Determinants of the Financial Performance and Sustainability of Microfinance Institutions in Togo

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Abstract:

Through its mission to facilitate access to financial services for the most disadvantaged groups, microfinance has proven to be an important strategy for poverty alleviation throughout the world and especially in developing countries. In order to be able to perfectly and sustainably assume this role, microfinance must itself be financially self-sufficient. The purpose of this study is to investigate the factors that affect the financial performance and level of financial sustainability of microfinance institutions in Togo. An ordinary least square, binary probit and ordered probit regression models were used in the study to identify the factors affecting the return on asset take as a proxy of financial performance, the operational and financial sustainability of microfinance institutions. Unbalanced panel data collected from the MIX Market database of 29 microfinance institutions (MFIs) in Togo over the period 1999 to 2018 were used in the study. The results show that the financial performance of microfinance institutions was influenced positively and statistically by size. However, the depositors per borrower and the loan loss ratio have a negative and significant relationship with the financial performance. The operational sustainability was positively and significantly related to the depositors per borrower ratio, the PAR>30 and the productivity ratio. On the opposite, it has a negative and significant relationship with the PAR>90 and the personal expense to outstanding loan ratio. Finally, financial sustainability was significantly and positively influenced by the size and it was significantly and negatively influenced by PAR>90.

Keywords: Financial Performance, Financial Sustainability, Microfinance Institutions, Togo

JEL Codes: C23 D24 D53 G32 L25

1. Introduction

Improving access to financial services of the most disadvantaged social groups has long been an issue that many programs and projects have tried to solve. For these reasons, most developing countries' governments and donors during the past 40 years have set up credit programs aiming to improve rural households' access to credit. The vast majority of these programs, especially the so-called "agricultural development banks" that provide credit at subsidized interest rates, have failed both to achieve their objectives to serve the rural poor and be sustainable credit institutions (Diagne et al., 2001).

Microfinance institutions (MFIs) which encompass a wide range of providers that vary in legal structure, mission, and methodology offer different financial services to clients who do not have access to mainstream banks or other formal financial service providers (Lafourcade et al., 2005). In this regard, microfinance institutions by supplying loans, accepting savings, money transfers, insurance, and other financial services to low income people became an essential pillar in many development projects worldwide and more precisely in developing countries. According to Ledgerwood cited in Hossain & Khan, (2016), the aims of microfinance institutions as advanced organizations are to facilitate the financial needs of underserved markets as a means of meeting development objectives such as to generate employment, reduce poverty, support in current business or expand their activities, empower women or other disadvantaged population groups, and inspire the development of new business.

The microfinance sector, apart from being a critical component of the financial system, is also regarded as a poverty reduction strategy for developing countries (Kyereboah-Coleman, 2007, Tehulu, 2013). The sector has so far been able to combine the provision of financial services to the poor with financial sustainability to the extent possible. According to Christen et al., (1995), financial viability is a precondition for reaching large numbers of microenterprises with financial services over a sustained period. Viability allows a microfinance program to maintain its operations indefinitely, independent of concessional funding. Strong financial performance allows institutions to access far more abundant sources of funds (i.e., client savings and financial markets in general). Performance and the achievement of financial sustainability, which are the focus of this research, are of high importance to microfinance institutions, donors, and to some extent clients. Achieving financial sustainability and maintaining good performance is not an easy goal for most microfinance institutions.

Christen et al., (1995); Rai et al., (2012); Schäfer & Fukasawa, (2011); Usman et al., (2016), Gadedjisso-Tossou et al., (2020) ; Ndione, (2020) ; Tehulu, (2013); Bui, (2017); Cull et al., (2007); Cull & Demirguc-Kunt, (2006); Wale, (2009); Kereta, (2007); Mustafa, (2017); Heng, (2015); Kanyenda, (2019); Hossain & Khan, (2016); Fersi & Boujelbéne, (2016); Hartarska, (2005) and Ibrahim, (2015); as many other researchers have conducted many studies on the issue of financial sustainability and performance of microfinance institutions. The results of these studies are diverse and vary depending on the location of the study area and the researcher. But it is also noticed that this subject remains little treated in the case of Togo. Taking into account a single ratio (operational self Sufficiency) and a small number of microfinance institutions, Ibrahim, (2015); tried to broach the subject. Thus using a multiple regression model, a probit model, an ordinal probit model, a more representative number of microfinance institutions over the period 1998-2018 and finally three performance

measurement ratios, this study seeks to identify the factors that determine the financial performance and the level of financial viability of microfinance institutions in Togo.

