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Influence of Financial Leverage on Financial Sustainability. A Case of a Microfinance Institution in Kenya

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Abstract

Microfinance institution plays a crucial role in economic development and financial inclusion. Financial sustainability is the key dimension to microfinance institutions growth. Which further indicate the importance of which Financial sustainability is. Therefore, the present study investigated the effect of financial leverage on MFI financial sustainability. The specific objective was to establish the effect of financial leverage on the financial sustainability of MFIs. The study was guided by agency theory and life-cycle theory. The study adopted an explanatory research design where a panel approach was used as well as the positivist paradigm. The study adopted the census approach method. Panel data was drawn from 30 MFIs for a period between 2010 and 2018 from mix market database using the data collection schedule. The study used both descriptive and inferential statistics to analyze data with the help of STATA software. Fixed effect model based on Hausman test ($X^2 = 45.41$, $p = 0.000 \leq 0.05$). Based on the findings of the study financial leverage ($\beta 1 = 0.27, p - value = 0.001$), the study had a positive and significant effect on the financial sustainability of MFIs. The study recommended MFIs managers to engage in the prudent use of financial leverage so that they enhance their overall profitability and boost investor confidence in their strategic decision-making resulting in financial sustainability. The results have an implication to business managers and policymakers given the vital role in service delivery and the challenges hindering the sector from the realization of financial sustainability in the economy.

Keywords: Financial Leverage, Financial Sustainability, Microfinance Institutions, Microfinance Information Exchange.

1. Introduction

Microfinance institutions (MFIs) are feted and perceived as a panacea to economic development and a key contributor to financial inclusion, especially in developing nations (Lopatta, Jaeschke, & Chen, 2017). Access to finance is essential for socio-economic initiatives and programs aimed at poverty alleviation, wealth creation and improved standard of living in developing and emerging economies (Henock, 2019). MFIs are modeled to serves economically active people who have been excluded from conventional banking (Marwa & Aziakpono, 2015). Scholars have attributed financial exclusion to factors such as high transaction cost, inadequate collateral, information opacity and higher default rates (Olomi, 2009). Besides, there is a tactical failure by conventional financial institutions to provide credit services to the poor and microenterprises in the developing nations, since they are viewed as un-bankable because of their low disposable income. Thus, Microfinance institutions are intended to bridge the financing gap created by mainstream banking institutions. Interestingly, with increased competition banking institutions are gradually expanding their financial services, through diversification and innovation of financial, products tailored for the low-income earners (Blanco, Pino-Mejías, Lara, & Rayo, 2013).

Equally, the poor have largely demonstrated that they are bankable; they can save, borrow and pay just like any other investor (Abate, Borzaga, & Getnet, 2013) which has motivated microfinance institutions to continue serving the poor through approaches such as solidarity lending, progressive lending with regular repayment schedules as a dynamic incentive and loan guarantees (Thapa, 2006). Due to their historical background, serving the underprivileged, MFIs are largely reliant on donor's funds, however, these funds are highly volatile and inadequate leading to financial unsustainability which is likely to erode the quality of future services. Thus, MFIs must strive for financial sustainability to meet their goals (Ghosh & Van Tassel, 2013; Helms, 2006). This can be achieved through commercialization and competition of micro-lending services focusing on financial sustainability (Abate et al., 2013).

Financial sustainability is considered as a way of securing the future beyond subsidies and donations as an essential ingredient for their success (Pylypiv & Chakravarty, 2015). The main challenge facing the MFI sector is how to finance its services without undermining financial sustainability (Awaworyi Churchill, 2018). In sub-Saharan Africa (SSA) MFIs have been employing different types of financing, including multilateral grants and loans, deposits (micro-savings) and commercial loans (Chikalipah, 2019). Over the years, microfinance institutions have evolved and broadened their funding structure. Currently, in the pecking order, deposits, debt, and equity are the main sources of finance to microfinance institutions

(Sapundzhieva, 2011). Arguably, the financing order conforms with the Agency theory. This theory is based on the agency costs hypothesis, whose main proposition is the separation of ownership from control (Jensen & Meckling, 1976). Agency theory suggests that through debt financing the interest of management and stakeholders are aligned (Jensen, 1986; Myers, 1977). Equally, Kar (2012) argues that leveraged MFIs are profitable than unleveraged ones, implying they are more financially sustainable. According to Kyereboah-Coleman (2008), financial leverage serves to reduce moral hazards and adverse selection, which is synonymous with free cash flows, owing to monitoring by external lenders. Hence, the use of debt may improve MFIs cash-flow and ultimately guaranteeing sustainability.

