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Income Diversification and Financial Sustainability of Microfinance Institutions In Kenya

Livingstone Cheboi Talel¹, Irene Asienga² and Peter Nderitu Githaiga³

^{1,2} Kabarak University Kenya

³ Moi University Kenya

Email: ¹livingstonecheboi@gmail.com

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ARTICLE INFO	ABSTRACT
<p><i>Article History:</i> Submitted: 15 Oktober 2023 Reviewed: 04 January 2024 Revision : 05 January 2024 Accepted : 08 January 2024 Available online: 08 January 2024</p> <hr/> <p><i>Keywords:</i> Income diversification, financial sustainability, Microfinance institutions, Kenya.</p> <hr/> <p><i>Corresponding Author:</i> Livingstone Cheboi Talel email:livingstonecheboi@gmail.com</p>	<p>The purpose of this paper was to investigate the effect of income diversification and financial sustainability of microfinance institutions in Kenya. The study used panel data drawn from 32 MFIs over the period 2010-2019 that yielded 320 observations. The data was sourced from the MIX market, a World Bank Database for all MFIs that self-report. Data was analyzed through the ordinary least squares (OLS), the system generalized method of moments, the fixed effect and random effect model. The findings revealed that income diversification had a positive significant relationship to the sustainability of microfinance institutions in Kenya. The results further revealed that breadth of outreach, firm size, average loan size, debt to equity ratio and portfolio at risk (Par>30) had a significant effect on financial sustainability of microfinance institutions in Kenya. Based on the findings this study recommend that MFIs should consider income diversification in their effort towards attaining financial sustainability.</p>

INTRODUCTION

When it comes to safeguarding the long-term financial sustainability of microfinance institutions (MFIs), one of the most important strategies is to diversify their sources of income (Yaş and Chen, 2023). The landscape of microfinance is robust, and it serves the purpose of meeting the financial requirements of individuals and enterprises with modest incomes. Microfinance banks, savings and credit cooperatives (also known as SACCOs), and non-governmental organizations (also known as NGOs) are some of the entities that are included in its scope (Feather and Meme, 2019). The economically vulnerable portions of the population are the ones who benefit from these organizations' provision of critical financial services such as credit, savings, insurance, and financial education.

When discussing microfinance institutions (MFIs), the term "income diversification" refers to the process of producing revenue from a variety of sources other than the conventional microfinance lending activities (Ben and Abdelkader, 2023). Microfinance institutions (MFIs) are typically significantly reliant on the interest income generated from the microloans that they provide to borrowers (Pollinger, Outhwaite and Cordero-Guzmán, 2007). However, in order to ensure that they are able to continue operating for the foreseeable future, these institutions are working to diversify their sources of income. This growth may originate from a variety of sources, such as the collection of fees for the provision of financial services, the making of investments, or the formation of partnerships with other organizations (Xie et al., 2022).

MFIs that are active in might reap various benefits by diversifying their sources of income. It reduces dependence on a single source of income, which in turn reduces the risk of instability caused by loan defaults or economic volatility (Jerono, 2016). This is perhaps the most important way in which it improves the financial sustainability of an organization. In addition to this, it makes it easier to extend the reach of microfinance services to areas and groups that are not currently being covered. With a varied income stream, microfinance institutions are able to invest in innovation, which allows them to create innovative and individualized financial products to fulfill the ever-changing demands of their customers (Amha, 2004). This strategy ultimately strengthens the resilience of these institutions, making it possible for them to better withstand the effects of shocks from the outside or changes in regulatory requirements.

Diversifying one's sources of income does, however, present a number of obstacles and things to think about. The regulatory climate plays an essential part, as certain actions for income diversification may necessitate the acquisition of particular licenses or the fulfillment of other regulatory requirements. In addition, in order to effectively manage the risks associated with income diversification, meticulous planning and comprehensive procedures for risk management are required. It is also necessary for MFIs to engage in continuous capacity building and staff training in order to guarantee that they are able to properly manage and maximize the use of their diverse sources of income.

