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The Effect of Competition on the Financial Sustainability of Micro Finance Institutions in Cameroon

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Abstract
This study aimed at investigating the effect of competition on the sustainability of Microfinance Institutions (MFIs) in Cameroon. Secondary data collected from the market mix data set was used for the study. The Herfindhal-Hirschman Index (HHI) was used to estimate the concentration (competition) index for MFIs while the random effect model was used as the estimation technique based on the Hausmann test. The results showed that an increase in concentration had a negative and statistical significant effect on return on asset. The result implies that as competition in MFIs increases, financial sustainability also improves. Other results showed that staff productivity, outreach, capital adequacy had a positive effect on financial sustainability while portfolio at risk had a negative effect on financial sustainability. The study therefore advocates for policies that can promote an environment conducive for competition in order to encourage MFIs to adopt innovative strategies to remain sustainable.
Keywords: Competition, Sustainability, MFIs, Cameroon
JEL Classification: G21, L1, O16

1. Introduction

A survey carried out by Citi Bank and the Consultative Group to Assist the Poor (CGAP) in 2010 found out that more than 2.7 billion people in the world still have no access to formal financial services that are cheaper and more reliable than the informal alternatives. Brau and Gary (2004) explained that the absence of access to formal financial services to the poor has made them develop a wide variety of informal, community-based financial arrangements to meet their financial needs such as the Rotating Credit and Savings Association (ROSCA) Over the last two decades, an increasing number of formal sector organizations (non-government, government, and private) have been created for the purpose of meeting similar financial needs, but unfortunately the needs of the poor are hardly met to the fullest by these formal institutions. An ideal institution that can best answer the problem of providing financial services to the poor is the microfinance institution (MFI) which was created as a grass-roots movement to provide credit to the neediest. Microfinance has grown enormously since the nineteenth century and is now firmly established as a major supplier of a wide range of financial services to millions of people in the world (Marrez and Schmit, 2009).

The microfinance industry has realized an undeniable expansion and as the number of microfinance institutions continues to grow, the level of competition in the industry becomes a question of interest since the sustainability of these institutions is highly debated. According to McIntosh et al. (2005), the profitability of microfinance may drop with growing competition. In the case of microfinance, some scholars like Olsen (2010) and policymakers warn that increased competition could lead MFIs to "scale up" their services, However, if the literature on the impact assessment of microfinance is a bit advanced, Richman and Fred (2010) argued that studies on competition and performance is still lacking, though the sector keeps on expanding. This has therefore attracted the attention of many researchers in many countries since microfinance plays an important part in the development of the economy.

As the number of MFIs continue to grow and competition becomes inevitable in the industry, concerns for the survival and long-term sustainability of these institutions also continue to grow. Marquez (2002) and McIntosh et al. (2005) have suggested that the benefits of microfinance may be eroded with growing competition in the sector. They argued that high attrition rates, low portfolio quality and repayment rate, collection methods due to growth in MFI numbers threaten their sustainability. McIntosh et al. (2005) also argued that increased competition induces a decline in repayment performance and in savings deposited with the incumbent MFIs, suggesting multiple loan-taking by clients.

The microfinance landscape has been very unstable with frequent increases and decreases in the number of MFIs following the consolidation and restructuring of the sector in Cameroon in 2006. There were about 490 MFIs in Cameroon (down from 656 MFIs in 2000) with about 1,052 outlets (against 700 in 2000). The customers or members stood at about 849,030 as against less than 300,000 customers registered in 2000. Growing interest, closer supervision and monitoring resulted in strengthening the equity base that increased from

FCFA 3 Billion in 2000 to FCFA 19.9 Billion in 2006. According to market intelligence and industry sources, total equity has increased to an estimate of over FCFA 23.5 Billion (Fotabong, 2012). The number of MFIs increased to about 1,000 and then dropped to 418 in 2015 following the closure of many by the Ministry of Finance (Business in Cameroon, 2016)