Other than the use of debt to enhance financial sustainability, researchers have proposed additional interventions. First, MFIs can increase their interest rates to meet transaction costs, however, this move may deny low-income earners access to credit (Dehejia, Montgomery, & Morduch, 2012). Globally, MFIs endeavor to remain financially sustainable (Lensink, Mersland, Vu, & Zamore, 2018). This is because financial sustainability is the yardstick of its success (Baumann, 2004). Second, MFIs should adopt modern financial technologies. Third, the regulator should ensure a favorable regulatory environment for MFIs to thrive (Hermes & Lensink, 2011). Though studies have largely explored the demand side which looks at how MFIs are beneficial to the clients (Gopalaswamy, Babu, & Dash, 2015), little is known about what sustains these institutions in terms of their long-term sustainability.

1.1 Problem Statement

Financial sustainability has recently captured the attention of many scholars and policymakers owing to its importance to firm profitability and survival (Nyamsogoro, 2010). In the context of MFIs, financial sustainability is vital to the effective realization of the poverty alleviation agenda (Kabeer, 2005; Mahjabeen, 2008). However, since inception, MFIs have been struggling to serve a significant size of the underprivileged population, while at the same time remain financially sustainable (Lensink *et al.*, 2018). Though MFIs have grown impressively over two decades, through innovative lending practices, experience, government, and donors support, financial sustainability remains the biggest challenge to their survival (Hartarska & Nadolnyak, 2007). Researchers claim that institutions which are financially sustainable grow bigger and stable. Financially sustainable institutions finally integrate into local financial systems (Schneider & Greathouse, 2004).

Despite the significance of financial leverage to financial sustainability, extant literature shows mixed results. Several studies have indicated that financial leverage had a positive significant association with financial sustainability (Berger & Di Patti, 2006; Champion, 1999; Roden & Lewellen, 1995). Furthermore, other scholars have found a negative relationship (Abate et al., 2013; Booth, Aivazian, Demirguc-Kunt, & Maksimovic, 2001; Deesomsak, Paudyal, & Pescetto, 2004; Fama & French, 2002; Hou, 2019). The discrepancy of the finding is owed to the fact that most studies were undertaken in advanced economies (USA, Europe and Asia Pacific) with high financial inclusion rate and high disposable household income, which implies that MFIs are of less significance as compared to banks (Berger & Di Patti, 2006; Hou, 2019; Roden & Lewellen, 1995). However, in developing economies MFIs plays an important role in bridging the wide gap created by conventional banks, hence financial sustainability requires special attention. Therefore, this study seeks to examine the effect of financial leverage on financial sustainability in less developed economies, Using Kenya as a case study.

2. Literature Review

2.1 Theoretical Literature: Agency Theory

This study is grounded on Agency theory that was advanced by Jensen and Meckling (1976), in their seminal paper "*Assessing the Theory of the Firm: Managerial behavior, agency costs, and Ownership Structure.*" The theory claims the existence of a conflict between the principal and the agent, where the managers (agents) engage in self-seeking behaviors at the expense of stakeholders (principal). Jensen and Meckling (1976) posit that a firm's choice of capital structure may help lessen the agency conflict. Presumably, the theory emphasizes the need for separation of ownership from control. Jensen and Meckling (1976), the theory was later reviewed by Myers (1977) who suggested that higher financial leverage eases the conflicts between shareholders and managers regarding the choice of investment. Similarly, Grossman and Hart (1982); Williams (1987), advocated that high leverage limits managerial discretion and lessens firm's exposure to liquidation while subjecting managers to loss of salaries, reputation, and perquisites. Moreover, piling pressure on the manager to generate sufficient cash flow for debt repayment (Jensen, 1986).

