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Determinants of the financial performance and sustainability of microfinance institutions in Togo

Togo'da mikrofinans kurumlarının finansal performansı ve sürdürülebilirliğinin belirleyicileri

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ABSTRACT

Purpose - This article investigates the factors influencing financial performance and the level of financial sustainability of microfinance institutions (MFIs) in Togo.
Methodology - Ordinary least squares and binary probit were employed to identify the determinants of financial performance and operational and financial sustainability of MFIs. Unbalanced panel data of 29 MFIs from 1999 to 2018 was used.
Findings – Financial performance is positively influenced by size. However, it is negatively linked to the depositors per borrower and the loan loss ratio. Operational sustainability was positively related to PAR > 30, the depositors per borrower and the productivity ratios. However, it is negatively related to PAR > 90 and the ratio of personal expenses to outstanding credit. Finally, financial sustainability was positively influenced by the size, and it was negatively influenced by PAR > 90.
Conclusions – Taking these results into account can allow microfinance actors in Togo as well as politicians and donors to better orient their actions.
Keywords: Financial performance, Financial sustainability, Microfinance, Togo.
JEL Codes: D24 D53 L25.

ÖZ

Amaç - Bu makalenin amacı, Togodaki mikrofinans kuruluşlarının (MFIler) finansal performansını ve finansal sürdürülebilirlik düzeyini etkileyen faktörleri incelemektir.
Yöntem - Araştırmada, mikrofinans kurumlarının finansal performansı ve operasyonel ve finansal sürdürülebilirliğine yönelik olarak kurumların aktif getirisinin belirleyicilerini belirlemek için en küçük kareler modeli ve ikili probit modeli kullanılmıştır. Çalışmada 1999-2018 döneminde Togodaki 29 MFInin panel verileri kullanılmıştır.
Bulgular – Araştırma sonuçları, MFInin finansal performansının pozitif olarak büyüklük değişkeninden etkilendiğini göstermektedir. Ancak, borçlu başına düşen mudi sayısı ve kredi zarar oranı finansal performansla negatif ilişkilidir. Operasyonel sürdürülebilirlik, borçlu başına mudi oranı, PAR>30 ve verimlilik oranı ile pozitif ilişkilidir. Diğer yandan, Operasyonel sürdürülebilirlik, PAR>90 ve kişisel giderlerin, ödenmemiş kredilere oranı ile negatif ve anlamlı bir ilişki içindedir. Özetle finansal sürdürülebilirlik; büyüklükten anlamlı ve olumlu bir şekilde etkilenirken, PAR>90 dan anlamlı ve olumsuz etkilenmektedir.
Sonuç – Araştırma sonuçlar Togodaki mikrofinans aktörlerinin yanı sıra politikacıların ve finansal destek sağlayan örgütlerin sektördeki faaliyetlerini daha iyi yönlendirmelerine katkı sağlayabilecektir.
Anahtar Kelimeler: Finansal performans, Finansal sürdürülebilirlik, Mikrofinans, Togo
JEL Kodları: D24 D53 L25.

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1. INTRODUCTION

Improving access to financial services for the most disadvantaged social groups has long been an issue many programs and projects have tried to solve. Therefore, many developing country governments and donors have introduced credit programs over the past 40 years to improve the accessibility of credit to rural households. Most of these programs, particularly the agricultural development banks that grant loans at subsidized interest rates have not succeeded in reaching their goals of providing services to the rural poor and being long-term lending institutions (Diagne , Zeller , & Sharma, 2001).

Microfinance institutions (MFIs), comprising a variety of providers with different juridical structures, missions, and methodologies; provide different financial products to the most disadvantaged people who have been rejected from traditional banking services (Lafourcade , Isern, Mwangi , & Brown, 2005). In this respect, microfinance institutions, by providing loans, accepting savings, transferring money, and offering insurance and other financial products to people with low incomes, have become an essential pillar of many development projects around the world, especially in developing countries. According to Ledgerwood (1999), microfinance as leading institutions has to facilitate access to credit to underserved people as a way to achieve development goals like creating jobs, alleviating poverty, assisting existing businesses, expanding their enterprises, empowering women or other vulnerable groups, and inspiring new business developments.

