0.05 (p=0.012). The first condition for rejection of the null sub-hypothesis ($\mathbf{H_{O2a}}$) was satisfied.

Second Step of Mediation (H_{O2a}*):* In the second step of mediating the effect of loan growth on the relationship between funding strategy and return on assets of deposit-taking microfinance institutions in Kenya, the study adopted the GLS regression model to examine the

effect of funding strategy on loan growth. The findings presented in Table 4 showed that the funding strategy explained 41.2% variation in the loan growth of DT MFIs in Kenya (R-squared = 0.412). The residual variation being captured by unobserved variables explained the remaining (58.8%) variation in loan growth. Further, the finding showed that the funding strategy had a significant effect on the loan growth (mediating variable) of DT MFIs (p=0.000). The second condition for rejection of the null sub-hypothesis (**H_{O2a}**) two was satisfied.

Further, the regression coefficients showed that the effect of deposit funding on loan growth was direct and significant (β_1= 0.675, p<0.05). The coefficient of deposit funding showed that increasing deposit funding by one unit resulted in 0.67 unit increase in loan growth. The effect of wholesale funding on loan growth was positive but not significant (β_2 = 0.203, p>0.05). Therefore, a unitary change in wholesale funding resulted in 0.2 unit change in loan growth. Finally, the effect of equity funding on loan growth was direct and significant (β_3 = 0.525, p<0.05). Hence, one unit increase in equity funding led to 0.52 unit increase in loan growth. The intercept term β_0 captured the loan growth when funding based on deposits, short-term borrowing and shareholders' equity is zero. The regression model in Equation 5 was thus estimated as:

LG_{it} = -0.265 + 0.675 $Dfund_{it}$ + 0.203 $Wfund_{it}$ + 0.525 $Efund_{it}$+ε……..…….……...(3)

Third Step of Mediation (H_{O2a}): In the third step of mediating the effect of loan growth on the relationship between funding strategy and return on assets of deposit-taking microfinance institutions in Kenya, the study examined the effect of loan growth on return on assets. The findings presented in Table 5.3 showed that the model explained 22.9% variation in ROA of DT MFIs in Kenya (R-squared = 0.229). The residual variation being captured by unobserved variables explained the remaining (77.0%) variation in ROA. The finding also showed that loan growth had a significant effect on return on assets of DT MFIs, given that the probability based on the f-statistic was less than 0.05 (p=0.0000). The third condition for rejection of the null sub-hypothesis (**H_{O2a}**) two was satisfied.

Further, the regression coefficients examined the effect of loan growth on return on assets. The effect of loan growth on return on assets was inverse and significant (β_1= -0.580684, t= -5.126, p= 0.000). Therefore, one unit increase in loan growth resulted to 0.58 unit decline in ROA. The intercept term β_0 captured the return on assets when loan growth is zero. The regression model in Equation 4 was thus estimated as:

ROA_{it} = -2.922 -0.580 LG_{it}+ε.....(4)

Fourth Step of Mediation (H_{O2a}): In the fourth step of the mediating effect of loan growth on the relationship between funding strategy and return on assets of deposit-taking microfinance institutions in Kenya, the effect of funding strategy and loan growth on return on assets was examined. The finding in Table 5.2 showed that the model explained 39.3% variation in ROA (R^2 = 0.393) with residual variation being explained by unobserved variables. The findings also showed that funding strategy and loan growth had a significant effect on return on assets of DT MFIs, given that the probability based on the f-statistic was less than 0.05 (p=0.000). Further, the regression coefficients showed that funding strategy and loan growth significantly explained return on assets (p-values<0.05). Therefore, the fourth condition for rejection of null sub-hypothesis two (HO_{2a}) was satisfied.