It is estimated that there are approximately 10,000 MFIs located all over the world (Githaiga, 2022). On the other hand, the MIX (Microfinance Information Exchange) market database only contains financial information for 755 MFIs. About 89 million borrowers are served by these MFIs, and the total amount of money they have advanced in loans is estimated to be 108.72 billion dollars. As far as the total funding mix of MFIs is concerned, the shift toward commercial funding is something that is still happening; as of the year 2018, the leverage ratio was at 5.172, and the amount of impaired loans was at \$2.18 billion (Githaiga, 2022).

Likewise, the donation that was given to MFIs totaled twenty million dollars US. Significant technology breakthroughs have also been made in the microfinance industry in recent years. These advancements have enabled microfinance institutions (MFIs) to broaden their scope of outreach and reduce their operational expenses. According to Mwafise and Stapleton (2012), the usage of mobile devices and applications in the provision of financial services has had a tremendous influence on groups that are excluded from the financial system. This is especially true in developing nations. MFIs are now able to offer mobile-phone-based services such as loans, savings, and insurance thanks to the use of mobile banking technologies (Wondirad, 2020). This has resulted in a major improvement in both the MFIs' financial performance and its social outreach. Mobile banking, according to Reeves and Sabharwal (2013), could help microfinance institutions bring down the high interest rates that are normally associated with the administration of small loans. In addition to advances in technology, reasonable and responsible rules within the financial sector have been the most important factor in the expansion of the microfinance industry.

Two types of regulation apply to the financial sector: prudential regulation and nonprudential regulation. Nonprudential laws concern the institution's business operations and include things like fraud prevention and lending practices (Quartey & Kotey, 2019). Prudential regulations concern the

sector as a whole and ensure that it maintains its financial stability. Because of advancements in the industry's legal environment, microfinance institutions (MFIs) have been able to transform into microfinance banks, which has allowed them to expand the range of services that they are able to provide.

According to Okoye and Siwale (2017), rules have improved corporate governance within the microfinance industry. Regulation of the microfinance business is essential to the protection of depositors, the promotion of investor confidence, and the maintenance of the financial health of microfinance institutions (MFIs). Recent legislative reforms around the world have made it possible for microfinance institutions (MFIs) to increase the amount of money they borrow and the amount of money they borrow from the public. This has resulted in increased competition, efficiency, and access to microcredit, all of which are vital to financial deepening (Hartarska and Nadolnyak, 2007). As a consequence of this, the technological advancements in ICTs as well as the changing legislative and institutional environment have made it possible for MFIs to offer a wide variety of financial services to the population that is underbanked in a more commercial manner.

Xie et al., (2022) investigated the effect of revenue diversification (RD) on the bank efficiency (BE) of seven Asian emerging economies throughout the period of 2008–2019 by making use of the quantile regression technique. Non-performing loans, also known as NPLs, non-interest income, capitalization, and gross domestic product (GDP) were used as control variables in this context. RD, market capitalization, non-interest income, and GDP were shown to have a substantial positive impact on BE, but NPLs were found to have a significant negative association with BE, according to the empirical data. These findings had substantial strategic ramifications for managers, regulators, and policymakers, all of whom shared a common interest in improving the financial sustainability and performance of their respective organizations.

In their study, Osei-Kuffour and Peprah (2020) investigated the correlation between private tertiary schools' institutional profiles and the degree to which their income diversified and their ability to remain financially stable. The research made use of parametric inferential statistics, specifically relying on the regression Process v3.2 by Andrew F. Hayes model 1 as its primary source of information. In the Ghanaian Greater Accra Region, private tertiary institutions served as the research locations for this study. Random samples were taken from forty of the sixty PTIs in the region to answer the self-constructed questionnaires. The questionnaires had a Cronbach Alpha of .863 for the question about revenue diversification and .852 for the question regarding financial sustainability. According to the findings of the study, a positive and moderate association exists between income diversity and the capacity to be financially stable. The prediction of financial sustainability was increased by 17.6% when income was diversified. It was shown that the institutional profile had a substantial enhancing and moderating effect on the connection between income diversification and financial sustainability. When it came to maintaining their financial stability, denominational PTIs depended more heavily on income diversification than non-denominational PTIs did. As a result, the study suggested that the PEIs put their money into businesses that would diversify their income in a beneficial way. In addition, the study suggested that additional research be conducted in order to uncover the other 82,40% of the variables that can contribute to an explanation of the financial sustainability of PEIs.