2. Literature Review

This section presents a brief summary of the literature review on the notion of performance and that of the financial viability of microfinance institutions.

2.1. Performance of microfinance institutions

According to various literature, the performance of an institution can be understood from two angles. These are social performance and financial performance. According to Boye et al., cited in Fersi & Boujelbéne, (2016), social performance reflects a measure of the MFI's intentions to have a social impact and proper integration in its environment. It clarifies the objective of the struggle against poverty for a microfinance institution. The social performance itself can be separated in four dimensions namely, targeting and outreach, adaptation and quality of services, economic benefits, and social responsibility (Doligez and Lapenu, 2007, Amersdorffer et al., 2015). Financial performance is one of the indicators used to measure the success of microfinance institutions in terms of their financial returns. It is often considered as a yardstick used by investors to conduct due diligence and assess the status of an investment; it is also used as the tool by government supervisors to assess compliance with regulatory measures and monitor the overall health of the financial sector (CGAP, 2009, Bui, 2017). Financial performance is the ability of an MFI to cover the set of its expenses by its income and finance its growth (El Kharti, 2013, Fersi & Boujelbéne, 2016). The latter, which is the subject of our study, has attracted a lot of interest from analysts and researchers because it is a key point in achieving the financial viability of microfinance institutions.

According to Bui, (2017), All MFIs, from non-profit NGOs to profit-oriented microfinance institutions must have a good financial performance, i.e., must be profitable over the long-term in order to be self-sustaining. Profitability allows an MFI to continue operating and to grow. In order to understand the financial performance of microfinance institutions, various indicators are used by different authors. Thus some has used profitability ratio like Return On Asset (ROA) and sustainability ratios like Operational Self Sufficiency and Financial Self Sufficiency (Cull et al., 2007; Crombrugghe et al., 2008; Quayes, 2015; Fersi & Boujelbéne, 2016). On the other hand, some authors have only used profitability ratios to understand the financial performance of microfinance institutions (Christen et al., 1995, Bui, 2017). Given the structure of this study and based on the results of some previous research only the return on asset ratio will be used in this paper as a proxy for the analysis of the financial performance of microfinance institutions.

2.2. Financial sustainability

The term "sustainability" refers to the long-term continuation of the microfinance program after the project activities has been discontinued (Christen 1997, Meyer 2000, CGAP, 2004, Ibrahim, 2015, Bui, 2017). It entails that appropriate systems and processes have been put in place that will enable the microfinance services to be available continuously and the clients continue to benefit from these services in a routine manner (Bui, 2017). Sustainability according to some authors should be not immediately seen from the financial point. Sustainability in microfinance go beyond the financial perspective and could be also appreciated under different aspects like the institutional, market, legal policy environment, and impact aspects (León 2001, Ibrahim, 2015). According to Khandker et al. (1995) cited in

Rai et al. (2012), the concept of sustainability of microfinance can be divided into four interrelated ideas; namely, financial viability, economic viability, institutional viability and borrower viability. Bui, (2017), argued that it has broader dimensions including institution sustainability, market sustainability, legal policy environment sustainability and impact sustainability. It can be viewed from an institutional or project perspective. But in the present research, only the financial component of the sustainability concept will be taken into account.