Moreover, the effect of deposit funding on return on assets was negative and significant (β_1= -1.169, p<0.05). Therefore, a unitary increase in deposit funding led to 1.16 unit decline in ROA. The effect of wholesale funding on return on assets was negative and significant (β_2= -2.098, p<0.05). Meaning that one unit increase in wholesale funding resulted in 2.09 unit decline in ROA. Equity funding had a negative but not significant effect on return on assets (β_3= -0.66, p>0.05). Therefore, one unit increase in equity funding led to 0.66 unit decline in ROA. Finally, loan growth had an inverse and significant effect on return on assets (β_4= -0.663, p<0.05). Further, a unitary change in loan growth resulted in 0.66 unit change in ROA in the same direction. The intercept term (β_0) captured the return on assets when the funding strategy and loan growth is zero. The regression model in Equation 10 was thus estimated as:

$$\mathbf{ROA_{it} = -1.862 - 1.169\ Dfund_{it} + 2.098\ Wfund_{it} - 0.665\ Efund_{it} - 0.663\ LG_{it} + \varepsilon \ldots\ldots\ldots\ldots\ldots\ldots (5)}$$

Decision to Reject or not Reject null sub hypothesis (H_{O2b}): Given that all four conditions for rejection of null sub hypothesis (**H_{O2a}**) were satisfied, the study rejected the null sub hypothesis (**Ho_{2a}**) *that loan growth has no significant mediating effect on the relationship between funding strategy and ROA of deposit-taking microfinance institutions in Kenya.* The study thus concluded that loan growth mediated the relationship between funding strategy and return on assets of DT MFIs in Kenya. Further, the mediating effect was partial, given that the p-values associated with loan growth and funding strategy in the fourth step of mediation were significant. The loan growth was also a negative mediator on the relationship between funding strategy and return on assets of DT MFIs in Kenya, given the negative coefficient of the loan growth. Gichuhi and Muturi (2022) found that loan growth partially mediated the relationship between funding structure and profitability among Kenyan commercial banks.

Table 5: Mediating effect of Loan growth on the relationship between funding strategy and Z-score of DT-MFIs in Kenya

Variable	Z-Score	LG	Z-Score	Z-Score
DFUND	-0.097	0.675***	-	-0.307
	(0.201)	(0.150)	-	(0.384)
WFUND	-0.011	0.203	-	-0.570
	(0.181)	(0.237)	-	(0.463)
EFUND_	0.134	0.525***	-	-0.069
	(0.108)	(0.089)	-	(0.235)
LG	-	-	-0.227***	-0.247**
	-	-	(0.084)	(0.100)
C	2.989***	-0.265***	2.742***	2.920***
	(0.063)	(0.071)	(0.052)	(0.132)
R^2	0.217	0.412	0.075	0.115
F-statistic	56.545	20.150	7.188	2.780
Prob(F-statistic)	7.968	0.000	0.008	0.031
Observations	0.000	90	90	90
Panels	9	9	9	9

Standard errors are in parentheses. *** p<0.01, ** p<0.05, * p<0.1

Note: Deposit Funding (DFUND), Wholesale funding (WFUND), Equity Funding (EFUND), Loan growth (LG)

First Step of Mediation (H_{O2b}): In the first step of mediating the effect of loan growth on the relationship between funding strategy and Z-Score of deposit-taking microfinance institutions in Kenya, the study examined the effect of funding strategy on Z-Score. The panel GLS regression model finding presented in Table 5 showed that the funding strategy had a significant effect on the Z-score of DT MFIs, given that the probability based on the f-statistic was less than 0.05 (p=0.000). The first condition for rejection of the null sub-hypothesis (H_{O2b}) was satisfied.

Second Step of Mediation (H_{O2d}): In the second step of mediating the effect of loan growth on the relationship between funding strategy and Z-Score of deposit-taking microfinance institutions in Kenya, the study examined whether funding strategy significantly affects Z=Score. The panel GLS regression model findings in Table 5 showed that funding strategy (deposit funding, wholesale funding and equity funding) had a significant effect on the loan growth (mediating variable) of DT MFIs, given that the probability based on the f-statistic was less than

0.05 (p=0.000). The second condition for rejection of the null sub-hypothesis (**H_{O2b}**) two was satisfied.