Diversification of income streams can improve an MFI's profitability and ability to withstand financial crises and maximize shareholder value. The impact of income diversification on MFIs financial performance and sustainability has also been subject to several empirical studies. Practically, and just like other financial institutions, MFIs are shifting towards non-interest income to compensate for their shortfall in interest margins on lending activities. Notwithstanding the fact that revenue diversification is an important survival strategy for MFIs, its impact on performance and sustainability is debatable.

Zamore (2018) aimed to determine whether or not revenue diversification has an effect on the financial performance of microfinance institutions (MFIs) by employing a global panel data set

consisting of 607 MFIs located in 87 different countries during the time period spanning 1998-2015. The fixed effect regression model was utilized in the analysis of the data. According to the conclusions of this research project, increasing an MFI's revenue diversity increases both the organization's ability to be profitable and its capacity for sustained growth.

Microfinance institutions (MFIs) in Ghana were studied by Duho et al. (2012), who investigated how the diversification of revenue affected the MFIs' overall financial performance. The analysis of quarterly data for all MFIs in Ghana for the years 2016–2018 was carried out by the authors using the ordinary least squares (OLS) method. According to the findings, income diversification lowers returns on assets and returns on equity, which suggests that a strategy that is more narrowly focused is desirable for microfinance institutions (MFIs).

A study conducted by Githaiga (2022) attempted to address the question of whether or not the diversification of microfinance institutions' (MFIs) revenue had an effect on the institutions' ability to remain financially viable. In the research, a two-step system Generalized Method of Moments estimate model was utilized, along with a worldwide panel data set that contained 443 MFIs from 108 different nations and covered the period of 2013–2018. According to the findings of the study, the financial sustainability of MFIs is significantly improved by diversifying their sources of revenue in an efficient manner. The outcomes of the study presented key managerial and policy lessons on the topic of the financial sustainability of MFIs. Instead than relying excessively on donations and government subsidies, microfinance managers and policymakers should consider revenue diversification as a method for microfinance institutions to achieve financial sustainability. This study contributes to the body of literature by investigating the influence income diversification has on the financial sustainability of microfinance institutions (MFIs), in contrast to other research that looked at revenue diversification in the context of banking organizations.

Ben Salem and Ben Abdelkader (2023) employed an unbalanced panel sample of 81 MFIs in MENA countries from 1999 to 2018, totalling to 743 MFI-year data, in order to evaluate the effect of MFI diversification and business strategies on the performance and poverty outreach of MFIs. These MFIs were both Islamic and conventional. According to the findings, a decrease in MFIs' financial performance can be attained in MENA nations by improving income diversity in microfinance and concentrating on rural areas. The authors state that typical MFIs are able to increase the depth of their outreach by diversifying their revenue, whereas Islamic MFIs have a smaller breadth of outreach as a result of a greater degree of income diversification.

Githaiga et al., (2023), who examined the effect of intellectual capital on the financial sustainability of MFIs while controlling for income diversification, using a global sample of 444 MFIs and data for 2013–2018 and three panel data estimation models (namely the fixed effect, the random effect, and the dynamic panel system generalized method of moments), discovered a positive relationship between income diversification and the financial sustainability of MFIs.

Additionally, income diversification has been shown to reduce credit risk, thereby enhancing the financial sustainability of MFIs. Lassoued (2017), for instance, investigated the determinants of MFI credit risk by analyzing data from 638 MFIs in 87 countries from 2005 to 2015 and using an OLS estimation model. This study discovered that group lending, the proportion of loans granted to women, and diversification activities reduce credit risk.

RESEARCH METHOD

The study uses a dataset of all MFIs that operated for the for the period between 2010 and 2019. The dataset sourced from the MIX market, a World Data base for all MFIs that self-report with the organization. Kenya has a total population of 53 registered MFIs, however only 32 Kenya MFIs had data for the entire period, resulting to 320 firm-year observation.