Theoretically, a firm's optimal financial structure is a mixture of debt, preferred stock, and common equity (Harris & Raviv, 1991). It is worth mentioning that deposits are a unique source of funds to MFIs, which permits the mobilization of micro-savings from customers (Chikalipah, 2019). It is a statutory requirement

for MFIs to meet specific capital requirements before being licensed to engage in deposit collection and lending (Cull, Demirgüç–Kunt, & Morduch, 2011). Therefore, with the low saving levels and high demand for loans, debt capital is inevitable to MFIs. However, debt has been pronounced as a double-edged sword because it can magnify either the firm's potential gains or its potential losses (Hou, 2019). This means that a firm can either end in financial sustainability or distress which calls for optimal leverage. Firms' that employ leverage benefit from tax shields since interest on the debt is an allowable expense in corporate taxation (Modigliani & Miller, 1963). Conversely, extreme leverage might lead to financial distress thus lowering the firm's value (Ross, Westerfield, & Jaffe, 2002).

In line with the theoretical review, this study argues that MFIs should consider financial leverage for two reasons. First, finance theories have confirmed that financial leverage aligns managerial interests to those of the shareholders (Hudon & Traca, 2011). Secondly, through external debt, MFIs will have sufficient and cheaper source of capital which will improve their financial sustainability, however, management should consider the firm's optimal debt level to avoid financial distress.

2.2 Empirical Review

2.2.1 Financial Leverage and Financial Sustainability

Financial sustainability is crucial to MFI development and long-term survival. With the emergence of capital markets, firms are more accessible to innovative financing options. However, there appears to be a consensus in favour of debt financing due to its role in monitoring free cash flows and agency problem. Despite, the importance of debt financing, it is argued that financial leverage might compel the firm to spent future cash flows to meet debt obligations to prevent financial distress that might lead to liquidation or takeover (Towo, Mori, & Ishengoma, 2019). In the recent past institutions have resolved to utilize financial leverage to deepen their outreach (Hartarska & Nadolnyak, 2007). Furthermore, MFIs have been pressurized to reduce the reliance on subsidies and grant funding.

The link between financial leverage and firm financial sustainability has attracted substantial interests among scholars, practitioners, and policymakers. However, existing literature shows that the findings are largely mixed up. A study by Berger and Di Patti (2006) in the US banking sector found that financial leverage had a positive and significant effect on financial sustainability. similar findings were reported by Champion (1999). On the contrary, a few researchers established a negative relationship between financial leverage and financial sustainability, a study by Booth et al. (2001) that used a sample of 10 countries; India,

