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Does Portfolio Quality Influence Financial Sustainability? A Case of Microfinance Institutions in Kenya

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Abstract

This article studies the relationship between portfolio quality and the financial sustainability of microfinance institutions in Kenya. The analysis is based on a panel dataset of 30 microfinance institutions in the period 2010 to 2018. The study is guided by institutional theory which is built on conformance and continuity. The study adopts an explanatory research design where a panel approach is used under positivist paradigm. The study finds that portfolio quality has a positive significant effect on the financial sustainability at 1% statistical significance level. Based on this finding, the study concludes that portfolio quality is an essential element of MFIs financial sustainability. The study recommends that MFIs managers should devise good collection policies to improve portfolio quality while lessening loan default rate. The portfolio quality may improve the overall profitability and enhance investor confidence in their strategic decision-making on refinancing. It is important to note in order to ensure financial inclusion; the stakeholders must be involved.

Keywords: Portfolio Quality; Financial Sustainability; Microfinance Institutions; Institutional Theory.

JEL Classification: D23, G21, G23.

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1. Introduction

Microfinance institutions (MFIs) envisage offering financially sustainable services to underprivileged people who are excluded from formal banking services (Nyamsogoro, 2010). Despite, the humble beginning of microfinance with an innovative financing model implemented by the Grameen Bank in 1976 in a poverty-stricken village in Bangladesh (Yunus and Jolis, 2007). Little attention was received by the industry until the 2006 Nobel Peace Award. Later, the concept of microfinance as an economic tool for fighting poverty has gained tremendous momentum globally (Knewton & Qi, 2019). As most microfinance institutions were recently established, however, problems have emerged that may pose a serious threat to their business model since they are heavily dependent on government subsidies and donors to provide financial services (Nawaz, 2010). The sector has attracted a lot of interest among global development entities (World Bank, IMF) (De Aghion et al., 2007). This has resulted into expanded practice across the globe, presenting diverse tools for achieving the economic development goals that emanated from the expansion of financial inclusion on the financial system (Lopatta et al., 2017). Due to MFIs social impact on entrepreneurial activities among the unbanked poor individuals and SMEs, financial sustainability has been considered as a way of safeguarding their future beyond reliance on subsidies and donations; as an essential ingredient for their success (Chakravarty & Pylypiv, 2015).

The recent proliferation of MFIs has contributed substantially to social welfare, job creation, expansion of enterprises and improved financial health, specifically, in developing economies (Abdulai & Tewari, 2017). Given the incredible socioeconomic impact of MFIs, financial institutions must develop tools to support their growth and development (Knewton & Qi, 2019). For these institutions to grow in a healthy and financially sustainable manner, governments must support requisite institutional and legal structures. Extant literature depicts MFIs as unsustainable implying that they continue to grapple with worsening portfolio quality (Abraham & Balogun, 2012). Also, microfinance institutions charge inflated interest rates, compared to commercial banks, thus denying credit to the poor; who MFIs intend to serve (Collett, 2015).

Supporters of institutional theory may only make a long term impact if they are efficiently managed to realize financial sustainability (Awaworyi Churchill, 2018; Ayayi & Sene, 2010; Helms, 2006). Portfolio quality is inversely proportional to repayment rates. Research further posits that portfolio quality measures how effective MFIs are in debt collection. Hermes and Lensink (2007), claim that portfolio quality is part of asset management measures that put emphasis on

decision making by the management. If it deteriorates, it may lead to financial unsustainability that could result to MFIs collapse. Thus, MFIs ought to be focused heavily on their portfolio quality as it translates to financial sustainability. Empowering unbanked clients through continued provision of financial services results in financial inclusion (Mersland, 2013).

Microfinance institutions failure has been attributed to poor credit policies that adversely affect portfolio quality (Christen et al., 2012). According to Meyer and Rowan (1977) institutional theory, postulate the continuity and conformity of microfinance institution, yet, unclear policies on loans could lead to non-repayment or increased default rate (Tchakoute-Tchuigoua & SoumarE, 2019). Nurmakhanova et al (2015) support the notion that revenues generated from the lending magnified revenue through enhanced portfolio quality. However, small portfolios may limit revenues and profitability that could trigger MFIs financial sustainability.