The foregoing implies that with increase competition, MFIs may be forced to search for new clientele and/or increase market shares. Some may tend to increase focus on cost efficiency which may instead reduce efforts to monitor and screen new clients. This has resulted in a reduction in the quality of loan portfolio as they increasingly approve loans from riskier borrowers (Vogelgesang, 2003). As such, repayment rates have fallen, thereby adversely affecting the efficiency levels of these MFIs. In addition, increased competition has made it easier for borrowers to take up multiple loans from different MFIs, leading to an increase in the levels of indebtedness and repayment problems, which has resulted to default. The pressure on reducing costs has also led to a reduction in the focus on outreach, since providing small loans to poorer clients is generally more expensive than providing huge loans to better off clients.

Buried in fierce competition, MFIs have therefore resulted in compromising certain canons of borrowing and branching as they bid to please new and old customers. As a result, some MFIs tend to lower borrower selection standards as well as charge unrealistically low interest rates, resulting in low loan recovery and poor internal rate of returns which can have an adverse effect on their financial sustainability. With the increase in concentration of MFIs and even banks in most parts of Cameroon, there is need to bring closer focus to the fact that unchecked competition may not only lead to poor financial performance and sustainability but may result to the closure of MFIs. In this respect, this study seeks to investigate the effect of competition on the financial sustainability of selected microfinance institutions in Cameroon.

The rest of the paper is divided into four sections; the section on literature review makes an overview of the existing theoretical and empirical literature on financial sustainability and competition, while the section on data description and empirical model presents the estimation methodology and describes the data used in this study. The empirical results on the effect of competition on financial sustainability are presented and discussed in the section for presentation and discussion of results while the last section presents the conclusion and policy implications of the study.

2. Literature Review

Competition, in a broader sense, means a struggle of conflicting interest. As a selection mechanism, it is the chief selective process in modern economic society through which we have the survival of the fittest. In the MFI sector, increased competition among MFIs is one of the outcomes following the increasing role of profit-oriented institutions and the change of status by Non-Governmental Organizations (NGOs) from non-profit to profit making institutions. However, increased competition may contribute to well-functioning markets, protection of consumers, promotion of allocative and technical efficiency and the provision of incentives to develop new products (Motta, 2004). It may thus, be argued that increased competition in the microfinance business is expected to be beneficial as it results in lower costs and interest rates, improved and new financial product designs.

McIntosh and Wydick (2004) developed a theoretical model to explain the competition-microfinance nexus. They showed that the sustainability of MFIs was a negative function of industry competition; this originates from the likelihood of increasing information asymmetry in the microfinance market. With a greater number of lenders in a market, it is expected that information sharing between lenders becomes more difficult, all else equal. This according to them creates an incentive for some (impatient) borrowers to take multiple loans. Such instances of multiple contracting increase average debt levels among borrowers in the portfolio and decrease the expected equilibrium repayment rate on all loan transactions, generating less-favorable Bertrand equilibrium credit contracts.

In terms of empirical research, quite a number of studies have been carried out on the role of competition and other determinants on the sustainability or performance of MFIs and banks across the globe. These studies have used different techniques and have as well found mixed results. Some studies have shown that competition has a positive influence on the performance while others have shown a negative influence of competition on the performance of MFIs. Amongst such studies, Craig (1997) examined the management of microfinance institutions growth and observed that many microfinance institutions experience cycles of growth followed by periods of consolidation where they are forced to solve operational challenges such as decline in portfolio quality, client desertion, untrained and burned out staff, and administrative challenges including loan processing and information systems. In addition, many smaller credit programs never experience growth because they lack the resources (both technical and or financial) and a commitment to the financial systems approach.