In addition to being the financial systems essential constituent, the microfinance industry is also seen as a tool for poverty eradication in developing nations (Tehulu , 2013). So far, the sector has succeeded in combining, to the extent possible, both inclusive finance and financial sustainability. Financial sustainability is a prerequisite for extending financial services to a significant size of microenterprises over an extended period (Christen , Rhyne, Vogel , & McKean, 1995). Sustainability enables an MFI program to operate indefinitely, independent of grant funds. Good financial performance enables organizations to leverage much larger sources of funding (i.e., customer deposits and the financial markets in broad terms). 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); Hartarska (2004); Cull et al. (2007); Kereta (2007); Wale (2009); Schäfer & Fukasawa (2011); Rai et al. (2012); Tehulu (2013); Ibrahim (2015); Heng (2015); Fersi & Boujelbéne (2016); Hossain & Khan (2016); Usman et al. (2016); Bui (2017); Mustafa (2017); Ndione (2020); Kanyenda (2019); Gadedjisso-Tossou et al. (2021) ; and many other researchers have conducted extensive investigations into the financial viability 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 noticeable 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 multiple regression, a probit model, and more representative number of microfinance institutions over the period 1999-2018, and finally three performance measurement ratios, the present research investigated the key variables that determine the financial performance and the level of financial sustainability of MFIs in Togo.

2. LITERATURE REVIEW

The next paragraph briefly summarizes the background studies in line with the sustainability and performance of microfinance programs.

2.1. Performance of Microfinance Institutions

Various works state that an institutions performance can be understood from two perspectives. These are social performance and financial performance. According to Boye et al. (2006), social performance indicates the MFIs willingness to achieve social impact and integration into its environment. It clarifies the purpose of poverty alleviation for an MFI. Social performance can be separated into four dimensions: outreach and awareness, responsiveness, service quality, economic returns, and social accountability (Amersdorffer, Buchenrieder , & Bokusheva , 2015). Financial performance represents one of several metrics commonly employed to assess the achievement of MFIs regarding their financial performance. It is frequently viewed as a benchmark that investors rely on to conduct due diligence and evaluate an investments health; as well

as a tool that government supervisors rely on to evaluate and guide the financial sectors global health and determine conformance with regulatory measures (Rosenberg, Mwangi, Christen, & Nasr, 2003; Bui, 2017). According El Kharti (2013), financial performance is the capacity of a microfinance program to meet all its expenditures through its revenues and to finance its growth. The latter, which represents 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 sustainability of microfinance programs. According to Bui (2017), all MFIs, whether they are nonprofit NGOs or profit-making MFIs, need to perform well financially, i.e., they need to make a profit, over time, to achieve self-sustainability. Many authors used different indicators for evaluating the financial performance of microfinance institutions. Thus, a number of them employed profitability ratios like Return On Asset (ROA) and sustainability ratios like Operational Self Sufficiency and Financial Self Sufficiency (Cull , Demirgüç-Kunt , & Morduch, 2007; Crombrugghe, Tenikue, & Sureda, 2008; Quayes, 2015). On the other hand, some authors have only used profitability ratios to understand the financial performance of MFIs (Christen , Rhyne, Vogel , & McKean, 1995; Bui, 2017). Given the structure of this study and considering the findings of some earlier investigations, only the return on assets ratio will be used in this paper to investigate the financial performance of microfinance in Togo.

