

Ownership, Risk and Regulation of MFIs in Central Africa Countries

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 DOI: [10.36348/sjef.2020.v04i07.005](https://doi.org/10.36348/sjef.2020.v04i07.005)

| Received: 04.07.2020 | Accepted: 19.07.2020 | Published: 27.07.2020

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Abstract

Provided the regulatory reforms of MFIs in CEMAC Zone since 2002, we run a comparative analysis of risks associated with MFIs ownership forms. Then, we got extract from MIX market database. Specifically, the dataset included 28 MFIs from Central Africa over the period 2001-2017. We found out that commercial orientation and large scale are associated with high good exposure. Being Microbanks venture stakes small depositors' funds, but deprived from residual claims, we are supportive of stringer regulation of Microbanks. We also suggest clients (whether depositors or borrowers) participation in MFOs for better portfolio quality.

Key words: Microfinance, risk, prudential regulation, ownership, Central Africa.

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INTRODUCTION

The formation of banks followed but later faded by the marginalisation of poor people in the aftermath of sub-Saharan Africa 1980s economic crisis, had again strongly entrenched ROSCAs and usurers so that they became, alternatively to banks, financial delivery channels for unbanked people, however informally. Thereby, Microfinance intermediation built on an incorporation both community informal practices and banking formal practices. Microfinance activity took precedence over the gap left by banks [1], but scarred by informal practices of finance all the same. The development of Central Africa [1] microfinance industry in early 1990s sounded as a regeneration of the financial intermediation sphere wounded by massive bankruptcies, and thereof left banks more reluctant to deal with low but also intermediary income earners who could not provide sureties.

However, from the multiple failures reported in late 1990s, the incorporation of informal into formal practices of financial intermediation gave rise to weak microfinance organisations (MFOs). A legal frame initiated by COBAC in 2002 sounded as a remedy to

the prevailing mess in the industry. COBAC [2] regulation provided three classes for microfinance to operate. Amongst, three ownerships are the most active on the market: Credit Unions (as First-class MFIs), Microbanks (as Second-Class MFIs) and Non-Governmental Organisations [3] (as Third-Class). Subsequently, prudential norms were designed in order to control their activities consistent with each organisational form. Though the ambition to foster strong institutions in Microfinance, the regulation should care not to bitterly wound unbanked people who could be left worse off than ever and would injure the stability of an already suffering financial system.

In this paper, we ambition to run a comparative analysis of the risks associated with MFIs ownership forms. In fine, we are going to assess the soundness of the regulation of microfinance intermediaries in CEMAC Zone. We extracted from MIX market database. Specifically, the dataset included 28 MFIs from Central Africa over the period 2001-2017. We processed data through the Multinomial Logistic Regression. Thereof, we found out that as far as solvency is concerned, no specific ownership has a significant superior level on Fixed Assets Coverage

¹ We are going to refer Central Africa countries as CEMAC Zone. This French Acronym designates Economic and Monetary Community of Central Africa countries.

² COBAC is a French acronym that refers as to the superintendent of Central Africa financial intermediaries.

³ We are going to refer them as to NGOs in further development.

Ratio nor Capital-to-Assets Ratio. When we examine credit risks across ownership forms, Microbanks show greater Loan loss Rate than NGOs and Credit Unions. Then, we have good reasons to believe that, more commercially-oriented firms are associated with high good exposure. In fact, lower PAR30 levels reported in Microbanks could just veil latent high level of their portfolio riskiness. Even lower Write-Off ratios of Microbanks are just evidence of the dissonant loan provisioning with their risky venture. Provided Microbanks venture stakes small depositors funds, but deprived from residual claims, we are supportive of stringer regulation of Microbanks and clients (whether depositors or borrowers) participation in MFOs for better portfolio quality control. Furthermore, we found out that Microbanks larger size sounds to commensurate with greater Loan Loss Rate compared to NGOs. Again, there is no evidence whether Microbanks, NGOs and Credit Unions riskiness are sensitive to the Bank competition. We develop our paper by elaborating on the regulatory and then analytical frameworks. Afterwards, we are describing the methodology adopted and the ensuing results.

Regulatory framework

Being the context of poverty in Central Africa, a more stable financial system for marginalised clients of banks would allow a regular stream of financing for microenterprises and poor households; and thereof, microfinance could not escape to a regulation. As such, we are going to review the historical background, the challenges of the regulation and the resulting ownership classification.