Third Step of Mediation (H_{O2d}): In the third step of mediating the effect of loan growth on the relationship between funding strategy and Z-score of deposit-taking microfinance institutions in Kenya, the effect of loan growth on Z-score was examined. The results in Table 5 showed that the model explained 7.55% of the variation in Z-score (R^2 = 0.075), with the remaining variation in Z-Score being captured by unobserved variables in the study. Further, loan growth had a significant effect on the Z-score of DT MFIs, given that the probability based on the f-statistic was less than 0.05 (p= 0.008). The third condition for rejection of the null sub-hypothesis (**H_{O2b}**) two was satisfied.

Further, the regression coefficients examined the effect of loan growth on Z-Score, finding an inverse and significant effect of loan growth on Z-Score (β_1= -0.227, p<0.05). Hence, one unit increase in loan growth resulted to 0.22 unit decline in Z-Score. The intercept term β_0 captured the Z-score when loan growth is zero. The regression model in Equation 9 was thus estimated as:

$Z_{it} = 2.742614 - 0.227737\ LG_{it} + \varepsilon$.....(6)

Fourth Step of Mediation (H_{O2d}): In the fourth step of mediating the effect of loan growth on the relationship between funding strategy and Z-score of deposit-taking microfinance institutions in Kenya, the study examined whether funding strategy and loan growth affect Z-score. The study adopted a panel GLS regression model, with the findings in Table 5.5 showing that the model examined 11.5% of the variation in Z-score (R^2= 0.115), with the remaining variation in Z-score being captured by unobserved variables in the model. Further, funding strategy and loan growth had a significant effect on the Z-score of DT MFIs, given that the probability based on the f-statistic was less than 0.05 (p= 0.031). Further, the regression coefficients showed that loan growth significantly explained the Z-score (p-values<0.05). However, the effect of funding strategy proxies on Z-score was not significant. Therefore, the fourth condition for rejection of null sub-hypothesis two (**H_{O2d}**) was satisfied.

Moreover, the effect of deposit funding on Z-Score was negative and not significant (β_1= -0.307, p>0,05). This implies that one one-unit increase in deposit funding resulted in 0.79 units decline in Z-score. The effect of wholesale funding on Z-Score was negative and not significant (β_2= -0.570, p>0.05). This shows that a unitary increase in wholesale funding led to 0.57 decline in Z-score. Equity funding had a negative but not significant effect on Z-Score (β_3= -0.069, p>0.05). Therefore, a unitary increase in equity funding led to 0.069 unit decline in Z-score. Finally, loan growth had an inverse and significant effect on Z-Score (β_4= -0.247, p<0,05). Hence, one unit increase in loan growth resulted in 0.24 unit decline in Z-score. The intercept

term (β_0) captures the Z-score when the funding strategy and loan growth are zero. The regression model in Equation 13 was thus estimated as:

$$\mathbf{Z_{it} = 2.920 - 0.307\ Dfund_{it} - 0.570\ Wfund_{it} - 0.069\ Efund_{it} - 0.247\ LG_{it} + \varepsilon} \quad \text{.....(7)}$$

Decision to Reject or not Reject null sub hypothesis (H_{O2d}): Given that all four conditions for rejection of null sub hypothesis two ($\mathbf{H_{O2d}}$) were satisfied, the study rejected the null sub hypothesis ($\mathbf{Ho_{2d}}$) that loan growth has no significant mediating effect on the relationship between funding strategy and Z-Score of DT microfinance institutions in Kenya. The study thus concluded that loan growth mediated the relationship between funding strategy and Z-score of DT MFIs in Kenya. Further, the mediating effect of loan growth on the relationship between funding strategy and Z-Score was complete given that the p-values associated with loan growth were significant, while those of funding strategy proxies (deposit funding and whole funding) in the fourth step of mediation were all not significant. The loan growth was also a negative mediator on the relationship between funding strategy and Z-score of DT MFIs in Kenya, given the negative coefficient of the loan growth.