2.2. Financial Sustainability

Sustainability is the capacity of a microfinance program to steal serving after the project lifetime (Christen , Rhyne, Vogel , & McKean, 1995; Meyer , 2002; Ibrahim, 2015). This implies that appropriate mechanisms and processes have been established to ensure that MFI services are always accessible and that customers regularly and continuously benefit from them (Bui, 2017). Sustainability, according to some authors, should not be immediately seen from a financial point of view. Sustainability in microfinance extends beyond financial considerations and can be measured in terms of institutional, market, legal policy environment, and impact (Ibrahim, 2015). Sustainability has four interrelated dimensions: financial sustainability, economic sustainability, institutional sustainability, and borrower sustainability (Khandker, et al., 1995). Bui, highlighted the fact that it has wider dimensions, involving the sustainability of the institution, sustainability of the market, sustainability of the legal policy environment, and sustainability of impact (Bui, 2017). Yet, in the present research, only the financial component of the sustainability concept will be taken into account. A microfinance institution must not rely on grant funds to support its activities to be sustainable. Financial sustainability is the ability to operate continuously or to achieve the objectives of microfinance regardless of donor support (Hossain & Khan, 2016; Bui, 2017). Some analysts identified three or four levels of financial viability to be reached by an MFI, but nowadays, most people in the microfinance sector only pay attention to two levels.

Self-sufficiency ratios are computed to evaluate financial sustainability. Operational self-sufficiency and financial self-sufficiency are generally the two degrees of self-sufficiency used to evaluate microfinance institutions (Ledgerwood , 1999). According to Meyer (2002), financial sustainability is achievable in two steps, as follows: Operation Sustainability (OSS) and Financial Self-sufficiency (FSS). Operational sustainability is the microfinance programs capacity to cover its operating costs from its business income, even if it is supported or not. On the other side, microfinance programs are financially self-sufficient as they can cover their business and funding costs through their revenues and other market-based subsidies. MIX Market defines financial sustainability as achieving an operational sustainability level of 110% or more, while operational sustainability is defined as achieving an operational self-sufficiency level of 100% or more. Operational self-sufficiency is the ratio of the total operating income to the total operating expenses (including administrative expenses, interest expenses, and loan loss provision). This last definition is the baseline of this research.

3. REVIEW OF PREVIOUS EXPERIMENTAL STUDIES

MFIs are generally considered to be dual-purpose, in that their target is to increase outreach while being able to meet their costs and remain in business in the future. In essence, a microfinance institution has two objectives: firstly, to serve a wide range of poor borrowers; and secondly, to cover its costs, which are self-sustaining (Hartarska, 2004; Kanyenda , 2019). For this reason, many researchs has been conducted on microfinance institutions performance and sustainability. In their research, entitled Maximizing the Outreach of Microenterprise Finance, Christen et al. (1995), found any clear correlation between outreach and deep outreach within the analyzed successful microfinance, and financial sustainability is achievable

even if providing financial service to low-income people. They also found that only a couple of variables accounted for the differences in the success of the MFIs studied: the levels of programs employee wages compared to local GDP, with lower wages linked to more financially sustainable programs, and the real effective interest rate, i.e., compared to inflation. However, loan size, number of clients per staff member, gross domestic product (GDP) increase, financial sector repression, and macroeconomic stability do not seem to determine success. Cull et al. (2007), sought to identify the relationship between financial performance and the outreach of leading microbanks. The evidence shows that it is possible to make a profit while simultaneously providing service to low-income people, but there is an influence of serving vulnerable people on profitability. There is also evidence that raising fees to great levels is unlikely to improve profitability and the advantage of cost reduction decreases as one deal with more affluent clients. Quayes (2015) reveals a positive complementary effect of the depth of outreach on financial sustainability. However, Adongo & Stork (2005); Zerai & Rani (2011); Tehulu (2013), found no effect of the breadth of outreach on financial sustainability.

Bui (2017), used OLS and GMM techniques and the return on assets (ROA) ratio, to investigate how the institutional environment, as well as macroeconomic indicators, influences the profitability of MFIs. He found a dynamic relationship between profitability and scale economies in MFIs. Findings revealed that loan quality appears to be a key factor influencing the profitability of MFIs in Vietnam. Fersi & Boujelbéne (2016), in their study come to the outcome that the financial performance (with ROA as the dependent variable) of conventional microfinance institutions is affected positively by loan portfolio quality.