Historical background

In its traditional microfinance form, the route of formal microfinance activities can be traced back in 1963 following the creation of the first Credit Union at Njinikom in the North West region of Cameroon by a Roman Catholic clergy. Since then, the microfinance industry has gone through a trajectory of a maturing activity aided by a regulation that gradually accommodated the new born business practices. Referring to Cameroon experience, Microfinance regulation evolution in CEMAC Zone can be broken down into three major steps before 2002 regulation:

Table-1: The steps of the construction of a regulatory framework in Cameroon

Step 1	Before 1992	Law n°90/053 of 19 th December 1990 authorising savings and credit activity to many groups: associations, cooperatives
Step 2	From 1992 to 1998	Law COOP/GIC n°92/006 of 14 th August 1992 relative to the specific case of non-banking institutions but running financial intermediation transactions
Step 3	From 1998 to 2002	1998 Financial law accompanied by a decree for implementation, paved the way for a specific regulation of microfinance
Step 4	Since 2002	COBAC regulation n°01/02/CEMAC/UMAC/COBAC ruling microfinance establishments under the supervision of MINFI and authorising the diverse ownerships. Mutuels are ascribed to both texts.

Source: Cameroon Ministry of Finance report (2011).

The regulatory steps of microfinance fitted with the development path of the industry going through the implementation, followed by the bank crisis that gave triggered the industry blossoming. COBAC 2002 regulation on microfinance addressed as key points: the scope of activities, the organisation of the sector, barriers to entry, prudential norms setting, and control mechanisms with reference to international standards [2]. The prudential norms enacted by COBAC chiefly aimed at safeguarding savers funds. In the aftermath of 2002 regulation, surveys carried out by COBAC evidenced insufficient governance mechanisms, poor risk management, poor organisational efficiency and a poor internal control system. Also, many establishments had to provide a genuine recovery programme for the sake of their recapitalisation and compliance with the prevailing regulation.

The regulation act challenges

Amongst all, market efficiency stems from their ability to reward risks with fairly returns. Somehow, market efficiency subsumes that any firm lagging behind these standards will be definitely driven

away from the market. While the market efficiency assumption does not rule out the possibility of market voids, the failure is compensated by state regulation. According to Valenzuela and Young [3], regulation refers to “the body of laws that define the rules of the game for the safe entry, operations, and exit of actors in the financial system, thus ensuring the safety, soundness, and effectiveness of the financial markets on behalf of the public”. The financial regulation mainly aims at three goals:

- macroeconomic goals: that is ensuring the solvency and financial soundness of all intermediaries, in order to protect the stability of the country’s payments system;
- protecting depositors’ funds from risk-taking behaviour of financial intermediaries;
- promoting the efficient performance of institutions and markets and the proper working of competitive market forces.

Furthermore, Chavez and Gonzalez-Vega [4] documented the financial regulation should set and enforce rules so as to affect agents’ behaviour in financial markets. Put otherwise, the state is the rule-

maker. By no means, the regulation supersedes the market; the regulation supplement markets incentives so as to operate transactions without injuring the whole economy. As the bank regulation of 1992 was not suitable to microfinance activity, a proper regulation to respond to their distinctive nature was required. COBAC had to specifically structure Microfinance business in tandem with their institutional arrangements (typology of field players with diverse objectives), governance mechanisms and the size of their business,

that will draw a red line from customarily banks [5, 6]. Whence, the ensuing classification.

Ownership classification

COBAC regulation on microfinance proceeded from a functional classification of microfinance according to whether they were deposits-taking and credit institutions (First- and Second-Class) or credit-only institutions (Third-Class).

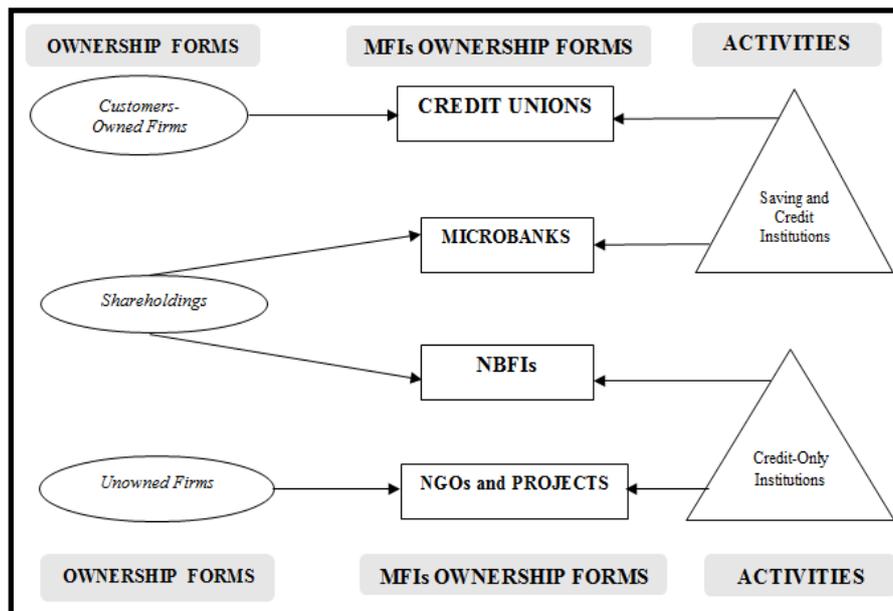


Fig-1: Coordination between Ownership forms and microfinance activities

Source: Authors' readings compilation.