According to Ledgerwood (1999), Financial viability refers to the ability of an MFI to cover its costs with earned revenue. To be financially viable, an MFI cannot rely on donor funding to subsidize its operations. Financial sustainability means being able to continuously operate or function towards microfinance objectives without depending on donor support. (Dunford, 2003, Hossain & Khan, 2016, Bui, 2017). Some analysts identified three or four levels of financial viability to be reached by an IMF but Currently, most people in the microfinance industry refer to only two levels. To determine financial viability, self-sufficiency indicators are calculated. There are usually two levels of self-sufficiency against which MFIs are measured: operational self-sufficiency and financial self-sufficiency. (Ledgerwood, 1999). According to Meyer cited in (Hossain & Khan, 2016), Financial viability is measurable in two stages viz. Operation Sustainability (OSS) and Financial Self-sufficiency (FSS). Operational sustainability refers to the ability of the Microfinance Institution to capture its operating costs from its operating income whether it is subsidized or not. However, MFIs are financially self-sufficient when they can manage their operating and financing costs from their own generated income and other forms of subsidy valued at market prices. The MIX Market defines the term financial sustainability as having an operational sustainability level of 110% or more, while operational sustainability is defined as having an operational self-sufficiency level of 100% or more. And the Operational self-sufficiency = total operating income/total operating expenses (including administrative expenses, interest expenses, and loan loss provision). This last definition is the base-line of this research.

3. Review of Prior Empirical Studies

MFIs are generally perceived as pursuing double objectives in that they aim to reach out to as many poor people as possible and at the same time be able to cover their costs and remain in business going into the future. By definition an MFI has a dual objective of reaching many poor borrowers and also covering its costs that are self-sufficiency (Hartarska, 2013, Kanyenda, 2019). The reason, many researches have been carried about the performance and the sustainability of microfinance institutions. Christen et al., (1995) with their research: Maximizing the Outreach of Microenterprise Finance, found among high-performing programs, no clear trade-off exists between reaching the very poor and reaching large numbers of people, and that financial services for the poor can be provided on a financially viable basis. They also found that only two factors explained the differences in the success of the studies programs: salary levels of program staff relative to local GDP, with lower salaries associated with more financially viable programs, and the effective real rate of interest, that is, relative to inflation. However, loan size, number of clients per staff member, gross domestic product (GDP) growth, financial sector repression, and macroeconomic stability did not appear to determine success. Cull et al.,(2007) sought to identify a tradeoff between financial performance and outreach of leading microbanks. The evidence shows the possibility of earning profits while serving the poor, but a trade-off emerges between profitability and serving the poorest. They find also that Raising fees to very high levels does not ensure greater profitability and the benefits of cost-cutting diminish when serving better-off customers. Quayes, (2012) also Utilizing data from 702 MFIs operating in 83 countries,

this study shows empirical evidence of a positive complementary relationship between financial sustainability and depth of outreach. But Adongo & Stork, (2005) Zerai & Rani, (2011) and Tehulu, (2013), found no tradeoff between breadth of outreach financial sustainability.

Using both OLS and GMM techniques and the Return on Asset ratio (ROA) as the dependent variable, to examine the impact of the institutional environment as well as macroeconomic factors on MFIs' profitability, Bui, (2017) found a dynamic role of profitability and economies of scale in microfinance. The results also showed that loan quality seems to be a very important determinant of MFI's profitability in Vietnam. Fersi & Boujelbéne, (2016) in their study using panel data on a sample of 333 conventional and 49 Islamic microfinance institutions (MFIs) between 1996 and 2012 of six different regions, investigated the factors determining the performance (organizational, social, and financial) of conventional and Islamic microfinance institutions and their impact on maintaining the sustainability of these institutions. The result showed that the financial performance (with ROA as dependent variable) of conventional microfinance institutions is positively affected by the quality of credit portfolios.

Many research investigating the relationship between the size of MFIs and their financial sustainability, even if for some logarithm of a total asset was used as proxy or logarithm of the gross loan portfolio as a proxy, the evidence shows that size has a positive relationship with financial performance, sustainability and profitability. Usman et al., (2016) to identify factors that had a significant impact on the financial sustainability of microfinance institutions in Pakistan, used Panel data analysis analyze on data of 49 MFIs in Pakistan found that size of MFIs, Capital to Asset ratio, Yield on Gross Portfolio, Operating Expense to Asset ratio and Portfolio at Risk are found to be important factors in determining financial sustainability of MFIs in Pakistan. Tehulu, (2013) used binary probit and ordered probit regression models to investigate the determinants of financial sustainability of microfinance institutions in East Africa. The results showed that management inefficiency (Operating expense to total asset) , portfolio at risk, loans intensity, and size were important determinants of microfinance institutions in East Africa. In contrast, Hartarska (2005), found a negative relationship between the size and performance of microfinance institutions.