Many studies examined the effect of the size of MFIs on their financial sustainability. While for some, the logarithm of total assets has been used as an indicator or the logarithm of the gross loan portfolio as evidence, the evidence reveals a positive effect of the size on the financial performance, sustainability, and profitability. Utilizing panel data analysis on 49 MFIs in Pakistan, Usman et al. (2016), found that among other factors, the size of MFIs is a significant determinant of the financial sustainability of Pakistan microfinance programs. In East Africa, Tehulu (2013), also found size as one of the significant factors determining the financial sustainability of MFIs. In contrast, Hartarska (2004), reported a negative influence of size on the performance of MFIs.

Risk measurement ratios such as PAR > 30, loan write-offs, and loan loss ratios are variables that are used and generally assumed to be related negatively to the financial performance measurement indicators. Tehulu (2013), Usman et al. (2016), and Bui (2017); established the negative impact of PAR > 30 on financial performance. Ibrahim (2015), with data from 11 microfinance in Togo come across the result that the number of active borrowers and average credit size, as well as risk coverage and loan write-off ratio, affect sustainability. However, the portfolio is at risk of > 30 days and the loan loss rate has shown no significant effect. Schäfer & Fukasawa (2011), also found the write-off ratio and outreach as determinant factors for operational self-sufficiency. However, the depositors-to-borrowers ratio, deposits-to-loan portfolio ratio, and cost per borrower/DNP per capita were not significant variables explaining the operational self-sufficiency of microfinance programs. Hossain & Khan (2016) observed that in Bangladesh, fixed asset ratios, operating expenses, and write-off ratios are the most significant factor affecting the financial sustainability of microfinance programs. Nevertheless, the institutions size, the age of the institution, the number of borrowers per staff member, the ratio of savings to total assets, the ratio of debt to equity, the outstanding loan to total assets, and the percentage of female borrowers do not meaningfully influence the financial viability of microfinance in Bangladesh.

In conclusion, we note that there is a plurality of opinions, depending on the researcher and the context of the country or area in which the study was carried out, regarding the method of analysis and the variables that could affect the performance indicators of MFIs. Therefore, this paper will try to bring a new perspective to the case of Togo, where the microfinance sector continues to grow annually.

4. METHODOLOGY

4.1. Data and Methodology

The Microfinance Information Exchange database provides the data for this research. Information on approximately thirty-five (35) MFIs in Togo from 1999 to 2018 is available on the World Bank's DataBank Mix Market website. For our study, only a total of twenty-six to twenty-nine microfinance institutions were selected, as they were the only ones with a minimum of one-period information on the studys dependent variables. Thus, nine (09) microfinance institutions were removed from the sample for the first model on financial performance, and 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. MIX Market defines financial sustainability as achieving 110% or more operational sustainability, while operational sustainability is measured as reaching 100% or more operational self-sufficiency. Thus, this study considers operational sustainability as the first step and financial sustainability as the second step of financial sustainability.

4.2. Model Specification

Two models are estimated to analyze financial performance determining factors and the financial sustainability level of microfinance programs. The first, which applies to financial performance, is a multiple regression model on non-balanced panel data of 26 MFIs in Togo between 1999 and 2018. In this model, the controlled variable is the return on assets (ROA). The independent variables of this model are represented by risk variables (write-off ratio, loan loss rate, risk cover), output variables (deposits to loan ratio), productivity and efficiency variables (cost per borrower/GNI per capita ratio), depositors to borrower ratio, and the logarithm of total assets as a proxy of the size of the microfinance. Assuming that the error is normally distributed, the second model is a probit regression model where the controlled variables are whether or not an MFI is operationally sustainable or financially sustainable. The independent variables in this model are the write-off ratio, depositors to borrowers ratio, portfolio at risk for 30 days, portfolio at risk for 90 days, the personal expense to loan ratio, borrowers per staff member as a productivity metric, and the log of total assets as an indicator of the microfinances size. This model was used by Bogan (2009) and Tehulu (2013). Tables 1 and 2 contain a more detailed description of all the variables involved in the models.