Navajas et al. (2003) examined the effect of competition in the Bolivian microfinance market, focusing on two major MFIs which together make up around 40 percent of the total market. Their results suggested that the impact of competition is ambiguous in that on the one hand, it leads to innovation thereby allowing MFIs to

expand outreach. While, on the other hand, it reduces the ability of lenders to cross-subsidize less profitable smaller loans. In another study by McIntosh et al. (2005) using data from Uganda's largest incumbent microfinance institutions the authors analyzed the impact of entry by competing lenders on client behaviour. They examined the geographic placement decisions of competitors, and found out that lenders of different types cluster spatially and have pushed into rural areas in recent years. They also observed that increased competition induces a decline in repayment performance and in savings deposited with the incumbent village Bank, suggesting multiple loan-taking by clients. Although McIntosh et al. (2005) do not directly analyse the impact of competition on the performance of MFIs, their study indirectly found evidence suggesting that there is a negative impact of increased competition on repayment performance of MFIs.

Mersland and Strøm (2007) studied the effect of competition, board characteristics, ownership type and regulation on MFIs outreach and its financial performance between 2000 and 2006. Using a dataset of 226 rated MFIs from 57 countries; they found out that higher competition was an explicative factor of low portfolio yield. This means that competition among MFIs bring lower interest rates to clients and also lowers return on assets (ROA) of MFIs. Similar results have been obtained by Cull et al. (2009b and 2009a), Hisako (2009) and Assefa et al. (2010). Cull et al. (2009b) conducted a study on the effect of competition on the breadth of outreach of 342 MFIs located in 38 developing countries, while Hisako (2009) conducted an empirical analysis to assess the relationship between competition, Financial Self Sufficiency (FSS) and wide outreach of socially motivated MFIs. Both results showed that competition has a negative and statistical significant effect on outreach. On the other hand, Assefa et al. (2010) examined the effect of competition among microfinance institutions on outreach, loan repayment, efficiency and financial performance. The empirical investigation was based on fusing data from 362 MFIs in 73 countries for the period 1995-2009. Their results showed that intense competition was overall negatively associated with all the measures of performance.

In another study on the effect of competition using data from 299 microfinance institutions located in 18 Latin American and Caribbean countries, Olsen (2010) assessed the role that increased competition, state and macro-political variables play in MFIs ability to attract borrowers. The findings from the study showed that increased competition reduces the number of borrowers, which may cause MFIs to become inefficient. Meanwhile, Richman and Fred (2010) investigated the impact of competition and gender composition of borrowers on Sustainability of Microfinance Institutions (MFIs) in Ghana using a short panel data of 72 MFIs for the period 2003 to 2007. Using two indicators of sustainability (Operational Self-Sufficiency and Subsidy Dependence Index) and controlling for management efficiency, outreach and macroeconomic indicators, the authors found that industry competition increases sustainability of MFIs and reduces the dependency rate on donor subsidy or assistance. Thus, growing competition in the sector enhances efficiency and lowers the repayment risks and drop rates.

A similar result was also obtained by Gwasi and Ngambi (2014) in a study investigating the impact of competition and institutional characteristics on the financial performance of MFIs in Cameroon. The authors used data collected from twenty five (25) MFIs in the Cameroon Cooperative Credit Union League (CamCCUL) Network and applied a multiple regression estimation technique to relate financial performance (Returns on Assets) to various explanatory variables such as operational expenses ratios, portfolio at risk, staff productivity, savings mobilization ratio, and industry competition. Their findings revealed that competition have a positive effect on financial performance and also that operational expense ratio, portfolio at risk, and staff productivity are major determinants of the performance of microfinance institutions. Unlike the study of Gwasi and Ngambi (2014) that concentrated on the CamCCUL network, the current study includes other networks such as A3C, Mutuelle Communitaire de Croissance, ACEP Cameroon, Advans Cameroun, Crédit Communautaire d'Afrique (CCA), CEC-PROM Mature, RENAPROV Finance SA and SOFINA.