Per se, COBAC classification did not mutually exclude each perspective; rather the classification was inclusive of institutional and functional orientation. Within deposits-taking financial intermediaries, we can also find member-owned firms (First Class) and Public Limited Companies (Second Class). Within the Third-Class, there are still public Limited Companies (NBFIs) and un-owned firms (NGOs, financing projects). Ownership riskiness is not a novelty either in business undertakings [7] or specifically in Microfinance. In the field of Microfinance, many studies have been carried out worldwide, but specifically to Sub-Sahara Africa (SSA) we are to decide whether ownership form types may be associated with differences of risk.

Analytical framework

All this struggle about the legal form of MFIs is far from being innocent because many scholars found kind of harmony between the legal status and the performance, but without consensus. Tchakounte Djoda, Djaowe and Ngomign [8] put that a sound regulation of microfinance activities results in disciplining informal investment and henceforth capital allocation. This point is challenged by Cull, Demirgüç-Kunt and Morduch [10, 11] who advocated that the additional costs induced by prudential supervision

compliance dampen the profitability and are compensated by lower outreach.

In fact, for the law restricts what an individual can afford without being sanctioned, in contractual relationships, the legal frame turns to define internally and externally the firm scope and the conditions of the contract outcomes performance. Ledgerwood [12] suggested that "a financial institution's structure is determined by its legal form, its ownership and governance structure, the degree to which it is supervised by the state, and the type of clients it serves. These in turn, influence an institution product offering, financial management, reporting needs, funding sources, and overall financial sustainability and independence". But the legal form (but thereafter referred as to the legal status) brings on the others (ownership and governance structure, the degree of supervision by the state, and the type of clients served). In the same wavelength, Amadou Barry and Tacneng [13] argued that "MFIs with different ownership structures are expected to behave differently from each other because of their variations in terms of legal status, financing structures, level of regulation, objectives and subsequently how they are governed".

Beyond the endogenous nature of ownership forms regarding the law, it also sounds well to point out that ownership forms are exogenous institutional arrangements to the law. Being institutions, they “are the written and unwritten rules, norms and constraints that human devise to reduce uncertainty and control their environment” [14]. Except the owner’s desire to be himself master, owning is better than outsourcing because of the firm internalises the market transaction costs i.e. the costs of observing and adjusting to market price mechanisms but also the costs involved by contracts incompleteness, by information asymmetry, by misalignments of contracting parties’ interests and by designing equitable incentive schemes [15-19] namely when the legal system is perceived to inefficiently enforce contracts [20, 21]. Accordingly, the various institutional arrangements have been crafted so as to benefit from economies of scale [15] and of specialisation [12, 23].

Variables selection

From available information on MIX Market database, we were able to include in our analysis the following risk characteristics: Portfolio quality and Solvency. We added some control variables as interaction variables.

Portfolio quality

Portfolio quality is proxied here by:

- loan delinquency rate;
- loan loss rate;
- Write-off ratio rate.

Loan delinquency rate

Two common measures are called for loan delinquency measure: Portfolio at risk greater than 30 days (PAR30) and Portfolio at risk greater than 90 days (PAR90).

PAR30: represents the loan share greater than 30 days past due, including the value of all renegotiated loans (restructured, rescheduled, refinanced and any other revised loans) compared to gross loan portfolio. The most accepted measure of a financial institution portfolio risk measurement. Tchakouté-Tchuigoua [24, 25] found no significant difference of PAR30 between SSA Cooperatives, shareholdings and NGOs. But Cooperatives evidenced a higher PAR30 than the average while investor-owned firm lagged behind NGOs. Alike, earlier works of Cull, Demirgüç-Kunt and Morduch [26] disclaimed quite differences of portfolio quality between MFIs; rather, they showed singular target market and lending approaches between MFIs. In tandem with their social mission, Cull, Demirgüç-Kunt and Morduch [26] claimed that NGOs and Village Banks lend through group-based methods to poor clients, while microbanks are more focused on individual loans which are quite large on average and less costly to operate by the same. By contrast to

Stiglitz and Weiss [27], repayment rates are insensitive to interest rates increase however [26].

Morgan [28] showed that increasing the level of commercialisation was inductive of lower levels of insolvency irrespective of rating agency actions; but once the regulation interacts, the level of commercialisation becomes insignificant. Put differently, transforming MFIs into a regulated entities would decrease their risk-taking behaviour.

PAR90: Represents the portion of loans greater than 90 days past due, including the value of all renegotiated loans (restructured, rescheduled, refinanced and any other revised loans) compared to gross loan portfolio.