The general model is:

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

With Y_{it} representing the dependent variable of i unit at t period (i =1...N; t = 1...T) α_i representing the constant term X_{it} represents the 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:

$$ROA_{it} = W_0 + W_1(WOR_{it}) + W_2(DBRW_{it}) + W_3(CBRW_{it}) + W_4(DGLP_{it}) + W_5(LNTA_{it}) + W_6(LLR_{it}) + W_7(RICO_{it}) + \varepsilon_{it} \quad (2)$$

With i= 1…26 and t= 1999 to 2018.

The second model is a probit regression model that determines whether an MFI is operationally or financially viable as the dependent variable.

The general form is:

$$Y^*_{it} = W_0 + \sum_{j=1}^{29} W_j X_{it} + \varepsilon_{it} \quad (3)$$

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

Extending equation (3), and after defining the variables, we obtain the one below:

$$Y^*_{it} = W_0 + W_1(WOR_{it}) + W_2(DBRW_{it}) + W_3(PAR1_{it}) + W_4(PAR2_{it}) + W_5(LNTA_{it}) + W_6(PELP_{it}) + W_7(PROD_{it}) + \varepsilon_{it} \quad (4)$$

With i= 1…29 and t= 1999 to 2018.

The probability that a given MFI is financially viable [P[Y=1]] is estimated from the equation below:

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

With:

$$W = W_0 + W_1(WOR_{it}) + W_2\,(DBRW_{it}) + W_3(PAR1_{it}) + W_4(PAR2_{it}) + W_5(LNTA_{it}) + W_6(PELP_{it}) + W_7(PROD_{it}) \quad (6)$$

Table 1: Variable for the ROA Model

Variables	Definition and measurement	Predicted sign
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 variable	DGLP = Deposits/gross loan portfolio ratio	-
	LNTA = The size of the institution (Measured by the 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 2: Variables for the Sustainability Model

Variables	Definition and measurement	Predicted sign
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	+
Independent variable	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)	-
	LNTA = The size of the institution (Measured by the natural logarithm of total assets)	+
	PELP = Personal expense/loan portfolio	-
	PROD = The productivity of the MFİ i, in period t, (measured by borrowers per staff member)	+

5. FINDINGS AND DISCUSSIONS

5.1. Financial Performance

Depending on the structure of the dataset employed in this study, which is unbalanced panel data, it is then important to find out which of the random effect or the fixed effect best fits our model. Using STATA, the Hausman test was performed, and the result was not significant, leading us to choose the random effect model as being much more suitable for the purpose. Further, the LM test is used to compare whether the random effect regression is better than the simple OLS regression. The probability estimate of the chi-square in the LM test is 0.0696, which is higher than 0.05. This means the null hypothesis should be accepted and the alternative one is rejected. As a result, the OLS regression is appropriate as a model for this study. According to the structure of the data set, Fisher-type tests are the most suitable for stationarity tests (Venkatesh, 2017). The p-value of the estimated test is significant, indicating that at least one panel is stationary. A correlation and multicollinearity analysis was performed. The results are summarized in tables 3 and 4.

Table 3: 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 4: 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 5: OLS Regression Results

Variables	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**

Note: ***: 1% significance; **: 5% significance; *: 10% significance.

The size indicator, expressed as the logarithm of total assets (LNTA), as expected, is positively correlated and at 1 % statistically significant. This implies that raising the size of an MFI is likely to improve its financial performance. Then any 1 million dollar increase in the total asset value of the MFI will increase at 3 % its financial performance ratio. This result can be explained by the fact that big-size microfinance programs can take advantage of scale economies and supports the premise of market power Hossain & Khan (Hossain & Khan, 2016). This outcome approves previous results from Cull et al. (2007) and Bui (2017), but is in contradiction with Hartarska (2004) and Hossain & Khan (2016).