3. Data Description and Estimation

The study used secondary data collected from the annual Reports of the Microfinance Information eXchange (MIX). The data was collected on total assets, return on assets, return on equity, capital adequacy captured by capital/asset ratio, depositors per staff member taken as a measure of staff productivity, asset quality captured by Portfolio at risk, and outreach level captured by the number of offices. The competition variable is measured by means of the Herfindhal-Hirschman index (HHI), which has also been used in other studies such as Richman and Fred (2010) and Olivares-Polanco (2005). This index will be calculated using the total deposits of MFIs. The formula for the HHI is to square the total assets/deposits of each MFI and then sum the squared total assets/deposits of all MFIs under study.

The formula for calculating the HHI is thus given as:

$$HHI = \frac{\sqrt{\sum_{i=1}^{n}(\frac{x_i}{X})} - \sqrt{\frac{1}{n}}}{1 - \sqrt{\frac{1}{n}}} \quad (1)$$

Where:
HHI= Herfindhal-Hirschman Index (proxy for concentration or Competition)
x_i = value of total deposits by i[th] MFI

$X = \sum_{i=1}^{n} x_i$ and n = number of MFIs used in the study

The index ranges from 0 to 1 and is such that a low index is associated to high level of competition amongst MFI while a high index shows a low level of competition indicating that few MFIs dominate the market.

To capture the effect of competition on sustainability of MFIs in Cameroon, the following equation was specified;

$$LROA_{it} = \beta_0 + \beta_1 COMP_{it} + \beta_2 SP_{it} + \beta_3 CAR_{it} + \beta_4 AQ_{it} + \beta_5 OL_{it} + \mu_{it} \quad (2)$$

Where *ROA* is Return on asset which is used as a measure of the profitability of MFIs. *ROA* thus captures the financial sustainability of MFIs. *COMP* is the competition or concentration index calculated from the HHI formula. The rest of the variables are described in Table A1 in the Appendix. Table A1 shows the definition of the variables and their expected signs. The panel element of the model is captured by i representing the Microfinance Institutions, while t captures the time element; μ is the error term, while β_i, $i = 1, 2, 3, 4, 5$ are the parameters to be estimated.

The summary statistics and correlation matrix are presented in Table A2 and A3 (in the Appendix), respectively. From Table A3 it is observed that that there exists a negative and statistical significant relationship between competition and MFI sustainability. This implies that an increase in the index (reduction in competition or increase in concentration) reduces financial sustainability. The results also showed that a positive relationship exist between capital adequacy, depositors per staff, staff productivity and financial sustainability, while a negative relation exist between asset quality (measure as portfolio at risk) and financial performance.

Since the study uses a panel or cross-sectional time series data, the fixed effect or random effect model are all feasible. However, the choice of the model to adopt depends on the results of the Hausman test. From the result of the Hausman test (Table A4 in the Appendix), the Random-effect model is more suitable for this study. Thus, only the Random Effects results are presented and discussed.

4. Presentation and Discussion of Results

Based on the Hausman test results, the regression estimates to assess the effect of competition on the sustainability of MFIs in Cameroon were estimated through the Generalised Least Square or Random Effect methodology. The empirical result of the effect of competition on financial sustainability is presented in Table 1.

Table 1. Empirical result on the effect of competition on financial sustainability

Variable	Coefficient	Standard Error	z-score	P>|z|
COMP	- 0.4600*	0.2647	-1.74	0.082
OL	0.0429*	0.0231	1.86	0.064
CAR	0.0368	0.0300	1.23	0.220
SP	0.0416**	0.0172	2.42	0.015
AQ	- 0.0432	0.04753	-0.91	0.364
Constant	3.6324	0.2329	15.59	0.000
Wald $chi^2(5)$	23.05			
Probability > chi^2	0.0017			
Number of observations				