DISCUSSION

Effect of Funding Strategy on Financial Performance

The study sought to determine the effect of funding strategy on the financial performance of microfinance institutions in Kenya. The financial performance was measured by two proxies (Return on Assets and Z-Score). The study established that the funding strategy combined had a significant effect on all proxies of financial performance of DT microfinance institutions in Kenya. This was evidenced by p-values associated with the f-statistic being less than the 0.05 level of significance (p=0.012 and p=0.000), respectively. The study therefore rejected the null hypothesis ($\mathbf{H_{O1}}$) and sub null hypotheses ($\mathbf{H_{O1a}}$, $\mathbf{H_{O1b}}$), implying that indeed, funding strategy has a significant effect on the financial performance of microfinance institutions in Kenya. Further, the study examined the effect of individual funding strategy proxies (deposit funding, wholesale funding and equity funding) on financial performance proxies (Return on Assets and Z-Score).

The findings showed that deposit funding had a significant and positive effect on ROA (β_1= 0.042, p= 0.019). The positive effect implies that increasing customer deposits among DT microfinance institutions, holding other factors constant, resulted in increasing profitability (as a ratio of total assets or total equity), given that more funds are available for lending to borrowers, which in turn results in increased interest income and profitability. The findings agree with empirical literature showing that deposit funding has a direct effect on financial performance measured by ROA and ROE (Anachoni & Jagongo, 2020). Ofori-Sasu et al., while agreeing with

the findings, showed that the link between deposit funding and technical efficiency was strong (Ofori-Sasu et al., 2019). The study findings also agree with the MM capital relevant theory that holds that firms (i.e., MFIs), depending on leverage (i.e., deposit funding), enjoy high value and financial performance since levered firms enjoy a tax shield on debts (i.e., interest on deposits) of the company. Further, the effect of deposit funding on Z-Score was inverse (β_1= -0.097, p= 0.630). The finding that increasing deposit funding, from customer deposits, implies that DT MFIs in Kenya were heading towards financial distress, especially when there is increased lending to poor-quality borrowers. This agrees with Shibutse et al., who showed that leverage was inversely related to financial performance (Shibutse et al., 2019).

The regression analysis revealed that wholesale funding had an inverse effect on profitability captured by ROA (β_2 = -2.058, p=0.001). The inverse effect means that increasing short-term borrowing in relative terms to other funding sources among DT microfinance institutions, holding other factors constant, resulted in declining profit before tax (as a ratio of total assets or total equity). The inverse link can be emerging from the rationale that a wholesale funding source is an expensive funding source in terms of the interest rate charged in comparison to funding sources such as deposits. Therefore, relying more on wholesale funding relative to other funding sources may eat into the profits of the DT MFIs in Kenya. The finding, however, was contrary to an empirical study by Agu and Nwankwo, who established that loans are directly related to financial performance measured by net interest income (Agu & Nwankwo, 2019). Further, the effect of wholesale funding on Z-Score was inverse (β_2 = -0.011, p= 0.948). The findings imply that wholesale funding is a costly financial source, which may negatively impact the Z-score, hence pushing the DT-MFIs towards financial distress.

Finally, the study revealed that the effect of equity funding on the financial performance of DT MFIs measured by Z-score was direct (β_3 = 0.134, p= 0.2150). The positive link may be explained by the fact that equity funding is a less costly funding source. The use of more equity funding relative to other funding sources results in increasing Z-Score, hence declining risk of financial distress, given that more equity funding lowers the solvency risk and is associated with lower cost of capital. The finding on the direct effect of equity funding on financial performance, as measured by Z-score, was in agreement with Agu and Nwankwo, who established that equity funding was directly related to financial performance measured by net interest income (Agu & Nwankwo, 2019). The effect of equity funding on ROA of DT-MFIs was inverse (β_3 =-0.458, p=0.141). The inverse relationship implies that increasing deployment of equity funding relative to other funding sources results in declining profitability before tax as a ratio of total assets, given the declining leverage. With overreliance on equity funding, DT MFIs cannot benefit from the advantages of leverage, such as deduction of interest on deposits before corporate tax. The

finding agrees with the MM capital relevant theory that holds that unlevered firms (i.e. reliance on equity funding) have low value and depict low financial performance since unlevered firms do not enjoy a tax shield on interest on debts (i.e., interest paid on deposits and wholesale funding) of the company.