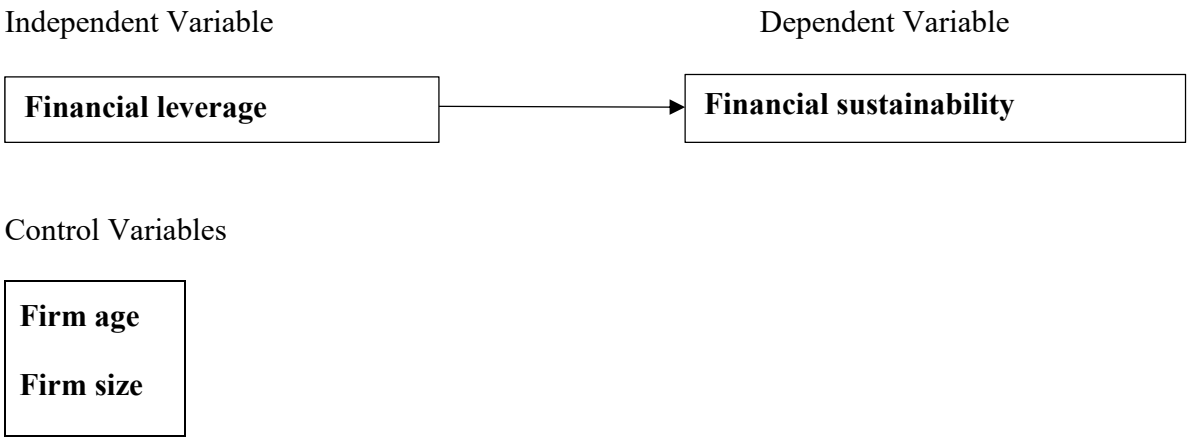
Pakistan, Thailand, Malaysia, Turkey, Zimbabwe, Mexico, Brazil, Jordan, and Korea. These findings are similar to Hartarska and Nadolnyak (2007), who studied 114 MFIs from 62 countries and panel data for the period between 1999- 2001. The debate on financial leverage and financial sustainability is further intensified by Kinde, (2012) study that used balanced panel data set of 126 observations from 14 MFIs over the period between 2002-2010, and found an insignificant effect. Given the empirical literature, it is apparent that the financial leverage and financial sustainability nexus requires further investigation; particularly in developing countries where MFIs play a crucial role in socio-economic development despite the recognizable financial and legal impediments. Thus, based on theory and extant literature this study hypothesis is developed as follows;

***H_o**: Financial leverage has no significant influence on MFIs financial sustainability.*

***H_a**: Financial leverage has a significant influence on MFIs financial sustainability.*

2.3 Conceptual Framework

The main objective of the study is to examine the effect of financial leverage on MFI financial sustainability. Hence, the outcome variable is financial sustainability while the predictor variable is financial leverage. Further, the study controls for firm age and firm size. The theoretical relationship between the variables is depicted in a conceptual framework as shown below.



Source: Research author, (2019)

Figure 1: Conceptual Framework

3. Research Design

This study is guided by the explanatory research design since it seeks to establish the causal relationship between financial leverage and financial sustainability. The research methodological issues are discussed in the subsections.

3.1 Data and sample

The target population was the 52 MFIs in Kenya (CBK, 2015). However, due to the availability and completeness of data, only 30 MFIs qualified for further statistical analysis. Panel data for the period between 2010 to 2018 was extracted from the MIX market database, compiled by the World Bank, with the aid of the data collection schedule. In total, the study had 270 year-end observations.

3.2 Research model

The study hypothesis was tested using the results of multiple regression analysis. Since panel data was used, the choice between fixed effect and random effect regression model was based on Hausman test. Two regression models were used; where model 1 tested the controls and model 2 the main effect as illustrated below.

$$FSS_{it} = \alpha_{0it} + \beta_{1it} Fage_{it} + \beta_{2it} Fsize_{it} + \varepsilon_{it} \ldots\ldots\ldots Model \ldots\ldots\ldots (..1)$$

$$FFSS_{it} = \alpha_{0it} + \beta_{1it} Fage_{it} + \beta_{2it} Fsize_{it} + \beta_{3it} Flev_{it} + \varepsilon_{it} \ldots\ldots\ldots Model \ldots\ldots\ldots (..2)$$

Where:

FSS_{it} = MFI financial sustainability for … *i* in year *t*

$Flev_{it}$ = MFI financial leverage for … *i* in year *t*

$Fsize_{it}$ = Firm size…. *i* in year *t*

$Fage_{it}$= Firm Age …*i* in year *t*

α_{0it} = *constant*

$\beta_{1it} - \beta_{3it}$ = *coefficients of regression*

ε_{it} = *error terms*

3.3 Data analysis

Data was analyzed using descriptive and inferential statistics. The data was summarized into mean, standard deviation, minimum and maximum values of the research variables. Further, the nature and the magnitude of the relationship among variables was tabulated using pairwise correlation analysis. Additionally, several diagnostic tests were conducted before testing the hypothesis through regression analysis. The results of the diagnostic tests are shown in tables 1-3, which confirms that the data was suitable for multiple regression analysis.