******, ** and * statistically significant at 1%, 5% and 10% level of significance***

Source: Computed by Authors

The empirical findings showed that competition has a negative and statistical significant effect on the financial sustainability of MFIs in Cameroon. This results need to be interpreted with caution. This is because higher coefficients indicate concentration of MFIs (that is there are dominants MFIs in the economy), while lower coefficients indicate competition. Thus, the result implies that an increase in concentration (reduction in

competition) reduces the financial sustainability measured in terms of Return on Assets. The magnitude of the concentration index is -0.4600 which implies that as the proportion of the deposits an individual firm takes in the total market deposits increases, the sustainability of existing MFIs will reduce by about 0.46% from the perspective of returns earned on assets. This result is in line with the studies of Gwasi and Ngambi (2014) who found a positive effect of competition on the performance of 25 MFI within the CAMCUL network in Cameroon. Worth mentioning that the study of Gwasi and Ngambi (2014) concentrated within the same network, while the current study cuts across different networks. Thus, competition across MFIs network and within the same network can be very instrumental in influencing efficiency and performance. Our finding is also in line with those of Richman and Fred (2010) who obtained results from a panel data of 72 MFIs for the period 2003 to 2007 in Ghana showing that industry competition increases sustainability of MFIs and reduces the dependency rate on donor subsidy or assistance.

The finding in this study is however in contrast to many other studies, such as those of Navajas et al. (2003), McIntosh and Wydick (2004) and Olsen (2010). Using different measures of sustainability and competition, the studies all found results suggesting that increased competition induces a decline in the financial performance in MFIs. Our finding also contradict those of Mersland and Strøm (2007) who obtained results indicating that competition among MF's bring lower interest rates to clients and also lowers the return on assets (ROA) of MFIs. Similar results have been obtained by Cull et al. (2009b), Hisako (2009) and Assefa et al. (2010).

The coefficient of outreach measured in terms of number of offices is positive and statistically significant implying that increasing the number of offices, (that is, an enhancement of outreach and geographical coverage) would improve on the sustainability (financial performance) of MFIs in Cameroon. Specifically, increasing outreach level by 1% has the potential to increase financial sustainability of MFIs by approximately 0.043%. The findings are however contrary to the findings of Nawaz (2010) who did not support the tradeoff between outreach and sustainability of MFIs in 179 MFIs worldwide.

The empirical findings further showed that the quality of assets (measured by portfolio at risk 30 days or more) possessed by MFIs has a negative but statistical insignificant effect on financial sustainability. The estimates indicate that an increase in the portfolio at risk (that is, a reduction in the quality of assets) will reduce the sustainability of MFIs in Cameroon. Other results showed that the capital adequacy ratio is positive but statistically insignificant while the staff productivity has a positive and statistical significant effect. The estimates show that as staff productivity increases by a unit (as the number of depositors an MFI staff can handle increases by one), the sustainability of the MFI increases by about 0.042% holding other things constant. This supports the a priori predictions and also conforms with earlier studies such as that of Bogan (2009) who, in his investigation on the relationship between capital structure and sustainability of MFIs of 53 MFIs in Uganda over a period of six years, found that asset size is significantly and positively related to sustainability.

5. Conclusion and Policy Recommendations

This study sought to assess the effect of competition and other factors on the financial sustainability of MFIs in Cameroon. Secondary data was collected from the Microfinance Information eXchange (MIX), while the formula for the Herfindhal-Hirschman index (HHI) was used to estimate the coefficient for concentration (or competition). Financial sustainability was measured using the Return to Assets (ROA). Other variables included in the regression analysis were; capital adequacy, asset quality, level of outreach and staff productivity. The regression analysis was carried out using the random effect estimation technique based on the result of the Hausmann test.

The empirical results showed that concentration has a negative and statistical significant effect on the financial sustainability amongst MFIs in Cameroon. Thus, the results support the view of those who consider increased competition and the related commercialization of the microfinance sector as a promoter of long term financial sustainability of MFIs. This is obviously because competition results to efficiency which increases productivity and efficiency among MFIs.

Other results from the empirical analyses showed that financial sustainability of MFIs in Cameroon was significantly determinant by staff productivity and outreach while asset quality and capital inadequacy had a statistical insignificant influence. The results precisely showed that an increase in outreach, staff productivity and capital adequacy will lead to an increase in the financial sustainability of MFIs in Cameroon, while an increase in portfolio at risk 30 days or more (proxy for asset quality) will result to a decrease in financial sustainability.