Effect of Loan Growth on the Link Between Funding Strategy and Financial Performance

The second objective sought to establish the mediating effect of loan growth on the relationship between funding strategy and the financial performance of microfinance institutions in Kenya. The examination of the mediating effect of loan growth on the relationship between funding strategy and financial performance was based on null hypothesis two ($\mathbf{H_{O2}}$) and null sub-hypotheses ($\mathbf{H_{O2a}}$, $\mathbf{H_{O2b}}$). Given that the four conditions for rejection of the null hypothesis were satisfied, the study thus rejected the null hypothesis that loan growth does not have a significant mediating effect on the relationship between funding strategy and financial performance of deposit-taking MFIs in Kenya. Further, regression coefficients showed that the effect of loan growth on the financial performance of DT-MFIs as measured by ROA and Z-score was strong and inverse (β_4 = -0.663, p = 0.000; β_4=-0.247, p=0.015), respectively. The finding thus implied that loan growth had a strong and inverse mediating effect on the relationship between funding strategy and the financial performance of DT-MFIs in Kenya. Therefore, increasing loan growth to accompany increased funding resulted in reduced financial performance among DT-MFIs as measured by ROA and Z-score. The finding agreed with Prilmeier and Stulz, who revealed that banks that were in quartile four regarding loan growth also experienced declining ROA and rising loan losses (Prilmeier & Stulz, 2020). Further, Soedarmono showed that high credit growth in the last ten years was associated with weakened banks as well as their soundness during booms (Soedarmono et al., 2017). However, the findings conflicted with those of Dang, who revealed that loan growth caused increased profitability and loan loss provision. Antwi, in agreement with Dang, showed that asset growth had a positive relationship with both ROA and ROE (Antwi, 2019; Dang, 2019). Agu and Nwankwo also noted that loans and advances were directly related to financial performance measured by net interest income (Agu & Nwankwo, 2019). The finding further agrees with information asymmetry theory that notes that information asymmetry in the financial markets where DT-MFIs operate leads to the problem of moral hazard, because of insufficient information about borrowers, DT-MFIs in Kenya end up issuing loans to risky borrowers. This leads to the accumulation of nonperforming loans and reduced asset quality among MFIs, which

further results in reduced financial performance in terms of loan losses, ROA and ROE when borrowers default on loans.

CONCLUSION

The study concluded that the funding strategy strongly explained the financial performance of DT- microfinance institutions in Kenya. The use of deposit funding among DT microfinance institutions in Kenya resulted in increased profitability. This is explained by the fact that more funds are available for lending to borrowers, which in turn results in increased interest income and profitability. Moreover, rising deposit funding implies that DT MFIs in Kenya were heading towards financial distress, especially when there is increased lending to poor-quality borrowers. The increasing use of short-term borrowing in terms of wholesale funding relative to other funding sources among DT microfinance institutions resulted in declining profit before tax, given the high interest rate charged on wholesale funds. Moreover, given that wholesale funding is a costly financial source, it may negatively impact the Z-score as it pushes the DT-MFIs towards financial distress. The use of equity funding resulted in increasing profitability before tax as a ratio of total equity. The positive link may be explained by the fact that equity funding is a less costly funding source. Further, the use of more equity funding relative to other funding sources results in increasing Z-Score, hence declining risk of financial distress, given that more equity funding lowers the solvency risk and is associated with lower cost of capital. However, the inverse relationship between equity funding and the financial performance of DT MFIs as measured by ROA implies that increasing deployment of equity funding relative to other funding sources results in declining profitability before tax as a ratio of total assets, given the declining leverage advantages. With overreliance on equity funding, DT MFIs cannot benefit from the advantages of leverage, such as deduction of interest on deposits before corporate tax. Further, the finding means that overreliance on equity funding to finance the lending activities of DT-MFIs is associated with low pressure on the institutions as regards a possible bank run that is associated with deposit funding.

Additionally, the study rejected the null hypothesis that loan growth does not have a significant mediating effect on the relationship between funding strategy and the financial performance of deposit-taking MFIs in Kenya. Further, loan growth strongly and inversely mediated the relationship between funding strategy and the financial performance of DT-MFIs in Kenya. Therefore, increasing loan growth as a result of increased funding resulted in reduced financial performance among DT-MFIs as measured by ROA and Z-score. Increasing loan growth when funding sources increased resulted in an increased problem of moral hazard, because of insufficient information about borrowers, DT-MFIs in Kenya end up issuing loans to

risky borrowers. The issuance of risky loans leads to increased loan default, which further leads to reduced interest income, thereby declining profitability (ROA) and increasing financial distress as captured by Z-score.