4.1 Panel Unit Root Tests

The study tested for unit root to establish whether the variable was stationary with the aid of Phillip – Perron's test unit root. To establish the presence or absence of unit root. The following hypothesis was considered for this test.

Null hypothesis (Ho): All panels contain unit root.

The alternative hypothesis (H1): At least one panel is stationary.

Looking at the *p*-values in Table 1, the null hypothesis was rejected, which means that none of the variables had unit root.

Table 1: Unit root

	Inverse chi-squared(58)	**Inverse normal**	**Inverse logit t(144)**	**Modified inv. chi-squared**
	P	**Z**	**L***	**Pm**

Financial Sustainability	155.46	-3.52	-6.31	1.15
p-value	.00	.00	.00	.00
Financial leverage	188.05	-4.59	-7.74	12.07
p-value	.00	.00	.00	.00
Firm age	52.28	.39	.14	-.71
p-value	.00	.00	.00	.00
Firm size	215.27	-5.36	-8.84	14.60
p-value	.00	.00	.00	.00

Source: Research Author, (2019)

4.2 Test for Heteroskedasticity

Heteroskedasticity was tested using the Breusch-Pagan test. The error term mean was constant over time if not constant it will affect the association between financial leverage and financial sustainability. Heteroscedasticity test was run to test whether the error terms are correlated across observation in the time series data. The study findings revealed that Chi2 (1) was 0.50, a p-value of 0.4808 implying that the hypothesis was not rejected hence revealing that the assumption of constant variance was not violated. The findings are presented in table 2.

Table 2. Breusch-Pagan / Cook-Weisberg Test for Heteroskedasticity

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of Financial Sustainability

chi2(1)	= .50
Prob > chi2	= .4808

Source: *Research Author, (2019)*

4.3 Test for Autocorrelation

This study used the Wooldridge test to check the presence of autocorrelation in the data; whether or not the residual is serially correlated and the results as shown in table 3. The test statistic as reported by the F-test with one and 7 degrees of freedom, value of 6.597 and p-value of 0.0671 indicated the absence of autocorrelation.

Table 3. Wooldridge test for autocorrelation

Wooldridge test for autocorrelation in panel data	
H0: no first-order autocorrelation	
F(1, 7) =	6.597
Prob > F =	.0671

Source: *Research Author, (2019)*

4.4 Hausman Test

Hausman test was done to determine the suitability of either fixed effect or random effect regression model. The standard hypothesis of this test is that random effect estimator in the panel data, whereas the alternative is that the fixed effect model is the appropriate estimator. Based on the findings, chi-square value of 45.41 and p-value = 0.000, the null hypothesis was rejected implying that fixed effects was the most appropriate model of testing the hypothesis.

4.5 Results and discussion

Table 4 shows the means, minimum, and maximum values and the standard deviation of the research variable and data for a period between 2010-2018. Based on the table, the mean of financial sustainability was 0.351 with a minimum of -.864, a maximum of 4.91 and standard deviation of 0.93, whereas, the average financial leverage was 1.04 with a minimum of -3.91, a maximum of 4.82. and a standard deviation of 1.33. Furthermore, the MFI age and size had a mean of 1.86 and 0.736, as the standard deviation was 0.181 and 0.46 respectively. These indicate the variability of variable changes over some time.

Table 4: Descriptive Statistics

Variables	Obs	Mean	Std.Dev	Min	Max
Financial sustainability	270	0.35	0.93	-0.86	4.91
Financial leverage	270	1.04	1.33	-3.91	4.82
Firm size	270	1.86	0.18	1.15	2.24
Firm age	270	0.74	0.46	0.00	1.09

Source: Research Author, (2019)

4.3 Correlation Analysis

The study used correlation to examine the nature of statistical relationship between financial sustainability, financial leverage, firm age and firm size. The correlation matrix is illustrated in table 5, where the results show that financial sustainability and financial leverage had a positive significant correlation ($r= 0.162$; $p<0.05$). Further, the correlation between financial sustainability and MFI age ($r=.039$, $p<0.05$), financial leverage and MFI age ($r=.315$, $p<0.05$), financial leverage and MFI size ($r=.383$, $p<0.05$), MFI size and MFI age ($r=.459$, $p<0.05$) was positive. While, financial sustainability and MFI size ($-.271$, $p<0.05$) were negatively correlated.