As for the loan delinquency, both PAR30 and PAR90 were found highly and significantly correlated ($r = 0.955$). This high association denotes that whether beyond 30 days or 90 days, the loan delinquency rate is still the same. Provided the smallness of and the short maturity of loans, we finally opted for the most conservative measurement of the loan delinquency: PAR30. The strictest measurement has been supported by Valentina and Young [3], Meagher [29], Cull, Demirgüç-Kunt and Morduch [26], Tchakouté-Tchuigoua [24, 25], as well as Kar and Swain [30].

Loan loss rate

This ratio assesses the total amount of loans written off, net of recoveries, relative to the average gross loan portfolio. It allows a more comprehensive analysis of impairment loan losses from write-offs by considering the value of recovered loans into the overall ratio calculation. Individual lenders portfolio risks and the portfolio risk have a U-shaped relationship [9]. Morgan [28] found loan loss rate with a negative effect on ROA; but he did not find any relationship between the level of commercialisation and the portfolio quality (proxied by the loan loss rate ratio and the Portfolio at Risk). From a certain stance, the flat portfolio quality may owe to the market risk faced by every microfinance. In fact, Morgan [28] explained the invariance of portfolio quality across MFOs by the maxim that there is no “best set-up” in microfinance. Commercially-oriented MFIs use traditional risk prevention methods whereas socially-minded MFIs use financially innovated techniques proper to microfinance. These novel techniques are commonly known as microloans, frequent instalments, dynamic incentives and group lending. In fact, Morgan postulated that each MFO has developed a sustainable competitive business model in its niche. Therefore, while making investment decisions, the following variables should be considered: the legal form, the market competition, the manager features and the board composition. Ahlin and Lin [31] have not found any track of statistical learning effect on default rates. While contrasting with Stiglitz and Weiss [27], Kar and Swain

[30], have found a relationship between real portfolio yield and MFIs: therefore, all else being equal, portfolio quality improves at relatively high interest rates.

Write-Off Ratio

The write-off ratio (WOR) is the total value of loans written off compared to average gross loan portfolio. WOR represents the percentage of a financial institution's loans that have been removed from the balance of the gross loan portfolio because they are highly unlikely to be repaid.

There are some concerns about the ability of regulation to effectively discipline excessive risk-taking of market participants. Billett, Garfinkel and O'Neal [32] found out that bank shareholders perceive the related costs to regulatory discipline less sensitive to risk increases than the costs associated with market discipline. We find that banks actively exploit this perceived difference by increasing their reliance on insured deposits funding in times of increasing risk. Barth, Caprio and Levine [33] go for the universal banking that will create more diversified and more stable banks. Counterintuitively, less stringer regulation may accumulate value of banks which will behave more prudently. They further submitted that tighter bank regulation induces increasing vulnerability the financial system to major banking crisis. Barth *et al.* [34] are more resolute on this issue: a tighter bank regulation has deleterious effects on the industry efficiency.

Solvency ratios

We appreciate MFIs ability to settle their debts at maturity throughout:

- Fixed Assets Coverage ratio;
- and Capital-to-Assets ratio.

Fixed Assets Coverage ratio

Many MFIs have been securing their funds in non-financial fixed assets. In the same wavelength, the prudential ratio provided fixed assets ratio coverage in other to meet such casualties. Some CamCCUL⁴ affiliates evidenced high levels of fixed assets coverage (FACR) ratios compliance nearing 600 % [35]. While these assets stand as tangible collateral for members in case of bankruptcy, they increase clients' loans constraint and hence reduce the financial intermediary net worth. Akume and Badjo Ngongue [35] documented a negative effect of the fixed assets coverage ratio on efficiency.

$$\text{Fixed Assets Coverage Ratio} = \frac{\text{Net Fixed Assets}}{\text{Total Equity}}$$

⁴ CamCCUL: Cameroon Cooperative Credit Union League Limited. In CEMAC Zone, this is the largest network with by far a long-standing existence.

Capital-to-Assets ratio

The Capital-to-Assets Ratio (CAR) is the total equity relative to assets. As a measure of a financial institution solvency of, this ratio is helpful in assessing its ability to meet its obligations and absorb unexpected losses. It is the reciprocal of the Debt-to-Equity ratio. Morgan [28] found out that Capital-to-Assets ratio positively affected ROA. As if equity had a disciplinary power by enabling funding of profitable and less risky investments.

Control variables

We identified two sets of control variables: firm specific- and country specific variables.

Institutional variables

Maturity is found to affect capital structure and profitability in a controversial way. Kar and Swain [30] have not found track of age effect on MFIs well-being (proxied by adjusted ROA, FSS, and Self-Sufficiency Index). However, mature MFIs undergo poorer portfolio performance as far as PAR30 is concerned. Cull, Demirgüç-Kunt and Morduch [9] found out that age is positively linked to financial performance variables like: OSS, FSS and ROA. In addition to Age, we considered the firm size proxied by logarithm of Gross Loan Portfolio.

