THE DETERMINANTS OF LOAN DELINQUENCY IN URBAN MICROFINANCE INSTITUTIONS IN CAMEROON

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Abstract

The Financial Cooperative of African Women, founded to promote female entrepreneurship quickly showed its limitations in terms of loan repayment performance. This study aims at identifying the determinants of loan delinquency rates in this institution. We carry out a logistic regression analysis on the data collected from a sample of 603 cases of loans to members in March 2013. Factors related to the borrower (age and availability of complementary income) and to the institution (amount of loan, duration and loan officer visit during the repayment period) affect the default rate in this institution.

Key words: *MFI, loan delinquency rate, MUFFA, information asymmetry, logit model.*

JEL: *D82, G14, G21, G32, G33.*

1. INTRODUCTION

In the early 1990s, a liberalisation of the financial sectors occurred in several countries of the Central African sub-region and Cameroon in particular, following the lack of interest of the formal banking system in low-income earners. One of the main effects of this liberalisation was the emergence of Microfinance Institutions (MFIs). Today, these MFIs play an important role in the process of growth, development, and the fight against various forms of poverty. Having proven their ability to supply financial services to people excluded from the classic banking systems through different approaches,

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they are at a critical phase of their development. Their present challenge is that of their institutionalisation and durability. The durability of a MFI depends on its ability to achieve a maximum output with the input package at its disposal or its technical efficiency. Among the outputs of a MFI, loans are the principal component. However, a MFI can only grant loans in a durable manner if its loan portfolio is in a perfect state of health. In fact, the loan portfolio in a financial institution and more particularly in a MFI sometimes represents more than 70% of assets and is therefore the main source of output. The risk in lending is due to the fact that the total repayment of loans is uncertain since borrowers may default. This is why high rates of loan delinquency undermine the viability of MFIs. It is therefore obvious that the viability of a financial institution and the security of its savers depend on loan delinquency management. Taking the case of MUFFA (African Women's Financial Cooperative) that offers financial services to women with low incomes and to those of the informal sector in urban and semi-urban areas, we find that the loan delinquency rate rose from 16.42 to 30.33% between 2004 and 2011. This could not only damage its credibility but could also lead to its disappearance. This study therefore focusses on the question: *what are the factors that cause loan delinquency in MFIs, especially MUFFA?*

This question is not new in microfinance literature. Many empirical studies (Montalieu, 2002; Lanha, 2002; Mayoukou, 2003; Honlonkou et al., 2006) have addressed this topic in West Africa but very few in Central Africa and Cameroon in particular. To the best of our knowledge, only the study of Wamba (2008) adresses the problem of loan delinquency in Cameroonian MFIs. This study distinguishes itself from previous research by taking into consideration metropolitan areas, which could explain the loan delinquency differentials between urban and rural areas. In fact, members of cooperatives filter access to credit and use social pressure to increase loan repayment rates. This sociological approach is more adapted to rural areas where communal practices remain strong. However, in the cities, it must be accompanied by a good technical proficiency, the putting in place of new methods and an appropriate follow-up to ensure high loan repayment rates. Given this specificity, this study has as objective to identify and analyse the determinants of loan delinquency in MUFFA. Knowledge on these determinants will enable the putting in place of preventive measures. In fact, a better management of loans will improve the profitability and efficiency of the institution, thereby ensuring its durability.

This study is organised as follows: section 2 reviews theoretical aspects of loan delinquency performance in MFIs. Section 3 presents the MUFFA network. Section 4 provides the conduct of the empirical study. Section 5 re-

ports results and their interpretations. Section 6 concludes and makes recommendations.

2. LITERATURE REVIEW ON LOAN DELINQUENCY

2.1. Theoretical aspects of loan repayment problems

Repayment problems in the microcredit industry are generally explained by information asymmetries between the borrower and the lender (Stiglitz et Weiss, 1981). These problems of information asymmetry such as adverse selection and moral hazard affect the functioning of liberalised or decentralised financial markets. Adverse selection refers to the increase in the risk of selecting credit unworthy customers by a financial institution with incomplete information. It therefore refers to situations where high risk and low performance debtors are more likely to choose a credit scheme with high interest rates while low risk customers crowd out of the market (Ladue, 1990). Moral hazard is an adverse incentive effect defined as the set of actions of economic agents that maximise their utility at the expense of that of others. It occurs in situations where agents do not bear all the costs of their actions because of uncertainty or the inability of the contracts used to impute all the damages to the agent responsible. The idea of moral hazard in financial markets arises because the lenders cannot control or poorly control the actions of the borrowers and consequently cannot control the returns of loans (Ladue, 1990). In a situation of imperfect and asymmetric information between the banker and borrowers, the latter are privileged because they have better information on their default risk. Stiglitz and Weiss (1981) have shown that in cases of asymmetric information, credit rationing can arise in an endogenous manner.