Risk measurement ratios like PAR>30, Write-off and Loan Loss Ratio is variable used and generally supposed to have a negative relationship with financial performance measure indicators. Tehulu, (2013), Usman et al., (2016), Bui, (2017) established the negative impact of PAR>30 on financial performance. Ibrahim, (2015), with a quantitative approach using panel data from 11 major institutions from 2006 to 2015 in Togo investigate factors that have an impact on the sustainability of microfinance institutions. The result showed that outreach factors such as the number of active borrowers and the average loan size and also risk indicators such as the risk coverage and the write-off ratio affect the sustainability, however, portfolio at risk>30 days and the loan loss rate were found insignificant. Schäfer & Fukasawa, (2011) also found write-off ratio and outreach as a determinant factor for operational self-sufficiency. However, depositors-to-borrowers ratio, deposits-to-loan portfolio ratio and Cost per Borrower/DNP per capita were not significant variables to explain an MFI's OSS. Hossain & Khan, (2016) found that capital assets ratio, operating expense and write-off ratio affect the financial sustainability of MFIs in Bangladesh.

However, MFI size, Age of MFI, borrower per staff members, a ratio of savings to total assets, debt-equity ratio, outstanding loan to total assets and percentage of female borrowers had no significant impact on the financial sustainability of MFIs in Bangladesh.

In conclusion, we note that there is a plurality of opinions, depending on the researchers and the context of the country or zone in which the study was conducted, in terms of the analysis method and the factors that could influence the performance indicators of microfinance institutions. This study will therefore attempt to bring a new perspective to the case of Togo, where the microfinance sector continues to grow year after year.

4. Methodology

4.1. Data and Methodology

The data for this study is obtained from the Microfinance Information Exchange, USA, which is a not-for-profit private organization that aims to promote information exchange in the microfinance. The data on approximately thirty-five (35) microfinance institutions in Togo, over a period ranging from 1999 to 2018 is available on the site. For our study, only a total of twenty-six to twenty-nine microfinance institutions were selected, as they were the only ones with at least one year of data on the dependent variables of the study. Thus, a total of nine (09) microfinance institutions were removed from the sample for the first model on financial performance and a total of six (06) were excluded from the second model on financial sustainability.

Based on the MIX Market definition of financial sustainability, we therefore assumed two levels of financial sustainability to be achieved by a microfinance institution. The MIX Market defines the term financial sustainability as having an operational sustainability level of 110% or more, while operational sustainability is defined as having an operational self-sufficiency level of 100% or more. And the Operational self-sufficiency = total operating income/total operating expenses (including administrative expenses, interest expenses, and loan loss provision). Thus this study considers operational sustainability as the first level and financial sustainability as the second level of financial sustainability.

4.2. Model specification

In order to analyze the determinants of financial performance and the level of financial sustainability of microfinance institutions, two models are estimated. The first one, which applies to financial performance, is a multiple regression model on unbalanced panel data of 26 microfinance institutions in Togo over the period 1999 to 2018. In this model, the dependent variable is the Return on Asset Ratio (ROA). The independents variables of this model are represented by risk variables (write-off ratio, loan loss rate, risk cover), output variable (Deposits to loan ratio), Productivity and Efficiency variable (Cost per borrower/GNI per capita ratio), Depositors to borrowers ratio and logarithm of total assets as a proxy of the size of the MFI. The second model is a probit regression model where the dependent variables are whether or not an MFI is operationally sustainable or financially sustainable. The independent variables in this model are , Write-off ratio, Depositors to

borrowers ratio, portfolio at risk > 30 days, portfolio at risk > 90 days, the personal expense to loan ratio, borrowers per staff member as a proxy of the productivity and the logarithm of total assets as a proxy of the size of the MFI. This model was used by (Bogan, 2009, Tehulu, 2013). More descriptions of all of the variables used in the models can be found in the table 4 and 7 in Appendix A.

The general model is as follows:

$$Y_{it} = \alpha_i + \beta X_{it} + \varepsilon_{it} \quad (1)$$

Where Y_{it} representing the value of the dependent variable of a unit *i* at time *t* (*i*= 1 …. N and *t*= 1…T*)* αi representing the constant term X_{it} representing a vector of explanatory variables and β its coefficients and ε_{it} the error term.