The study recommends that the management of DT-MFIs keep on attracting more deposits into their funding strategy to enhance profitability. However, management of DT-MFIs in Kenya should be watchful of irresponsible credit expansion from deposits generated, given that deposit funding resulted in a rising loan losses provision ratio and declining Z-score ratio. The CBK should also be watchful of how deposits generated by DT-MFIs are being invested so as to protect depositors of funds. The CBK should continue being strict on deposit insurance to help in covering depositors' funds to prevent possible financial distress, especially when there is increased lending to poor-quality borrowers. Further, the management of DT-MFIs should reduce their funding activities from wholesale funds. Wholesale funds are offered at high interest rates that eat into the profits of the financial institutions and negatively affect the Z-score, hence pushing the DT-MFIs towards financial distress. The CBK should also be watchful of the use of wholesale funding to fund the operation of DT-MFIs in Kenya. The CBK should discourage overreliance on wholesale funding by DT-MFIs by putting in place measures that result in a high interbank lending rate so as to discourage overreliance on such funds.

Additionally, the management of DT-MFIs in Kenya continues to increase their equity funding in absolute and relative terms to improve the capital adequacy of the financial institutions. Equity funding is a less costly funding source compared to wholesale funding. Further, equity funding does not put pressure on the cash flows of the DT-MFIs in terms of repayment, hence it results in rising Z-Score and falling financial distress risk. However, given that equity funding was inversely related to ROA, management of DT MFIs should not over-rely on equity funding relative to other funding sources, such as deposits, given the declining leverage advantages. With overreliance on equity funding, DT MFIs cannot benefit from the advantages of leverage, such as deduction of interest on deposits before corporate tax. The CBK should also be watchful of the use of equity funding to finance the operations of DT-MFIs. The CBK should continue being vigilant on capital adequacy ratios to ensure DT-MFIs have adequate capital to cover their liabilities, such as deposits.

The study suggests that management of DT-MFIs in Kenya should be watchful of their credit expansion activities. This is because, increasingly, loan growth when funding sources increase is associated with the problem of moral hazard, where, because of insufficient information about borrowers, DT-MFIs in Kenya end up issuing loans to risky borrowers. The issuance of risky loans leads to increased loan defaults, which further leads to reduced interest income, thereby declining profitability and increasing financial distress as captured by declining

Z-score. The Management OF DT-MFIs in Kenya should thus put in place a robust credit management policy to protect themselves against loan default by risky borrowers. The firms should also adopt risk-based pricing of loans such that riskier borrowers get to pay high interest rates while less risky borrowers can enjoy relatively low interest rates. The study also suggests that CBK be watchful of the loan growth rates of DT-MFIs to avoid mass failure. The CBK should be strict on loan loss provisioning to capture loan growth, such that higher loan growth rates should have a commensurate increase in loan loss provisioning. Further, the CBK should require that all DT-MFIs adopt risk-based loan pricing to ensure that the cost of funds reflects the possible risk of the fund. The CBK should also be watchful of DT-MFIs that have higher loan growth rates above the industry average, as this could turn into irresponsible credit expansion.

This study was limited to DT MFIs; hence, the findings are more generalizable among the DT MFIs. However, application of findings to financial firms outside the definition of DT MFIs, such as commercial banks and DT-Saccos, should be made with caution, given the different regulatory environment. The study was also limited to the effect of funding strategy and loan growth. Therefore, the coefficients generated and the estimated models should be used with caution when making decisions. The magnitude and signs of the coefficients may change with the inclusion or elimination of variables in the models. Decision makers should also use the coefficients generated with caution, given that their magnitude and sign may change with the adoption of different proxies of the same variables. A study with different versions of proxies of the variables may generate different coefficients, and thus, the decisions made based on the coefficients.

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