The presence of high risk (adverse selection) or defaulting (moral hazard) borrowers who are unidentifiable by the lenders raises the cost of loans and inputs an external cost on good borrowers and an external benefit on bad ones (Akerlof, 1970). The high real interest rates associated with financial liberalisation can therefore make the financial system more vulnerable to crisis by worsening the problems of adverse selection and moral hazard and by increasing the effect of defaulting on loan engagements. Contrary to the suppositions of Stiglitz and Weiss (1981), bankers generally try to measure the degree of risk of their customers by investing in project selection technologies and by requesting material or moral (supervision groups) collaterals. Armendariz de Aghion and Gollier (1997) develop a model of adverse selection to show that joint guarantees (based on auto-selection and mutual supervision) can lower interest rates and resolve the issues of credit rationing.

According to this setting, it is difficult to measure the borrower's quality and verify the enforcement of the terms of the contract. This default risk to which MFIs are exposed is all the more disturbing because microfinance is specifically trying to accomplish a social mission while remaining financially self-sufficient. This calls for the design or implementation of mechanisms which aim at reducing the default risk of borrowers.

2.2. Outstanding payments in microfinance: classification and assessment

The granting of loans by MFIs is risky, the principal risk being that of repayment default which is most often the result of outstanding payments, an indicator of future default by the customer. An outstanding payment is a failure of the debtor to settle the debt within the time granted or who does not comply with his obligations as stated in the loan contract. Outstanding payments also comprise the postponement or loss of interest earned. According to COBAC (2002), three types of debts are recognised as risky for a MFI in the CEMAC zone: pending debts, engagements by customers of doubtful reputation and bad debts.

Pending debts consist of immobilised debts, unpaid debts and doubtful debts. Immobilised debts are debts that have come to term since 45 days[4], whose recovery cannot take place immediately, albeit not compromised. Unpaid debts are debts that could not meet the normal dateline and were forfeited for less than 45 days. Doubtful debts consist in all forms of debts, even those accompanied by collaterals that have a risk of partial or total non-repayment. They include debts having at least one unpaid installment for more than 45 days, ordinary accounts that are in a debit position and no crediting entry for more than 45 days, and debts of a contentious nature that necessitated a judicial procedure.

Engagements by customers of doubtful reputation are off-balance sheet engagements that have a certain or potential risk of total or partial default during their realisation.

Bad debts are debts whose non-recovery is judged certain after all possible means (amicable arrangements and judicial procedures) have been exhausted or because of any other pertinent consideration.

The methods of calculation of outstanding payments are far from being uniform and differ in precision. In the literature, we identify three most frequently used methods of assessing the quality of the loan portfolio of MFIs.

[4] The banking regulation in the CEMAC zone considers the portfolio at risk (PAR) at 45 days instead of the conventional 30 days (COBAC, 2002).

PAR (portfolio at risk) is the ratio of outstanding debts having arrears to the total loans; the ratio of late payments is the ratio of total late payments to the total outstanding debts; and the loan recovery rate is the ratio of the amount of debts recovered upon total payments awaited. CGAP (1999) uses the above indicators while insisting on the fact that the measurement of outstanding payments should be done in a disaggregated manner and that the follow up of the PAR should use a classification of the portfolio by age. It also suggests that the interpretation of the PAR should be done in the light of the policy and the experience of the institution in matters of loan abandonment. Besides, for structures whose information systems are still weak, the simplified PAR[5] can be used.

To resolve issues related to diversity in the evaluation of portfolio quality, Wesselink (1995) proposes four indicators to be used in a combined manner to analyse the quality of a loan portfolio. These are the repayment rate, rate of outstanding payments, portfolio contamination rate and loss ratio. The repayment rate (RR) is the ratio of the amount received to the amount of the loan. It is an indicator of the recovery performance that is appropriate in cases where interests are pre-deducted and repayment installments are equal. This rate is not a complement to a default ratio: it measures performance on a period while the default ratio is an instantaneous measure. The rate of outstanding payments (OP) is the ratio of the amount of matured debts that are unpaid to the outstanding amount of risky loans. Loans are at risk if a portion of the principal is unpaid at maturity.

The portfolio contamination rate (PCR), or potential risk of loss, is the amount of risky loans as a percentage of the loans granted. Finally, the loss ratio (LR) is the number of loans declared as bad debts as a percentage of the total loan portfolio. The OP and LR are complementary measures since a displacement policy that favours the rate of outstanding payments increases the loss ratio and conversely.

The existence of so many ways of measuring outstanding payments is due to the fact that the MFI must choose the indicator whose measurement tools are available, determine how it will manage particular transactions and verify if its information system will permit it to produce the data it needs. This diversity of rate poses a problem of choice as for the appropriate ratio to measure loan repayment.

[5] The simplified PAR is based on the number of loan accounts rather than their balances.

3. «MUTUELLE FINANCIERE DES FEMMES AFRICAINES» (MUFFA) IN CAMEROON

The African Women's Financial Cooperative, known as MUFFA Cameroon by its French acronym, is a category 1 MFI created in 1998 in Yaoundé in Cameroon[6], and has as objective to supply financial services to women with low incomes and those of the informal sector in urban and semi-urban areas. MUFFA was created by a group of intellectual women gathered in a club named WINC (Women Investment Club), whose members put their intelligence and financial means at the service of women promotion. MUFFA is a member of the community growth cooperative network (MC^2) and benefits from the sponsorship of Afriland First Bank, which is very active in the domain of microfinance and the promotion of small businesses. It also benefits from the support of the NGO ADAF (Appropriate Development for Africa Foundation) which is specialised in community development.