1.1. Problem Statement

Regardless of the success of Microfinance institutions through widespread support from financial institutions, governments, and private individual; and the progress toward understanding MFIs risks on financial sustainability (Abara et al., 2017; Yegen, 2014), the biggest challenge facing microfinance institutions is poor understanding of borrowers' default risk. This is related to increased uncertainty because of lack of historical information from the clients (Knewtson & Qi, 2019). The relationship between MFIs and poor clients result into monitoring costs, especially in determining the creditworthiness of the borrowers and the amount to be advanced (Kassim & Rahman, 2008).Therefore, MFIs without clear cut policies, may decline to provide loans to micro-borrowers. With increased competition amongst lenders (mostly telecommunication companies and mainstream banks), leading to lower average interest rates across the lending sector has further worsened sustainability of the MFIs (Mills & McCarthy, 2014).

Management of institutional portfolio, should increase efficiency in lending and improve profit levels thus enabling MFIs access to capital markets (Berger & Di Patti, 2006). Portfolio quality is part of asset management measures that put emphasis on decision making by the management (Hermes & Lensink, 2007). Nonetheless, in the recent past, MFIs have broadened their services through efficient operation targeting the poor. Donor agencies have emphasized sustainability of MFIs through generation sufficient income from the outstanding loan portfolio to meet the lending charges, thus minimizing risk and reducing dependency on external subsidies.

Portfolio quality is an indicator of MFIs efficiency in debt recovery (Ayayi & Sene, 2010). Considering the role of portfolio quality on MFIs sustainability, a few researchers have devoted substantial effort to find out the causal relationship. Existing studies have shown positive effect (Adongo & Stork, 2006), and negative effect (Bayai & Ikhide, 2018; Tehulu, 2013) between portfolio quality and financial sustainability. Based on the aforesaid, the two aspects elucidate an inconclusive debate thus necessitating further scrutiny. Researchers have centered their studies on developed economies with more advanced banking sector infrastructure and legal framework. Therefore, our present study seeks to fill the gap by investigating the influence of portfolio quality on MFIs financial sustainability in developing economies using Kenya as a case study.

2. Literature Review

2.1. Theoretical Literature: Institutional Theory

This study explores the influence of portfolio quality on MFIs sustainability. According to (Meyer & Rowan, 1977) seminar paper *“Institutionalized organizations: Formal structure as myth and ceremony”*, institutions are confronted by pressure arising from areas other than task environments. Having well-established strategies, structures or framework and practice in various professions, policies, and programs. Microfinance institutions must integrate their products, services, techniques, policies, and programs to achieve well-balanced results. The institutions are faced with challenges arising from environmental pressure which managers have to navigate. These managers are constrained by socially derived norms and expectations that assume the organizational environment and the desired conduct. Champions of financial sustainability suggest that MFI should be able to cover costs with revenue collected (Brau & Woller, 2004). The theory offers insight into the continuity and conformity of microfinance institution practices through an appreciation of organizational-level processes (Delbridge & Edwards, 2007). Apart from MFIs improving their structures, they should also align them to the institutional framework to achieve legitimacy, resources, stability and better survival chances in the sector.

Traditionally, the theory is equally concerned with the organizational ability to conform to the market dynamics (Di Maggio & Powell, 1983; Scott, 2008). The theory also influences firm’s approaches on social, political and economic practices (Jennings & Zandbergen, 1995; North, 1990). Deviations in social values, technological advancements and regulations sway the decisions on financial sustainability (Ball & Craig, 2010; Lounsbury, 1997; Rivera, 2004). The institutional view has allowed an extra focus on the importance of conformity, regulatory and

social pressures in dynamic organizational actions (Westphal et al., 1997). Scholars have focused mainly on MFI sustainability (Woller et al., 1999), they also observed that financial inclusion remains the core objective of microfinance institutions. Consequently, inclusion confirms the establishment of sustainable financial intermediation.

2.2. Portfolio Quality and Financial Sustainability

Financial sustainability is vital for a firm's growth and long-term survival. This is so, particularly to MFIs that lend to clients with low credit scores. Therefore, MFIs must devise a lending mechanism that locks out questionable micro-entrepreneurs to avert the risk of default, which could accelerate the deterioration rate of the portfolios hence contributing to the erosion of their sustainability (Schreiner, 2003). Portfolio quality indicates how effective an MFI is in debt recovery (Ayayi & Sene, 2010). Their study further suggested that portfolio quality had a positive influence on sustainability whereas, (Bayai & Ikhide, 2018; Nyamsogoro, 2010) claim a negative relationship.