Country specific variables

Arguing that the strength of creditors' rights and contracts enforcement impulse financial development deprives financial intermediary their role. Were they frictionless, markets would be market- rather than bank-based. The financial intermediary task is to deal with the uncertainty of information asymmetry and contract enforcement. Tchakounte Djoda, Djaowe and Ngomign [8] argued that microfinance industry flourishes wherever financial systems are not well developed; and reforms aims at promoting domestic financial development as well as institutions. Périlleux, Vanroose and D'Espallier [36] found out that the economic expansion is followed by larger loans size and more developed infrastructure. And it gets harder for banks to reach out remote areas because the good infrastructure necessitated is costly. Gross Domestic Product growth exercises a positive influence on the overall performance. Cull, Demirgüç-Kunt and Morduch [10] found out that inflation negatively affects profitability and FSS unlike real growth. To some extent, Ahlin Lin, and Maio [37] submitted that growth rates are associated with lower PAR and default rates. Alternatively, Ahlin and Lin [31] hypothesised that the more formalised an economy experiences growth, the greater MFI default rates. In fact, whenever a borrower shifts to the formal sector, he strategically defaults on microfinance loans, prospecting more advantageous loans from banks at better conditions. In this study, we are going to use those financial sectors development indicators and overall country development indicators to characterise MFIs riskiness.

Sample description

Data are extracted from MIX Market database which reports worldwide MFIs financial information on the World Bank database. This data base collects information from several microfinance establishments that willingly decided to submit it but we selected 4 and 5 diamonds high quality reports provided. As Barth *et al.* [34] evidenced it from banks information disclosure and transparency, the microfinance that report there are most likely performant so that their information can be valuably used. Excluding the other microfinances for the purpose of assessing the effect of the prudential regulation is a point submitted by Christen, Lyman and Rosenberg [38]. They advocated that the regulation should be first successfully tested on best performing firms because they are the one that will most likely benefit from its implementation. In the same line, Christen and Rosenberg [39] documented that supervisor aims is not to improve poorly performing firms, but to identify and discard them. Put otherwise, the prudential norms set an array of attainable standards that should target any microfinance which ambition is to be performant.

The dataset included 28 MFIs in Central Africa over the period 2001-2017. Central Africa MFIs are ruled by the same supervisor with minor country specific adjustments accordingly. The area includes: Cameroon, Gabon, Equatorial Guinea, Congo, Central African Republic and Chad. Microfinance market is more dynamic in Cameroon, Congo and Chad. Whether proxied by the number of licensees or the loan portfolio, COBAC reports claim that those countries gather nearly 90 % of the sub-regional market share. Our available data have not included Guinea Equatorial, whilst Gabon is marginally represented. Still, assessing the regulation based on other countries will be relevant because of their greatest market share.

Overall, the sample MFIs encompassed 43 % of the sub-region's gross loan portfolio. We were able to include in our analysis 160 observations of which 51.9 %, 32.5 % and 15.6 % were respectively Credit Unions, Microbanks and NGOs. The following table exhibits some statistics related to the mean and standard deviation.

Table-2: Descriptive statistics

Legal Status		PAR30	WOR	LLR	FACR	CAR	Age
CREDIT UNION	Mean	0.17824688	0.01270786	0.48355307	5.468772	0.22551402	2.6774
	Std. Deviation	0.167815516	0.031669296	4.871048805	9.7848826	0.212163460	0.61879
MICROBANK	Mean	0.09347291	0.01501912	0.01500282	5.423593	0.22500263	2.3974
	Std. Deviation	0.132776358	0.026984507	0.028598666	7.9238644	0.218038250	0.79511
NGO	Mean	0.11515161	0.01403034	0.00347619	7.632631	0.25913889	2.4865
	Std. Deviation	0.125922235	0.047902118	0.027016598	15.4363090	0.293672728	0.65071
TOTAL	Mean	0.13927659	0.01694881	0.25482078	7.983813	0.23942705	2.5620
	Std. Deviation	0.153582956	0.043939529	3.499070610	25.5337809	0.239459128	0.69249

Source: Authors (2020).

The average PAR30 is 13.92 %; amongst Credit Unions exhibit the poorest performance (17.83 %), while Microbanks report the best performance (9.35 %). WOR averages 1.69 %, and the ratio is nearly the same in the industry. In the industry, the average Loan Loss Rate is 25.48 %. The top best performance of LLR is achieved in Microbanks (1.5 %) and NGOs (0.35 %). FACR averages 7.98 %. LLR is lowest in Credit Unions but the associated standard deviation is very wide (4.87). Credit Unions and Microbanks carry the lowest FACR. However, Credit Unions and NGOs FACR standard deviation is the highest. Regarding CAR, deposits-taking institutions (Credit Unions and Microbanks) evidence comparable ratios, but quite lower than non-deposits-taking institutions (NGOs). As far as age is concerned, our MFIs are at least Young. For that matter, 67.77 % of sampled firms are already mature.