Among the risk measurement variables, only the loan loss rate (LLR) was found to significantly correlate with financial performance. As expected, it is not only significant at the 1% level, but also has a negative factor. Its negative sign implies that an increase in this ratio would decrease the financial performance of microfinance institutions. According to the findings, any 1% increase in the loan loss rate will result in a 0.2% decline in the return on asset ratio. This implies that the institutions are suffering from low repayment and write off a lot of unpaid loans. Although significant at 10%, the depositor-per-borrower ratio shows a negative sign, contrary to what was expected. It means that a rise in this ratio negatively influences microfinance institutions financial performance. A 1% augmentation of this ratio will decrease by almost 1.2% the return on asset ratio of the MFIs. A likely explanation could be that the MFIs 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, risk cover, the write-off ratio, and the deposit to loan ratio show signs contrary to the assumptions but are not significant. Although showing a sign in line with the assumptions, the cost per borrower ratio is not significant either.

5.2. Financial Sustainability

Table 6: Probit Regression Results

	Operational Sustainability				Financial Sustainability			
Variables	Coef	t-value	p-value	Sig	Coef	t-value	p-value	Sig
WOR	-52.3300 (-0.859)	-0.95	0.342	-	-44.3615 (-8.236)	-1.50	.134	-
DBRW	1.3283 (0.002)	2.69	0.007	***	-0.1641 (-0.030)	-1.30	.192	-
PAR1	85.6081 (1.405)	1.87	0.061	*	5.7819 (1.073)	0.71	.476	-
PAR2	-389.762 (-6.396)	-5.26	0,000	***	-25.4430 (-4.724**)	-1.89	.058	*
LNTA	-0.4808 (-0.008)	-0.49	0.627	-	0.4458 (0.083***)	2.38	.017	**
PELP	-69.3227 (-1.138)	-1.90	0.057	*	-4.0382 (-0.750)	-0.78	.435	-
PROD	71.7522 (1.177)	4.95	0,000	***	1.2117 (0.225)	0.68	.494	-
		Chi-square	**51.081**			**Chi-square**	**16.426**	
		Prob>chi2	**0.000**			**Prob > chi2**	**0.021**	

Note: ***: 1% significance; **: 5% significance; *: 10% significance.

According to the table above, only one variable is simultaneously a determinant of both operational and financial sustainability. This variable (PAR > 90), is negatively linked to the probability of being operationally and financially sustainable. Statistically significant respectively at 1% and %10, a rise in PAR > 90 impedes the chance of being operational and financially sustainable for an MFI. The write-off ratio (WOR), which is an indicator of risk and is calculated as the ratio of written-off loans to the gross loan portfolio average, has, as expected, a negative coefficient but is not significant even at 10%. But the negative sign means that this ratio is affecting negatively the likelihood of achieving operational and financial sustainability.

Looking at operational sustainability, Table 6 shows that the depositor-to-borrower ratio (DBRW) is positive and statistically significant at 1%. This means that this ratio positively affects the chance of reaching operational sustainability for microfinance institutions. According to Schäfer & Fukasawa (2011), a higher depositor-to-borrower ratio positively influences the operational sustainability of microfinance programs. Any raise in the ratio means more depositors than borrowers, and a variety of financing sources to expand the operating range and business, which will in the end increase the chance of the MFI reaching operational sustainability. Statistically significant at 10%, PAR>30 is positively related to the likelihood of being operationally sustainable. This result, although unexpected, can be explained on the one hand by the fact that the weight of outstanding balance, a portfolio overdue of more than 30 days added to the renegotiated portfolio is relatively low compared to the gross loan portfolio of the microfinance institution; on the other hand, by the fact that the microfinance institution manages to recover the majority of the unpaid balances of more than 30 days, which would allow it to sufficiently cover its operating costs. The finding is inconsistent with the study assumptions and outcomes of Rai et al. (2012); Tehulu (2013); Ibrahim (2015); Usman et al. (2016). As predicted, the personal expense to gross loan portfolio ratio negatively affects the probability of being operationally sustainable. This implies that any increase in this ratio will have a negative influence on the chance of the MFI achieving operational sustainability. The productivity ratio, measured by borrowers per staff member (PROD), shows a positive trend in the consistency of predictions. This result indicates that the high productivity of MFIs is positively related to the probability of reaching operational sustainability.