We empirically investigate the effect income diversification on financial sustainability of Kenyan MFIs using the model shown below:

$$OSS_{it} = \beta_0 + \beta_1 BOUT_{it} + \beta_2 FS_{it} + \beta_3 ALS_{it} + \beta_4 DTE_{it} + \beta_5 PAR30_{it} + \beta_6 INDIV + \varepsilon_{it}$$

Where:

OSS: operational self-sufficiency, BOUT: breadth of coverage, FS: company size, ALS: average loan amount, DTE: debt to equity ratio, PAR30: portfolio at risk of maturity for more than 30 days, INDIV: income diversification

RESULTS AND DISCUSSION

Descriptive statistics

Table 1 displays the descriptive statistics for the variables used in the analysis. The average operational self-sufficiency is 1.02, which confirms the selected MFIs can be considered to be financially sustainable. The mean breadth of outreach was 3.95666 (minimum =2.13033; maximum = 5.876042; standard deviation = 0.816). The average firm size was 9.0408 (minimum =5.998; maximum = 11.668; standard deviation = 0.992). The table further reveal that the average leverage (DTE) was 2.852 (minimum =0.020; maximum = 9.64; standard deviation = 2.178). While PAR>30 had a mean of 9.0408 (minimum =0.0002; maximum = 0.5868; standard deviation = 0.112).

Table 1. Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
OSS	320	1.019855	.2559336	.4381	1.557
INDIV	320	.3558446	.0888589	.112359	.4830895
BOUT	320	3.946666	.8156843	2.130334	5.876042
FS	320	9.0408	.992262	5.998279	11.66768
ALS	320	1.65099	.452756	.9188007	2.623271
DTE	320	2.852379	2.178461	.02	9.64
PAR30	320	.120835	.1120956	.0002	.5868

Notes: OSS, operational self-sufficiency; INDIV, income diversification; BOUT, breadth of outreach; FS, firm size; ALS, average loan size; DTE, debt to equity ratio, PAR>30, portfolio at risk due for over 30 days

Correlation results

Table 2 provides the correlation matrix of the explanatory variables. OSS and income diversification have have a positive correlation of 0.4893 ,which is statistically significant at 5%. Breadth of outreach and OSS are positively correlated as evidenced by the coefficient of 0.3267. The correlation between firm size and OSS is positive and significant (0.2856).

Similarly average loan size and OSS are positively correlated (0.787). On the other hand debt to equity(-0.3292) ratio and PAR>30 (-0.3559) are negatively and statistically correlated to OSS. Because of the some variables are correlated at the 5% level of significance, we computed the variance inflation factor (VIF) statistics for the regression model. As the VIF statistics are within the acceptable range, the tests do not indicate that any variables should be removed from the regression.

Table 2. Correaltion analysis

	VIF	1/VIF	OSS	INDIV	BOUT	FS	ALS	DTE	PAR>30
OSS	-	-	1.0000						
INDIV	1.21	0.823	0.4893*	1.0000					
BOUT	2.64	0.378285	0.3267*	0.3499*	1.0000				
FS	2.89	0.346145	0.2856*	0.4067*	0.7266*	1.0000			
ALS	1.27	0.786861	0.4048*	0.2084*	0.0443	0.3428*	1.0000		
DTE	1.42	0.704599	-0.3292*	-0.2099*	-0.0800	-0.0423	-0.1469*	1.0000	
PAR>30	1.11	0.904024	-0.3559*	-0.0682	-0.0822	0.1860*	0.0318	0.2947*	1.0000

Notes: OSS, operational self-sufficiency; INDIV, income diversification; BOUT, breadth of outreach; FS, firm size; ALS, average loan size; DTE, debt to equity ratio, PAR>30, portfolio at risk due for over 30 days; VIF, variance inflation factor *5 % significance level.