Model specification

The differential analysis of risk incurred by MFIs with respect to their legal status will induce the Multinomial Logistic Regression. Not all available

variables in MIX market were considered. In order to avoid multicollinearity, we selectively discarded those variables that are either strongly correlated or which observations were inconsistent. Consequently, we were left with as main effect variables: Loan Loss Rate (*LLR*), Write-Offs Ratio (*WOR*), Fixed Assets Coverage Ratio (*FACR*), and Portfolio at Risk greater than 30 days (*PAR30*) and Capital-to-Assets Ratio (*CAR*). The customarily institutional variables (Maturity *AGE* and portfolio size *LN_GLP*) are supplemented by macroeconomic variables: Gross Domestic Product per Capita (*LN_GDP_PERCAPITA*) and in current value (*LN_GDP_CURRENT*), inflation rate (*INFLATION*), the market saturation (Domestic Credit to the Private Sector by Banks *DCPS_BANKS*).

The initial logistic regression model will be therefore

$$Y (\text{Credit Union, Microbank, NGO}) = \alpha + \beta_1 \text{LLR} + \beta_2 \text{WOR} + \beta_3 \text{PAR30} + \beta_4 \text{FACR} + \beta_5 \text{CAR} + \beta_6 \text{AGE} + \beta_7 \text{LN_GLP} + \beta_8 \text{DCPS_BANKS} + \beta_9 \text{LN_GDP_CURRENT} + \beta_{10} \text{LN_GDP_PERCAPITA} + \beta_{11} \text{INFLATION}$$

Analysis of the differential riskiness with regards to the ownership

All variables investigated as main effects were entered at once, while institutional and macroeconomic variables were selectively passed in through the forward entry method. Finally, Age, LN_GLP_CURRENT and LN_GLP were definitely the most relevant control variables. Most significant main variables were virtually all variables specified. But by the means, the effects are not the same when the reference category changes. We begin with considering NGO as reference group and next Microbank. Consistent with Hansmann [7], we first compare ownerless firms (NGOs) with

fully owned firms (Microbanks and Credit Union); afterwards, we balance risk indicators of pioneered member-based and so-called socially-minded firms against investors-owned firms and commercially-oriented all the same.

The multinomial logistic regression results are conclusive; 71.9 % of observations are accurately classified, while Nagelkerke coefficient satisfactorily displays 60.4 %. The following tables will give us preliminary insights of the difference of risk between ownership forms.

Table-3: Parameters Estimate with respect to NGO category

Legal Status		β	Std. Error	Wald	df	Sig.
CREDIT UNION	Intercept	-18.434	8.086	5.197	1	0.023**
	LLR	9.484	13.812	0.471	1	0.492
	WOR	39.261	34.916	1.264	1	0.261
	PAR30	1.183	1.976	0.358	1	0.550
	FACR	-0.007	0.024	0.077	1	0.781
	CAR	0.794	1.615	0.242	1	0.623
	LN_GDP_CURRENT	0.279	0.356	0.612	1	0.434
	LN_GLP	0.535	0.200	7.115	1	0.008***
	AGE	0.490	0.588	0.696	1	0.404
MICROBANK	Intercept	-121.050	23.736	26.010	1	0.000
	LLR	43.938	23.659	3.449	1	0.063*
	WOR	-2.186	39.471	0.003	1	0.956
	PAR30	-7.384	2.952	6.258	1	0.012**
	FACR	-0.002	0.031	0.005	1	0.942
	CAR	-1.257	1.919	0.429	1	0.512
	LN_GDP_CURRENT	4.830	1.012	22.779	1	0.000***
	LN_GLP	0.597	0.226	6.975	1	0.008***
	AGE	-1.713	0.708	5.845	1	0.016**

Note: *** p < 0.01, ** p < 0.05, * p < 0.1.

Source: Authors (2020).

Whenever NGO is set as reference group, the only main effect variables found significant are: LLR (Loan Loss Rate), PAR30 (Portfolio at Risk greater than 30 days), LN_GLP (Logarithm of Gross Loan Portfolio), LN_GDP_CURRENT (the Gross Domestic

Product in current value) and AGE (Maturity) entered the regression model but as control variables. Other control variables were unworthy to enter the regression model.