In the case of financial sustainability, the findings shown in Table 6 indicate that apart from PAR 90, only the size of the MFI (LNTA) variable significantly has an impact on financial sustainability. The size variable is positively related to the probability of an MFI achieving financial sustainability. This finding follows the hypothesis and results of Tehulu (2013); Ibrahim (2015); Usman et al. (2016). After that, neither other risk variables nor the productivity variable was seen to be significantly impacting financial sustainability.

Marginal effects of the variables are computed in parenthesis by running the command margins, predict (pu0) dydx (*) in stata. As presented in table 6, any of the marginal effects of the variables related to the operational sustainability ratio is not statistically significant. Regarding financial sustainability, the two significant variables show significant marginal effects. Thus, any increase of $1 million in the value of an MFI's total assets will increase its chance of achieving financial sustainability by more than 8%. On the other hand, any 1% increase in PAR>90 will decrease an MFIs chance of achieving financial sustainability by

more than 400%. This last result highlights the very detrimental nature of the PAR>90 ratio for the financial sustainability of the microfinance institutions analyzed in this study.

6. CONCLUSION

This research aims to identify factors affecting microfinances performance and financial sustainability in Togo. Unbalanced panel data from almost 29 microfinances from 1999 to 2018 was analyzed. Using three ratios, namely return on assets, operational sustainability, and financial sustainability, and relying on the evidence from the econometric investigation, it is found that the ratio of depositors to borrowers (DBRW), the size of the MFI (LNTA), and the loan loss rate (LLR), are the major variables affecting the financial performance of microfinance in Togo. Statistically significant at 1%, the size ratio positively influences financial performance. However, 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 (PELP), and productivity ratios are the main variables influencing the operational sustainability of MFIs. Depositors per borrower, productivity ratio, and PAR > 30 are found to have a positive influence on operational sustainability at 1% and 10%, respectively. In contrast, a personal expense to loan portfolio ratio greater than 90 has a negative relationship with operational sustainability. Regarding financial sustainability, PAR > 90 and the size of the MFI are the main factors influencing financial sustainability. With a 5% significance, the size variable positively affects financial sustainability. Nevertheless, the significant PAR > 90 at 10% is a fund that is negatively related to financial sustainability.

Considering these results, the following recommendations could be formulated for microfinance in Togo: Given the positive effect of the size of microfinance on its financial performance, a strategy within microfinance institutions to increase assets should be adopted. Strict management of defaulted loans and measures to increase the repayment rate are necessary as they will significantly reduce losses. Measures to increase the productivity and dynamism of employees must be taken. Because of the positive effect of productivity on sustainability, the latter measures will help these structures to increase their revenues and also retain and have more customers and therefore more income sources.

The application of these recommendations can allow microfinance actors in Togo as well as politicians and donors to better orient their actions in the sector.

Etik Beyan: *Bu çalışma Etik Kurul'dan herhangi bir izin gerektirmemektedir. Aksi bir durumun tespiti halinde Sosyal Ekonomik Araştırmalar Dergisi'nin herhangi bir sorumluluğu yoktur ve tüm sorumluluk çalışmanın yazarlarına aittir.*

Yazar Katkı Beyanı*: 1. Yazarın katkı oranı % 60, 2. Yazarın katkı oranı ise % 40'dir.*

Çıkar Beyanı*: Yazar(lar) herhangi bir çıkar çatışması olmadığını beyan etmektedir(ler).*

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