Regression results

This study examined the impact of income diversification strategy on the financial sustainability of microfinance institutions in Kenya using data from 2010 to 2019 of for 32 Kenyan MFIs. The study shows that income diversification is positively and significantly related to operational self-sufficiency of Kenyan MFIs ($\beta= 0.950, \rho<0.05$). Through Diversified firms that have high fixed assets tend to benefit by generating profits. Diversified MFIs, as predicted by modern portfolio theory (Diamond 1991, Rajan 1992, Saunders and Walter 1994, and Stein 2002), enjoy economies of scope. Diversification helps lessen the ex-ante cost of financial trouble, which is especially important for banks due to their large leverage (Smith & Stulz, 1985). Research by Diamond (1984), Ramakrishnana and Thakor (1984), and Boyd and Prescott (1986) demonstrates that MFIs can save money on the expense of delegated monitoring and establish a credible reputation as borrower screeners by diversifying their revenue streams.

As for the control variables the results revealed that there is a positive and significant relationship breadth of outreach and OSS ($\beta= 0.071, \rho<0.05$). Regarding breadth of outreach, Logotri (2006) found that larger number of borrowers is the biggest sustainability factor, on the contrary, Nyamsogoro (2010) on Tanzanian microfinance institutions reports negative and significant relationship between breadth of outreach and financial sustainability indicating that increase in number of borrower itself does not improve

financial sustainability of microfinance institutions. The reason could be increased inefficiency as a result of increased number of borrowers. However, Hartarska (2005) reports that number of borrowers had no significant impact on financial sustainability. Consequently, higher breadth of outreach might imply higher productivity (efficiency) of MFIs and hence, we can expect breadth of outreach to be positively related with financial sustainability. The number of active borrowers could also represent the size of MFIs as large MFIs have higher breadth of outreach. Big MFIs enjoy economy of scale in comparison to small MFIs (Beccalli *et al.*, 2015) and could be expected to be more financially sustainable than small ones

Similarly, average loan size had a positive and significant effect on OSS ($\beta = 0.196$, $p < 0.05$). As expected PAR > 30 had a negative and significant effect on OSS ($\beta = -0.681$, $p < 0.05$). The average loan size is a proxy for depth of outreach determined as the average gross loan portfolio divided by the number of active borrowers. The indicator of greater depth of outreach is smaller loans. This factor represents the orientation for the development of an MFI or deep access of an MFI, which means the ability of MFIs in reaching very poor clients (Christen *et al.*, 1995). Studies have also concluded that larger loans are related to higher cost efficiency and profitability (Adongo & Stork, 2006; Gregoire & Tuya, 2006; Mahapatra & Dutta, 2016; Nyamsogoro, 2010). However, some studies reported a negative association between average size and OSS (Nadiya *et al.*, 2012; Nadiya, 2014).

Portfolio at risk (PAR) is another variable that could influence MFIs' financial sustainability. The portfolio at risk measures how efficient an MFI is in making collections. The higher the PAR implies low repayment rates and therefore, less financial sustainability. A study by Nyamsogoro (2010) supports this negative relationship between PAR and financial sustainability. The level of leverage, measure as ratio of debt to equity had a negative and significant effect on OSS ($\beta = -0.111$, $p < 0.05$). The results agree with those reported a negative relationship between debt level and MFIs performance (Rajan & Zingales, 1995; Wald, 1999; Booth *et al.*, 2001; Fama and French, 2002). However, Kinde (2012) found that capital structure has insignificant impact on financial sustainability of MFI. Third, capital structure: the lower the leverage ratio, the higher OSS. MFIs with more equity have better sustainability than the MFIs borrowing or getting deposits from the public. This is thanks to the fact that owners of MFIs did not get profit sharing at all, and MFIs are operated mostly under social enterprise form.

Firm size had a negative and significant effect on OSS ($\beta = -0.022$, $p < 0.05$). The empirical evidence regarding the relationship between size and MFIs' sustainability shows a positive association. Studies by Nyamsogoro (2010), Bogan (2008), Mersland and Storm (2007) and Cull *et al.*, (2008) show that size is positively and significantly related to financial performance reflecting the cost advantages associated with size (economies of scale). The result suggest that larger microfinance institutions tend to be less financially sustainable, which could be explained by diseconomies of scale and accumulation of NPLs. Furthermore, large MFIs are more likely to have exhausted their growth opportunities and facing declining profits.