Extending equation 1 and after defining the variables, the following regression model is obtained:

$$ROA_{it} = \beta_0 + \beta_1(WOR_{it}) + \beta_2(DBRW_{it}) + \beta_3(CBRW_{it}) + \beta_4(DGLP_{it}) + \beta_5(LNTA_{it}) + \beta_6(LLR_{it}) + \beta_7(RICO_{it}) + \varepsilon_{it} \quad (2)$$

With i= 1…26 and t= 1999 to 2018.

The second model is a probit regression model where the dependent variable is whether or not an MFI is operationally sustainable or financially sustainable.

The general form is as follows:

$$Y^*_{it} = \beta_0 + \sum_{j=1}^{29} \beta_j X_{it} + \varepsilon_{it} \quad (3)$$

Where Y^*_{it} is a continuous latent operational and financial sustainability variable, β_0 representing the constant term, X_{it} representing a vector of explanatory variables and β its coefficients and ε_{it} the error term.

Extending equation 3 and after defining the variables, the following regression model is obtained:

$$Y^*_{it} = \beta_0 + \beta_1(WOR_{it}) + \beta_2(DBRW_{it}) + \beta_3(PAR1_{it}) + \beta_4(PAR2_{it}) + \beta_5(LNTA_{it}) + \beta_6(PELP_{it}) + \beta_7(PROD_{it}) + \varepsilon_{it} \quad (4)$$

With i= 1…29 and t= 1999 to 2018.

The probability that a particular MFI will be financially sustainable (P(Y=1)) can be predicted using the following equation:

$$P(Y = 1) = \frac{1}{1+e^{-W}} \quad (5)$$

Where:

$$W = \beta_0 + \beta_1(WOR_{it}) + \beta_2(DBRW_{it}) + \beta_3(PAR1_{it}) + \beta_4(PAR2_{it}) + \beta_5(LNTA_{it}) + \beta_6(PELP_{it}) + \beta_7(PROD_{it}) \quad (6)$$

5. Results and discussion

5.1. Financial performance

According to the structure of the data used in this research which is unbalanced panel data, it is then important to find which one of the random effect or fixed effect better fit our model. Using STATA, the Hausman test was performed and the result was not significant which leads us to choose the random effect model as more appropriate for the purpose. Further, the LM test is used to compare whether the random effect regression model is better than the simple OLS regression. The prob. value of chi-square in the LM test is 0.0696 which is more than 0,05; that shows the null hypothesis is accepted and the alternative is rejected. Therefore, the OLS regression model is an appropriate model for this study. Correlation and multicollinearity analysis has been performed. The results are consigned in table 5 and 6 in appendix A.

Table 1: OLS regression results

Variable	Coef	t-value	p-value	Sig
WOR	0.5009056	1.14	0.262	-
DBRW	-0.0119025	-1.88	0.069	*
CBRW	-0.0239176	-0.34	0.735	-
DGLP	0.0330249	0.84	0.405	-
LNTA	0.0302406	3.37	0.002	***
LLR	-0.0020358	-6.12	0,000	***
RICO	-0.0550343	-0.71	0.483	-
R-squared	0.650 F-test 8.224	Prob > F	0.000	

**** p<.01, ** p<.05, * p<.1*

The size variable measured by the logarithm of a total asset as predicted has a positive coefficient and is statistically significant at 1%. That means an increase in the size of MFIs will improve the financial performance of MFIs. Another reason is that larger microfinance institutions MFIs are capable of taking advantage of economies of scale and the outcome supports the market power premises (Hossain & Khan, 2016). The result is consistent with the previous finding of Cull et al., (2007); Bui, (2017), but in contradiction with Hartarska, (2005) and Hossain & Khan, (2016). Within the risk measure variables, only the loan loss rate is fund to have a significant relationship with financial performance. As predicted it has a negative coefficient and is statistically significant at 1%. The negative sign of his coefficient implies that an increase in this ratio will decrease the financial performance of MFİs. Although significant at 10%, the depositor per borrower ratio shows a negative sign contrary to that expected. This implies that an increase in this ratio has a negative impact on the İMFs' financial performance. A likely explanation could be that the İMFs in question would not pursue a good policy to attract more savers, which would help diversify the sources of funds to increase their loan portfolios and thus have more income. Thus the implementation of such a policy could be very beneficial. Finally, surprisingly, the write-off ratio, risk cover and deposit to loan ratio show signs contrary to the assumptions but are not significant. The cost

per borrower ratio, although showing a sign in line with the assumptions, is not significant either.