These studies showed that interest earned from loans serves as the main source of income to MFIs (Fernando, 2006; Tellis & Seymour, 2002). The amount of interest earned from loans can determine the portfolio quality. Further, the loan principal and interest repayment performance are among other indicators (Godquin, 2004). The management of portfolios remains a crucial activity on a daily basis. It is believed that the longer the loan repayment period, the greater the risk; which is known as a portfolio at risk. CGAP (2003) defines portfolio quality as, an outstanding amount loan premium due by a certain number of days. The portfolio quality of loan has also been described by the rate of the portfolio at risk, at a specified number of days, divided by gross loan portfolio. Higher portfolio at risk indicates poor collection policy, and MFI inefficiency in making the collection (De Aghion et al., 2007).

The main clients of MFIs are financially excluded individuals and micro-enterprises that lack necessary collaterals or reliable financial and accounting information to secure credit. Screening to distinguishing between micro-entrepreneurs and individuals without bias plays a critical role in MFIs sustainability and also hinders the repayment rates (Chowdhury, 2007). Most MFIs apply progressive loans to enhance repayment. Borrowers aim at accessing adequate finance to achieve individual or enterprise growth and to advance their social wellbeing (Schreiner, 2003). A study on capital structure impact on microfinance institutions in sub-Saharan Africa, found that institutions lack long-term debt sources owing to their inability to manage default rate (Kyereboah-

Coleman, 2007). Furthermore, the most common credit management tools used by the sector include incentives for repayments, group lending and credit scores (Ibtissem & Bouri, 2013; Viswanathan & Shanthi, 2017).

In the recent past, a study by Gibbons and Meehan (1999) highlighted use of dynamic loans and risk management methods like pre-default which is based on the possibilities of staggering the repayment of microcredit. Portfolio quality contributes to the MFI sustainability, such that, the greater the risk, the more inefficient the MFIs, therefore, less financially sustainable (Nyamsogoro, 2010). Based on the existing literature the study hypothesizes as follows.

H₀: Portfolio quality has no significant influence on MFIs financial sustainability in Kenya.

2.3. Conceptual Framework

The objective of this paper is to examine the outcome of portfolio quality on MFI financial sustainability in Kenya. The dependent variable is financial sustainability, whereas the independent variable is portfolio quality. MFI age and size are controlled and the relationship is predicted as shown by the use of a conceptual framework as shown below.



Figure 1. Impact of independent variables on dependent Variable

3. Conceptual Framework

A research design specifies the plan on collection and data exploration with the intention of combining relevant information for research purpose and procedure. The study adopts an explanatory research design that is quantitative and hypotheses are tested by measuring the association between variables using statistical techniques. Further, the study also employs the use of panel data regression model.

3.1. Target Population and Dataset

The target population is all the 52 registered microfinance institutions in Kenya for period 2010-2018. Only 30 MFIs qualified for the study due to their substantial information. Secondary data from the Microfinance Information Exchange (MIX) database on portfolio ratios are extracted using a data collection

schedule. The data encompasses panel data which is consisted of time series and cross-sections. Then, it is analyzed using descriptive statistics. Hypotheses are tested using multiple regression analysis. F-statistics is used to test fixed- and random-effects. Hausman test shows that fixed-effect model is the best to explain the association between the variables.

3.2. Research model

The research employs OLS regression model in panel framework. The base model is described as below.

$$FS_{it} = \beta_{0i} + \beta_{1i}AGE_{it} + \beta_{2i}SIZE_{it} + \varepsilon_{it} \quad (1)$$

$$FS_{it} = \beta_{0i} + \beta_{1i}AGE_{it} + \beta_{2i}SIZE_{it} + \beta_{3i}OLP_{it} + \theta_{it} \quad (2)$$

Where:

FS_{it} is Financial sustainability for MFI “ i ” in year “ t ”.

OLP_{it} is Portfolio quality for MFI “ i ” in year “ t ”.

$SIZE_{it}$ is Size of MFI “ i ” in year “ t ”.

AGE_{it} is Age of MFI “ i ” in year “ t ”.

β_s are related coefficients; ε and ϑ are residuals of the model 1 and 2 respectively. The “ i ” indicates cross-section dimension (MFI) ranging from 1 to 30. The “ t ” indicates time dimension ranging from 2010 to 2018.

4. Diagnostics Test

4.1. Panel Unit Root Tests

The study employs the unit root tests to confirm whether the variables are stationary or not. This is a fundamental assumption of OLS regression analysis. Panel data is said to be stationary if the mean and variance are constant over time (Gujarati, 2004). Non-stationary data leads to a spurious relationship. This study tests unit root using Fisher, Phillips and Peru tests. Conventionally, unit root tests are premised on the following hypothesis.

H_0 : All panels contain a unit root.

H_1 : At least one panel is stationary.

Looking at the p-values in Table 1, the null hypothesis is rejected at all conventional significance levels for all the variables of the study, which implies

that there is no unit root in the data, hence it results to the independence of means and variances in the data with respect to time.