Table-4: Parameters Estimate with respect to Credit Union category

Legal Status		β	Std. Error	Wald	df	Sig.
MICROBANK	Intercept	-102.616	22.598	20.620	1	0.000***
	LLR	34.454	20.540	2.814	1	0.093*
	WOR	-41.447	21.319	3.780	1	0.052*
	PAR30	-8.567	2.394	12.801	1	0.000***
	FACR	0.004	0.027	0.026	1	0.872
	CAR	-2.052	1.431	2.056	1	0.152
	AGE	-2.203	0.615	12.837	1	0.000***
	LN_GDP_CURRENT	4.552	0.975	21.785	1	0.000***
	LN_GLP	0.062	0.167	0.139	1	0.709

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$.

Source: Authors (2020).

Likewise, when Credit Union is referred as the baseline, the significant variables entered as main effect variables are: LLR (Loan Loss Rate), WOR (Write-Off ratio) and PAR30 (Portfolio at Risk greater than 30 days). As we found before, LN_GDP_CURRENT (the Gross Domestic Product in current value) and AGE (Maturity) were the only control variables that worthily entered in the regression.

DISCUSSION OF RESULTS

Our results address the following key points on MFIs risk: solvency and credit risk. We are still to consider control variables.

Solvency

Above results displayed that as far as solvency is concerned, no specific ownership has a significant superior level on Fixed Assets Coverage Ratio (FACR) and Capital-to-Assets Ratio (CAR). The result departs a bit from Akume and Badjo Ngongue [35] findings who outlined high levels of FACR in CamCULL affiliates. By contrast to Araújo da Costa [40], we document that there is no specific ideal set up in terms of capital structure between ownership forms. The resulting solvency ratio can be attributed either to an external regulation exerted by COBAC or to an internal regulation by shareholders. Whether the firm is closely or remotely funded by its investors, all shareholders may hedge themselves against managerial opportunisms with similar fixed investments target. Provided our sample included large scale firms, except Microbanks compared to NGOs, we think the result is inconclusive since small independent businesses have not been included.

Credit risk

When we examine now credit risks across ownership forms, differences clearly appear. Microbanks show greater Loan loss Rate than NGOs and Credit Unions. We could hardly compare NGOs and Credit Unions. We conjecture this owe to the dual nature of Cooperatives. We can find amongst for- and non-profits customer-owned firms. Then, we have good reasons to believe that, more commercially-oriented

firms incur higher levels of loan delinquency. The quest of profit as well as the aggressive competition may involve those investor-owned firms in greater risk exposure. Inasmuch as those Microbanks venture stakes small depositors' funds, but deprived from residual claims, we are supportive of stringer regulation of Microbanks. For that matter, lower PAR30 levels reported among Microbanks than any other ownership form, could just veil latent high level of riskiness of their portfolio. Their investment could well be assimilated to a pure gamble. Though Credit Unions members and NGOs may accumulate some arrears on loans, borrowers will definitely settle their debts. Therefore, the more members are locked-in, the less subject members will opportunistically behave towards the firm. From such internal coordination, we conjecture that, alike personnel participation in businesses induces more involvement, the same clients (whether depositors or borrowers) participation in MFOs will induce better portfolio quality. So, even in Microbanks where depositors are not shareholders, such firms can improve their portfolio quality by including depositors among their stakeholders or in the Board of Directors. On including them in major decision making, we prospect better insights in information asymmetry managers may undergo.

Even low Write-Off ratios of Microbanks just evidence the dissonant loan provisioning with their risky venture. Then, we are supportive of more stringent prudential norms on Microbanks which do not only stake shareholders' funds, but also meagre deposits. Less expansive risk exposure and better loan loss provisioning policy should discriminate Microbanks regulation from Credit Unions, NBFIs and NGOs.

By contrast to Microbank corporations, Cooperatives are closely held firms by their clients-members, and their assets are highly specific to their firm [41]. As for Cooperatives, their market shares redemption is limited to existing members [42, 44]. There is a real pressure from Credit Union members to accurately cover such risk. So, assets should be proactively and easily evaluated in order to facilitate redemption. For that reason, low levels of risk coverage

in First-Class MFEs are compensated by systematic bad debts writing-off. The results evidenced here higher levels of WOR in Cooperatives compared to NGOs. Rather than moulding their loan provisioning, these firms methodically undermine their possibility to be repaid. For that matter, provisions are latent reserves on which firms can hinge pending the loan repayment. These Credit Unions seems to had better undertaken actions when the portfolio turns bad.