The study implies that increased competition improves financial sustainability. This is because with competition, MFIs seek to create and sustain excellence by being innovative in their thoughts and acts, thus moving away from the traditional banking methods which in turn increase profitability. Competition also has a positive effect on sustainability as its forces most institutions to get into aggressive marketing strategies to improve their market shares. This increased in market share will increase the total deposit and customer base. In

addition, competition sets management to state what winning looks like, spell out the preferred culture and set out target to achieve financial sustainability and business continuity.

Thus, it is recommended that policies be put in place to encourage a competitive environment for MFIs. It is worth noting that Cameroon counts over 250 MFIs with many concentrated in specific cities or areas. In order to ensure competitiveness of the sector, policies should be implemented which shall ensure fair competition to the young micro finance institutions in order to facilitate their growth. Therefore, developing proper competitiveness tests and methodologies will remain an important area of research and policy focus. The results may also support calls for designing ways to ensure the positive effects of increased competition on the sector to be sustained. These calls may include improved regulatory measures to reduce the risk when MFIs compromise lending standards in order to increase market share. Moreover, it may stimulate initiatives focusing on promoting information sharing between MFIs. This may contribute to lower delinquency rates as well as help to improve borrowers' welfare by preventing borrowers from taking multiple loans. In addition, promoting financial literacy among clients may also help them in their borrowing decisions and reduce the risk of multiple loan-taking.

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Appendices

Table A1: Description of variables used in the estimation

Variable	Definition	Expected Sign	Indicator
ROA	Return on Asset		Interest amount
COMP	Herfindhal-Hirschman index for Concentration	-/+	The concentration or competition index
SP	Staff Productivity	+	Number of Depositors per staff
CAR	Capital Adequacy Ratio	+	Ratio of capital to total assets
AQ	Asset Quality	-	Portfolio at risk (30 days). Representing loans overdue by 30 days or more
OL	Outreach level	+	Number of branch offices

Table A2. Summary statistics

Variable	Mean	Standard Deviation	Minimum	Maximum
Return on Asset	49.4373	9.0384	0.400	67.12
Competition	0.1139	0.2059	.0006	0.842
Offices	91.8077	139.9179	1.00	522
Depositors per staff member	186.4737	240.7457	0.00	1773
Capital Asset Ratio	20.0983	23.41876	0.11	94.83
Portfolio at risk	15.9677	15.41285	0.00	76.42

Table A3. Pair-wise correlation matrix results

VARIABLE	ROA	COMP	OL	AQ	SP	CAR
ROA	1.0000					
COMP	- 0.0421**	1.0000				
OL	0.0327	0.4801***	1.0000			
CAR	0.1770	0.2255*	0.3343**	1.0000		
SP	0.0399**	0.3754***	0.4528***	0.2697*	1.0000	
AQ	-0.0330*	-0.1719	-0.0951	-0.3179**	-0.1461	1.0000

******, ** and * statistically significant at 1%, 5% and 10% level of significance***

Source: Computed by Author

Table A4. Hausmann **test results**

VARIABLE	**Fixed Effect estimates (b)**	**Random effect estimates (B)**	**Difference (b-B)**	**Standard Error**
COMP	-0.4437758	-0.4600458	0.01627	0.1792565
OL	0.045615	0.0428821	0.0027329	0.030414
CAR	0.0374281	0.0367737	0.0006543	0.0226544
SP	0.0584259	0.0415762	0.0168498	0.0257483
AQ	-0.0450436	-0.0431776	-0.0018661	0.0321756
$Chi^2(5)$	1.19			
$Prob>Chi^2$	0.9454			

Source: Computed by Authors

Ho: difference in coefficients not systematic. Random Effect model preferred

The test structure is given thus as

Chi^2 = (b-B)'[(V_b-V_B)^(-1)](b-B)

Where; B = Fixed Effect (FE); B = Random Effect (RE) and (b-B) =Difference