Table 1. Unit Root Test

	Inverse chi-squared (58)	Inverse Normal	Inverse Logit (144)	Modified Inv. Squared
	<i>P</i>	<i>Z</i>	<i>L*</i>	<i>Pm</i>
<i>Financial Sustainability (FS)</i>	155.46***	-3.52***	-6.31***	1.15***
<i>Portfolio Quality (QLP)</i>	88.21***	-1.89**	-4.17***	5.04***
<i>Firm Age (AGE)</i>	52.28***	0.39***	0.14***	-0.71***
<i>Firm Size (SIZE)</i>	215.27***	-5.36***	-8.84***	14.60***

Notes: The ***, **, and * indicate significance levels of 1%, 5%, and 10% respectively.

4.2. Test for Homoskedasticity

The study employs White test in order to fulfil another OLS assumption which is homoskedastic residuals. The findings indicate that Chi2 (35) is 52.47 with p-value of 0.0592, which rejects the null hypothesis implying that the assumption of homoskedasticity is not violated. The results are tabulated in Table 2 below.

Table 2. White's test for Homoskedasticity

White Test	chi-squared (35)	Probability > chi2
Null Hypothesis: <i>Residuals are homoscedastic</i>		
	52.47	0.0592
Alternative Hypothesis: <i>Residuals are heteroscedastic</i>		

4.3. Test for Autocorrelation

The autocorrelation can be detected using several tests such as Baltagi-Wu test, Durbin-Watson test and the Breusch-Godfrey test. According to Drukker (2003), these tests employ many assumptions such as individual effects types, need for non-stochastic regressors and inability to work with heteroscedasticity. Wooldridge (2002) further argues that these limitations can also deal with unbalanced panel data with and without gaps in their observations. Our research employs this test and the results show no first-order autocorrelation exists in our data. The results are reported in table 3 below where F-statistics value is

estimated as 6.597 with one and 7 degrees of freedom deriving p-value of 0.0671 which implies significance at 5% level. Hence, the hypothesis of first-order autocorrelation is supported and the study concludes that residuals are not autocorrelated.

Table 3. Wooldridge test for autocorrelation

Wooldridge test for autocorrelation	F (1,7)	Probability > F
Null Hypothesis:		
<i>First-order autocorrelation</i>	6.5970	0.0671
Alternative Hypothesis:		
<i>No First-order autocorrelation</i>		

4.4. Hausman Test

In order to decide which specification (fixed- or random-effect) is efficient, we run Hausman test (Hausman, 1978). The null hypothesis for Hausman Test is that there is no correlation between unique errors and the regressors. It implies that both fixed-effect and random-effect estimates are unbiased, but random-effect is more efficient than fixed-effect. So, if null fails to be rejected then random-effect specification would be appropriate. The results of our Hausman test are shown in table 4 below where chi-square value is 45.41 and significant at 1% level. Therefore, we reject the null hypothesis and conclude that that fixed effect model is more appropriate.

Table 4. Hausman test for financial sustainability

	b	B	(b-B)	Sqrt(diag(V_b-V_B))
	<i>FE</i>	<i>RE</i>	<i>difference</i>	<i>S.E.</i>
Portfolio Quality (QLP)	0.087	0.116	-0.029	-
Firm Age (AGE)	0.117	0.223	-0.107	-
Firm Size (SIZE)	-5.449	-4.690	-0.759	0.188
HAUSMAN TEST	H₀: Difference in coefficient not systematic Chi2(6) = (b-B)'[(V_b-V_B)^(-1)](b-B) = 45.41 Prob > chi2 = 0.000 (V_b-V_B is not positive definite)			

Notes: The “b” is consistent under H₀ and H₁. The “B” is incinsistent under H₀ and H₁.

5. Results and Findings

The tabulation below shows the mean, minimum, maximum and standard deviation of the various variables as used in the model for the period between 2010 and 2018. Based on table 5, financial sustainability mean is 0.351 with a minimum of -0.864, maximum of 4.914 and a standard deviation 0.931. Whereas, portfolio quality mean is -2.63 with a minimum of -6.91 and a maximum of 2.85. The portfolio standard deviation is 1.39 indicating variability over some time.