In Microbanks and NGOs, there is still an opportunity to withdraw shares from the business; but since there is no capital market and shareholders are less transient, withdrawals are less recurrent and shareholders are virtually locked-in. On the other hand, such firms' insiders may opportunistically behave toward external or remote investors. Microbanks shareholders and managers may overtake risk in extending loans while depositors may bear the same risk. NGOs managers may opportunistically behave the same but towards remote donors. Further Messomo Ellé [43] found out that Microbanks loan decision was steered by their client solvency capacity. The loan is extended to a business when there is evidence of positive cash flows likely to meet the instalments. Whilst, he found out that independent and affiliated Cooperatives decision-making was still associated with solvency capacity and collateral. Additionally, Cooperatives decision-making was determined by the borrower soft information: reputation, social network, business experience, professional training and general education. Those factors showed to improve loan repayment. Based on those facts, we got to understand that the low WOR in Microbanks owe to the comfortable risk coverage of their loans by collaterals. Warning signals of a borrower's risk default is not systematically followed by a loan provisioning unless the loan definitely turn delinquent. In a prevailing environment of weak law enforcement, debts are hard to enforce in court. Cooperatives could do the same but part of their loans is uncollateralised (because loans are based on soft information on members). Provided their shares are hardly tradable, they systematically write-off bad debts.

Be that as it may, the member share value ends depreciated. Henceforth, the regulation should therefore enforce the requirements as for risk coverage for all MFIs because a fair evaluation of shares will avoid shares' overestimation. And such loan provisioning malpractices could well be the reason for sudden bankruptcy of many MFIs. They may be operating with hidden losses that are only released when the financial institution shuts down. A sound regulation should provide minimum loan collateralisation in order to safeguard member's shares from free riding team members.

Control variables

On considering now the scale – proxied here by the Logarithm of the Gross Loan Portfolio – there is evidence that the size of Microbanks interferes with the riskiness of NGO. Indeed, sampled MFIs are of considerable size, but here, Microbanks larger size sounds to commensurate with greater Loan Loss Rate compared to NGOs. Again, there is no evidence of the effect of market competition on the riskiness of the business field. Taken together, Microbanks, NGOs and Credit Unions are insensitive by the market competition. Thus, increasing the number of licensees – NGOs, Cooperatives or Microbanks – will not harm the industry at all.

On considering, the maturity – proxied by *AGE* – we found a variable interacts on the riskiness between Microbanks and Credit Unions. Aging Microbanks report lower loan delinquency than younger Cooperatives. While, there is no evidence of *AGE* interaction between NGOs and any other ownership form. The learning curve does not help a lot here. The maturity is best at play between Microbanks and Credit Unions where the competition is fierce. However, the financial sector development per se – proxied by the Domestic Credit to Private Sector by Banks *DCPS_BANKS* – does not affect business risk.

Except the Gross Domestic Product in Current value, other macroeconomic variables (GDP per capita and inflation) are not showing any great risk variation. MFIs risk profile is insensitive to any variation to the country economic development when proxied per capita. Otherwise, microfinance business risk is invariant to the distribution of resources within the population, but between countries of different level of economic development. Added to insignificant inflation rate coefficient we claim that clients' economic situation improvement does not drive them away from their financial institution. The results are supportive of Ahlin and Lin [31] who claimed that MFIs performance should not account for macroeconomic context solely. Internal practices within each institution are the main drivers of their performances. Each legal form should have developed a sustainable competitive business model in that respect [28].

CONCLUSION

Subsequent to the regulatory reforms of MFIs in CEMAC Zone since 2002, we run a comparative analysis of the risks associated to MFIs ownership forms. Then, we got extract from MIX market database. Specifically, the dataset included 28 MFIs from Central Africa over the period 2001-2017. We processed data through the Multinomial Logistic Regression.

Thereof, we found out that as far as solvency is concerned, no specific ownership has a significant superior level on Fixed Assets Coverage Ratio nor Capital-to-Assets Ratio. When we examine credit risks across ownership forms, Microbanks show greater Loan

loss Rate than NGOs and Credit Unions. Then, we have good reasons to believe that, more commercially-oriented firms are associated with high risk exposure. In fact, lower PAR30 levels reported in Microbanks could just veil latent high risk of their portfolio. Even lower Write-Off ratios of Microbanks are just evidence of the dissonant loan provisioning with their risky venture. Provided those Microbanks venture stakes small depositors funds, but deprived from residual claims, we are supportive of stringer regulation of Microbanks and clients (whether depositors or borrowers) participation in MFOs for better portfolio quality. Furthermore, we found out that Microbanks larger size sounds to commensurate with greater Loan Loss Rate compared to NGOs. Again, there is no evidence that Microbanks, NGOs and Credit Unions riskiness are sensitive to the Bank competition.

Our results were based on most performing firms in the economic zone. However, undermining low-performing and less transparent MFIs is self-reporting bias inducive because, not only more performing firms are selected but also larger firms and those having easy access to finance [28]. More, networks information has been aggregated which include a variety of individual entities which do not perform exactly the same. But the bias can still be assumed away because of the uniform rule networks abide their affiliates and that make them converging towards the same standards. However, we should be cautious with macroeconomic results because the economic situation of CEMAC zone countries does not include great differences of development levels since Gabon and Equatorial Guinea are marginally included in the model.

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