Table 5: Correlation Matrix Results

Variables	Fsn	Fl	Fa	fs
Financial Sustainability (Fsn)	1			

Financial leverage (fl)	.162**	1		
Firm age (fa)	.039**	.315**	1	
Firm size (fs)	-.271**	.383**	.459**	1

** Correlation is significant at the .05 level * Correlation is significant at the .01 level

Source: Research Author, (2019)

4.4 Regression Analysis

The study's hypothesis was tested using a fixed-effect regression analysis. The hypothesis stated that financial leverage had no significant effect on MFIs financial sustainability in Kenya. The findings reported a beta coefficient of 0.1713 and a p-value= 0.000 <0.05, therefore, the null hypothesis was rejected implying that the alternative hypothesis was adopted. Thus, a unitary change in financial leverage led to a 0. 1713 unit change in financial sustainability. The overall regression model had an explanatory power of 0.235, which implies that the model predicts 23.56% variability in the financial sustainability of MFI.

Table 6. Results of fixed-effect regression analysis

MFI financial sustainability	**Coef.**	**Std. Err.**	**t**	**P>t**	**[95% Conf.**	**Interval]**
Firm Age	0.524	0.174	3.02	0.003	0.1799	0.868
Firm Size	-0.481	0.108	-4.49	0.000	-0.693	-0.269
MFI financial leverage	0.171	0.054	3.19	0.002	0.065	0.277
_cons	2.986	0.691	4.32	0.000	1.617	4.354
R squared	0.236					
sigma_u	0.525					
sigma_e	0.631					

F statistic	F(28,123)
Prob(Chi2)	0.000
No of Obs	270

The study found a positive relationship between financial leverage and financial sustainability. Consistent with these findings, Hassan & Bashir, (2003) postulated that profitable firms borrow more because their repaying capacity is guaranteed. In a similar case, Harelimana, (2017) elucidated that financial leverage is a driver of MFIs sustainability. The findings are further supported by (Akhtar *et al.,* 2011), who contend that financial leverage signifies a positive expectation on financial returns. Levered firms have a higher market value due to the benefits arising from tax shield (Modigliani & Miller, 1963). Though, excessive use of debt capital might lead to financial distress thus lowering the firm's value (Ross et al., 2002). Hartarska and Nadolnyak (2007), confirmed that MFIs with less debt have better financial sustainability. Therefore, managers should craft policies that guide optimal financial leverage to enhance MFIs' financial sustainability. This is so, especially in developed nations where MFIs have a high potential of growth but they suffer from low deposit levels and underdeveloped external capital market.

5. Conclusions

The findings of this study revealed that financial leverage had a positive significant effect on MFI financial sustainability. Based on these findings, the study concluded that financial leverage would lead to financially sustainable MFIs. Accordingly, MFIs should consider using debt to finance their operations besides mitigating possible agency conflicts. Further, the study confirms that, though finance theories advocate the usage of debt, financial leverage is a double-edged sword since it can either improve MFI financial health or sink these institutions into financial distress.

6. Recommendations and suggestions for future research

Microfinance institutions have been feted and perceived as a panacea to poverty alleviation and financial inclusion. However, MFIs are largely financially challenged. To address this problem, and based on the findings, the study recommends that management should give priority to external financing to improve

financial sustainability since debt improve firm value and it a cheap source of finance. In addition, shareholders should consider debt financing since it aligns managerial goals to those of the firm, principally shareholders' wealth maximization and profit.

Also, the study recommends that MFIs should develop borrowing strategies to guide managers to ensure prudent borrowing that contributes to the overall profitability and boost investor confidence. Finally, the study recommends that future studies can consider other subsectors such as banks, Sacco's and insurance companies, which might shed more light on the relationship between financial leverage and financial sustainability.

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