5.2. Financial sustainability

Table 2: Probit regression results

	Operational Sustainability				Financial Sustainability			
Variables	Coef	t-value	p-value	Sig	Coef	t-value	p-value	Sig
WOR	-52.3300	-0.95	0.342	-	-44.3615	-1.50	.134	-
DBRW	1.3283	2.69	0.007	***	-0.1641	-1.30	.192	-
PAR1	85.6081	1.87	0.061	*	5.7819	0.71	.476	-
PAR2	-389.762	-5.26	0,000	***	-25.4430	-1.89	.058	*
LNTA	-0.4808	-0.49	0.627	-	0.4458	2.38	.017	**
PELP	-69.3227	-1.90	0.057	*	-4.0382	-0.78	.435	-
PROD	71.7522	4.95	0,000	***	1.2117	0.68	.494	-
		Chi-square	**51.081**			**Chi-square**	**16.426**	
		Prob>chi2	**0.000**			**Prob > chi2**	**0.021**	

**** p<.01, ** p<.05, * p<.1*

First, according to the results of the table 2, it appears that only one variable (01) is a determinant of both operational sustainability and financial sustainability. This is the PAR> 90 which have a negative relationship with the operational sustainability and the financial sustainability and statistically significant respectively at 1% and 10% and in line with the research hypothesis. Mean that an increase (a decrease) in PAR> 90 lead to a decrease (an increase) of operational sustainability and financial sustainability. The write of ratio which is a risk indicator and measure by dividing the value of loans written-off by the average gross loan portfolio, as predicted have a negative sign but is not significant even at 10%. But the negative sign means that this ratio has a negative relationship with the operational and the financial sustainability of microfinance institutions in Togo.

Taking the operational sustainability alone, the table () show that: the depositor per borrower ratio is positive and statically significant at 1%. Mean that this ratio has a positive relationship with the operational sustainability of MFİs. This result is consistent with the studies hypothesis and according to Schäfer & Fukasawa, (2011). A higher depositors to borrowers ratio has a significant positive effect on an MFI's OSS. The higher the ratio, the greater the diversity in the funding sources for potential loans by the MFI, improving its OSS. The PAR> 30 is statistically significant at 10% but have a positive sign which is not consistent with the studies hypothesis and the result of Rai et al., (2012), Tehulu, (2013), Ibrahim, (2015), Usman et al., (2016). Personal expense to gross loan portfolio ratio as predicted has a negative relationship with operational sustainability. This implies that an increase in this ratio will have a bad influence on operational sustainability. The productivity ratio measured by borrowers per staff member shows a positive sign in the consistency of predictions. This implies that the good productivity of MFIs positively impacts operational sustainability. Finally, the test results show that the size of institutions has a negative relationship with operational sustainability but this result is not statistically significant.

In the case of financial sustainability, the results test in the table (2) show that apart from PAR 90 only the size of the MFI variable significantly has an impact on financial sustainability. The result is in consistent with the hypothesis and results of (Ibrahim, 2015, Tehulu, 2013, Usman et al., 2016) . After that neither other risk variables nor the productivity variable was seen to be significantly impacting financial sustainability.

The table 3 below shows the result test for the ordered probit model. This model is used to check for the robustness of the previous analysis. Here the dependent variable is a categorical variable in which base on the previous definition, Y= 0 if the MFI is operationally and financially unsustainable, Y=1 if the MFI is only operationally sustainable and Y=2 if the MFI is financially sustainable. The result test presents the same sign and statistically significant in PAR 90, personal expense ratio, productivity ratio, size variable. Even not statistically significance, it shows the same sign for PAR 30 and the write off ratio. Finally, the depositor per borrower ratio is statistically significant in this model but present a negative sign.