Table 3. Regression of OSS on income diversification

	OLS	Random Effect	Fixed Effect	S-GMM
OSS	Coef.	Coef.	Coef.	Coef.
CONSTANT	.461(0.114)**	.329(0.138)**	.215(0.155)	.443(0.280)**
<i>Independent variable</i>				
INDIV	.950(0.0131)**	.517(0.120)**	.466(0.123)**	.459(0.150)**
<i>Control variables</i>				
BOUT	.071(0.021)**	.112(0.025)**	.138(0.031)**	.089(0.045)**
FS	-.022(0.019)	-.004(0.016)	.001(0.016)	.006(0.023)
ALS	.196(0.026)**	.210(0.037)**	.208(0.043)**	.159(0.053)**
DTE	-.111(0.043)**	-.186(0.047)**	-.203(0.050)**	-.305(0.075)**
PAR>30	-.681(0.113)**	-.410(0.116)**	-.384(0,124)**	-.476(0.201)**
R	0.4872	0.4400	0.4138	
No. Obs	320	320		

Notes: OSS, operational self-sufficiency; INDIV, income diversification; BOUT, breadth of outreach; FS, firm size; ALS, average loan size; DTE, debt to equity ratio, PAR>30, portfolio at risk due for over 30 days; *5 % significance level; standard errors (Std. Err.) in parentheses

Additional analyses

The study begun by employing the pooled ordinary least squares (OLS) regression to estimate the correlation between revenue diversification and the financial sustainability of microfinance institutions (MFIs). One common issue encountered in panel data research is the presence of unobserved heterogeneity, which can pose challenges to the accuracy of ordinary least squares (OLS) estimations. The presence of unobserved heterogeneity can arise from independent variables that are either observable or unobservable, meaning they are not accounted for in the regression model. Hence, it is possible for the estimators derived from these regressions to exhibit bias and inconsistency, as we assume that the individual fixed effects are uncorrelated with the explanatory factors related to the MFI level. In order to address the potential bias associated with ordinary least squares (OLS) estimators, the study incorporated three alternative panel data estimating methodologies, namely fixed effects, random effects, and a combination of both. The research utilized the one-step generalized method of moments (GMM) to address the issue of potential endogeneity. We reported the results of the additional panel data estimation models comprising on the fixed effect, random effect and System-GMM methodology in Table 3 All the results are satisfactory for the models and significant in our models at 5% level. Specifically, the effect of income diversification on MFIs financial sustainability is positive and significant.

CONCLUSION

The growth of MFIs has seen unprecedented growth in the last two decades. However, this fast growth not contribute to sustainable poverty alleviation unless MFIs remain financial sustainable. In addition, MFIs are gradually engaging in income diversification to compensate for the deteriorating interest income. Consequently, this study examines the nexus between income diversification and the financial sustainability of MFIs in Kenya. To this end, the study uses a panel dataset of 32 MFIs in Kenya during 2010 to 2019 and applies the OLS, fixed effect, random effect and the Arellano-Bover/Blundell-Bond two-step Generalized Method of Moments (GMM) to estimate the parameters. Our results establish that income diversification had a positive and significant effect on Kenyan MFI financial sustainability. Our findings show that diversification into non-lending activities may improve MFI financial sustainability.

The managerial relevance of the study is enormous. The findings emphasize the need for managers to consider other revenue streams that can lead to financial sustainability. Future researchers should explore the social performance of microfinance firms and how it is driven by their risk management strategies. This study used cross-sectional data due to data unavailability of panel data, thus, we entreat future researchers to explore the nexus using other types of data, including balanced panel data. Researchers should also explore the impact of the COVID-19 pandemic on the corporate governance practice, risk management practices, loan management practices and sustainability practices of MFIs. Also, studies may consider the specific elements of income diversification such as fee, commission and underwriting on financial sustainability of MFIs.

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