Table 5. Descriptive Statistics

Stats	Financial sustainability	Portfolio quality	MFI age	MFI size
<i>No Obs.</i>	270	270	270	270
<i>Mean</i>	0.3510	-2.6275	0.7362	1.8645
<i>Min</i>	-0.8639	-6.9078	0.0000	1.1454
<i>Max</i>	4.9148	2.8473	1.0986	2.2360
<i>St. Deviation</i>	0.9311	1.3866	0.4573	0.1810
<i>Variance</i>	0.8669	1.9226	0.2092	0.0327
<i>Skewness</i>	2.9956	0.6083	-0.7925	-0.6593
<i>Kurtosis</i>	13.7708	7.1967	1.9273	3.8113

5.1. Correlation Analysis

This study shows the association of variables to test the nature of their statistical relationships. Table 6 illustrates the correlation matrix of the research variables. The correlation between portfolio quality and financial sustainability is ($r=0.351$) which depicts a positive and significant relationship. While, the correlation between financial sustainability and the control variable are as follows MFI age ($r=0.039$, $p<0.05$) and MFI size (-0.271 , $p<0.05$) respectively.

Table 6. Correlation Matrix Results

	FS	QLP	AGE	SIZE
Financial Sustainability (FS)	1.0000			
Portfolio Quality (QLP)	0.3510**	1.0000		
Firm Age (AGE)	0.0390**	0.2730**	1.0000	
Firm Size (SIZE)	-0.2710**	-0.0970	0.4590**	1.0000

5.2. Regression Analysis

5.2.1. Effect of Portfolio quality on Financial Sustainability

The regression analysis results of the hypothesis on fixed-effect are shown in table 7 below. The hypothesis states that portfolio quality has no significant effect on MFIs sustainability. Based on the findings, the coefficient is estimated as 0.2109 at 5% significance level. Therefore, null hypothesis is rejected implying that fixed-effect specification is appropriate. This model indicates that a unit increase in portfolio quality increases financial sustainability by 0.2109. In addition, this model has R-square value of 0.5193 which implies that explanatory variables explain 51.93% variability in the sustainability of MFIs.

Table 7. Portfolio Quality on Financial Sustainability

		<i>Financial Sustainability</i>	
<i>Intercept</i>		5.2346*** (0.7523)	
<i>Portfolio Quality</i>		0.2109*** (0.0435)	
<i>Firm Age</i>		0.7733*** (0.1921)	
<i>Firm Size</i>		-0.7493*** (0.1184)	
R² within	0.5193	No Obs.	270
R² between	0.4983	Corr (u_i, Xb)	-0.5429
R² overall	0.3950	F(3,90)	32.41
Rho	0.5446 ($\sigma_u=0.5663$)($\sigma_e=0.5180$)	Prob. > F	0.0000

The results are in line with Nyamsogoro (2010) who find that the portfolio quality influences financial sustainability such that the greater the risk, the less financially sustainable the MFIs are and vice versa. In support of the above notion, Gibbons and Meehan (1999) noted that the portfolios should be controlled to enhance sustainability of MFIs. In addition, improvement in portfolio returns through employing joint liability strategies result in therealization of financial sustainability (Laffont & N'guessam 2000; Cassar et al., 2007). Employing social sanctions that prevents repayment default rate (Ahlin & Townsend, 2007; Cassar et al., 2007). Therefore, this study argues that portfolio quality is a crucial aspect of financial sustainability. MFIs should strive to manage their risk levels through

adopting the best lending policies such; screening of borrowers, training of personnel, proper management of loan portfolios and progressive lending.

5. Conclusion

Microfinance institutions play a crucial role in ensuring that the financially excluded and underprivileged individuals and their entities access financial services. Despite its impact to an economy, these institutions continue to grapple with worsening portfolio, which has greatly affected their financial sustainability. It's on this foundation that this study seeks to establish the relationship between portfolio quality and financial sustainability. The study considered 30 MFIs in Kenya using panel data for the period 2010-2018. The findings were positive with a robustly significant relationship. This implies that higher portfolio quality results to more sustainable MFIs. These results also suggested that low default rates lead to better quality of portfolio and improve financial sustainability. Therefore, institutions should exert effort to ensure that they maximize on repayment rates. These findings could be attributed to expansive market access, information sharing, monitoring of portfolio quality, thus impacting positively on financial sustainability.

6. Recommendations

Business practitioners and shareholders must ensure that MFIs thrive to uphold better portfolios leading to their sustainability through services delivery. Management should craft suitable lending policies to enhance their portfolio through progressive lending, joint liability and make use of information sharing credit bureau (CRB). MFIs should also use of social sanctions to prevent repayment default rates. This paper is the first to provide Kenyan empirical evidence on the association between portfolio quality and the financial sustainability. The study findings will be useful to academia and will also provide a reference point for future studies that focus on portfolio quality modeling, especially for small businesses operating in Kenya.

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