Table 3: Ordered probit model

Variables	Coef.	t-value	p-value	Sig
WOR	-13.238	-1.08	0.281	
DBRW	-0.179	-1.67	0.096	*
PAR1	7.545	1.17	0.241	
PAR2	-30.175	-2.74	0.006	***
LNTA	0.289	1.99	0.047	**
PELP	-7.519	-1.84	0.065	*
PROD	3.49	2.33	0.020	**
	Chi-square	**25.804**		
	Prob > chi2	**0.001**		

**** p<.01, ** p<.05, * p<.1*

6. Conclusion

This present study has set itself the objective of seeking the determinants of the performance and level of financial sustainability of microfinance institutions in Togo. Unbalanced panel data from almost 29 microfinances over a period from 1999 to 2018 were analyzed. Using three ratios namely return on asset, operational sustainability, the Financial Sustainability and based on the empirical evidence from the econometric analysis, the conclusion would be that depositors per borrower ratio, the size of the MFI and the loan loss rate are the main factors affecting the financial performance of MFI enterprise in Togo. Statistically significant at 1% the size ratio is fund to have a positive relationship with the financial performance. However, respectively significant at 1% and 10%, the loan loss rate and the depositors per borrower ratio are negatively related to the financial performance. Depositors per borrower ratio, PAR>30, PAR>90, the personal expense to loan portfolio and productivity ratios are the main determinants of the operational sustainability of MFIs. Respectively significant at 1% and 10%, the depositors per borrower, productivity ratio and PAR>30 are fund to have a positive influence on the operational Sustainability. In contrast, PAR>90 and personal expense to loan portfolio have a negative relationship with operational sustainability. Regarding financial sustainability, PAR>90 and size of the MFI are the main factors influencing financial sustainability. The size variable significant at 5% is positively related to financial sustainability. However, the PAR>90 significant at 10% is a fund to have a negative

relationship with financial sustainability. These results taken into account can allow microfinance actors in Togo as well as politicians and donors to better orient their actions in the sector.

References

Adongo, J., & Stork, C. (2005). Factors influencing the financial sustainability of selected microfinance institutions in Namibia.

Amersdorffer, F., Buchenrieder, G., Gokusheva, R., & Wolz, A. (2015). Efficiency in microfinance : financial and social performance of agricultural credit cooperatives in Bulgaria.

Bogan, V. (2009). Capital structure and sustainability : an empirical study of microfinance institutions.

Bui, T. T. (2017). Factors affecting microfinance development in Vietnam.

Christen, R. P., Rhyne, E., Vogel, R. C., & Mckean. (1995). Maximizing the outreach of microenterprise finance : an analysis of successful microfinance programs.

Crombrugghe, A., Tenikue, M., & Sureda, J. (2008). Performance analysis for a sample of microfinance institutions in india.

Cull, R., & Demirguc-kunt, A. (2006). Financial performance and outreach : a global analysis of leading microbanks.

Cull, R., Demirgüç-kunt, A., & Morduch, J. (2007). Financial performance and outreach: a global analysis of leading microbanks.

Diagne, A., Zeller, M., & Sharma, M. (2001). Empirical measurements of household's access to credit and credit constraints in developing countries : methodological issues and evidence.

Fersi, M., & Boujelbéne, M. (2016). The determinants of the performance and the sustainability of conventional and islamic microfinance institutions.

Gadedjisso-tossou, A., Bodjona, C. P., Aboudou, M. T., & Gueyie, J. P. (2020). The influence of CRS practices on the financial performance of microfinance institutions in Togo.

Hartarska, V. (2005). Governance and performance of microfinance institutions in central and Eastern Europe and the newly independent states.

Heng, S. (2015). Assessing outreach and sustainability of microfinance institutions in Cambodia.

Hossain, M. S., & Khan, Dr. M. A. (2016). Financial sustainability of microfinance institutions (MFIs) of Bangladesh.

Ibrahim, A.M. (2015). Determinants of microfinance sustainability : an empirical analysis of microfinance institutions in.

Kanyenda, T. D. (2019). An assessment of factors affecting the financial performance of microfinance institutions in Zimbabwe.

Kereta, B. B. (2007). Outreach and financial performance analysis of microfinance institutions in Ethiopia.

Lafourcade, A.L., Isern, J., Mwangi, P., & Brown, M. (2005). Overview of the outreach and financial performance of microfinance institutions in Africa.

Ledgerwood, J. (1999). Microfinance handbook.

Mustafa, A. K. (2017). Factors that impact microfinance institutions performances in sudan.

Ndione, M. (2020). Déterminants de la performance des institutions de micro-crédits : UEMOA et BRICS.
Quayes, S. (2012). Depth of outreach and financial sustainability of microfinance institutions.
Quayes, S. (2015). Outreach and performance of microfinance institutions : a panel analysis.
Rai, A. K., Sandhya, R., & Ghaziabad, L. Q. (2012). Factors affecting financial sustainability of microfinance institutions.
Schäfer, K., & Fukasawa, Y. (2011). Factors determining the operational self-sufficiency among microfinance institutions.
Tehulu, T. A. (2013). Determinants of financial sustainability of microfinance institutions in East Africa.
Usman, M., Ahmed, S., Mehmood, T., & Hak, N. U. (2016). Determinants of financial sustainability of microfinance institutions in Pakistan.
Wale, L. E. (2009). Performance analysis of a sample microfinance institutions of Ethiopia.
Zerai, B., & Rani, L. (2011). Is there a tradeoff between outreach and sustainability of micro finance institutions ? Evidence from Indian microfinance institutions (MFIs).

Appendix A

Table 4: Variable for the ROA model

Variables	Definition and measurement	Predicted signe
Dependent	ROA = Return On Asset (Net Operating Income - Taxes) / Average Total Assets	
	WOR = Write-off ratio (Value of loans written-off / Average Gross Loan Portfolio)	-
	DBRW = Depositors/borrowers ratio	+
	CBRW = Cost per borrower/GNI per capita ratio	-
Independent	DGLP = Deposits/gross loan portfolio ratio	-
variable	LNTA = The size of the institution (Measured by natural logarithm of total assets)	+
	LLR = Loan loss rate (Write-offs - Value of Loans Recovered) / Average Gross Loan Portfolio	-
	RICO= Risk coverage (Impairment Loss Allowance / PAR > 30 Days	+

Table 5: Pairwise correlations

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
(1) ROA	1.000							
(2) WOR	-0.275	1.000						
(3) DGLP	0.000	0.006	1.000					
(4) LNTA	0.317	-0.092	0.257	1.000				
(5) LLR	-0.079	-0.042	0.161	0.242	1.000			
(6) RICO	-0.258	0.193	0.019	-0.119	0.065	1.000		
(7) CBRW	0.059	0.017	0.041	-0.061	-0.521	-0.098	1.000	
(8) DBRW	-0.020	0.376	-0.027	-0.014	-0.488	0.074	0.482	1.000

Table 6: Variance inflation factor

	VIF	1/VIF
LNTA	3.588	.279
LLR	2.78	.36
DGLP	2.757	.363
DBRW	1.842	.543
CBRW	1.779	.562
WOR	1.423	.703
RICO	1.284	.779
Mean VIF	2.208	.

Table 7: Variables for the sustainability model

Variables	Definition and measurement	Predicted signe
Dependent	OSS = Operational sustainability (operational self-sufficiency level of 100% or more)	
	FSS = Financial sustainability (operational sustainability level of 110% or more)	
	WOR = Write-off ratio (Value of loans written-off / Average Gross Loan Portfolio)	-
	DBRW = Depositors/borrowers ratio	+
	PAR1 = Gross loan portfolio at risk > 30 days (Outstanding balance, portfolio overdue > 30 Days + renegotiated portfolio / Gross Loan Portfolio	-
	PAR2 = Portfolio at risk > 90 days (Outstanding balance, portfolio overdue > 90 Days + renegotiated portfolio / Gross Loan Portfolio)	-
Independent variable	LNTA = The size of the institution (Measured by natural logarithm of total assets)	+
	PELP = Personel expense/loan portfolio	-
	PROD = The productivity of the MFİ i, in time period t, (measured by borrowers per staff member)	+