MUFFA has as main mission, to eradicate poverty of women in urban and semi-urban areas while supporting their micro-businesses. To achieve that, it helps African women become conscious of their situation and have confidence in their numerous potentials. At the organisational level, MUFFA is an independent, democratic and participatory organisation. MUFFA's funds come only from its members and only these members can benefit from its financial services. Decisions are made at the level of the general assembly by majority vote following the principle of "one woman-one vote". MUFFA has grown from one to seven agencies in the major towns of the country. The increasing number of operational units reflects the growth in its membership (from 224 members at its creation to more than 10,000 women today). Like all cooperatives, the main activity of MUFFA consists in collecting savings and granting micro credits amounting between 20,000 and 100,000 CFA Francs to its members.

The saw-tooth evolution of the outstanding debt between 2004 and 2011 has as consequence a parallel evolution of the rate of outstanding payments during this same period as seen in the table below.

According to COBAC rules, the total amount of pending debts should not exceed 50% of the total outstanding debts. Given the evolution of the rate of outstanding payments in MUFFA between 2004 and 2011, we believe that the downfall of this institution will be caused by nothing else than outstanding payments. The institution should therefore pay particular attention to pending debts.

[6] Regulation n° 01/02/CEMAC/UMAC/COBAC pertaining to the exercise of the activity of microfinance in Africa in its article 7 stipulates that category 1 MFIs deal exclusively with their members.

Table 1: ***Evolution of outstanding payments within the MUFFA network (million CFA F)***

	2004	2005	2006	2007	2008	2009	2010	2011
Outstanding debts	22.5	36	32.5	32	35	25	28	37
Allowances for pending debts	0.7	5	7	11.3	9	22	11	31
Net outstanding payments	137	112	82	132	127	112	138	122
Rate of outstanding payments in %	**16.42**	**32.14**	**39.63**	**24.24**	**27.56**	**22.32**	**20.29**	**30.33**

Source: MUFFA (2011)

4. METHODOLOGICAL FRAMEWORK

4.1. Data sources and variables used

This study is carried out on the entire set of borrowers of MUFFA which consists in women, women associations and other legal entities made up of women. Nevertheless, we have focused our study on natural persons (women) who are members of MUFFA. Today, MUFFA has about 10 000 members of which 7 000 are active borrowers who have succeeded to finance their activities. From the general management of this institution, we obtained its loan portfolio, which contained information on about 900 women who obtained loans. 603 files were retained in the sample used for this study.

The database contained information on the personal and family situation of beneficiaries, status, type and scale of the business. Also information on the loan (the day it was discharged, usage, amount, duration, amount reimbursed and the remaining amount); financial indicators (turnover, net profit, reimbursement capacity, net family profits, balance sheet, final accounts, debt ratio, rate of utilisation of the reimbursement capacity etc.).

4.2. Research hypotheses

To measure and analyse outstanding payments, MUFFA uses the PAR method classified according to age[7], the ratio of late payments and the loan

[7] Classification by age permits us to distinguish very risky loans from less risky ones. The longer the duration, the greater the risk of non-recovery.

recovery rate. The performance indicator used in this study is based on the non-reimbursement at the expiry date. Certain factors are generally taken into consideration by MFIs in order to minimise the risk of non-reimbursement (Honlonkou et al, 2006). These factors are on the one hand linked to the borrower (age, marital status, complementary income, nearness of residence and the business experience) and on the other hand related to the institution (usage, amount rank and duration of the loan, required collaterals, etc.).

4.2.1. Factors linked to the borrower

Many studies (Lanha, 2002; Honlonkou et al., 2006) contributed to the identification of factors related to the borrower that could influence the rate of outstanding payments in microfinance. According to Lanha (2002), the sex of the enterprise owner and the age of the microenterprise explain the default risk in microfinance in Benin. Honlonkou et al. (2006) surveying up to 900 borrowers in certain MFIs in Benin found no significant relationship between sex, age and level of education albeit a positive and significant influence on the reimbursement performance. According to Hudon and Ouro-Koura (2008), the proximity approach is an important characteristic of credit unions that explain their high loan recovery rates[8]: members of the unions by using social pressure improve the loan recovery rates. This social conception is particularly adapted to rural areas where community practices remain strong. However, in urban areas, they have to be complemented in order to ensure good loan recovery rates. We examine five factors related to the borrower that are likely to influence the rate of outstanding payments at MUFFA: age, marital status, complementary income, residential proximity and business experience of the borrower.

The first hypothesis is as follows:

Ha: ***the characteristics of the borrower affect the rate of outstanding payments.***

This hypothesis is broken down into five sub-hypotheses:

Ha1: the rate of outstanding payments increases when the borrower is young.

Ha2: a married woman has more difficulties in reimbursing a loan than a single or divorced woman.

Ha3: the more a woman disposes of complementary income besides that

[8] The supervisory abilities of loan officers in charge of collecting funds are greater when the clients are located nearby the MFI.

from the activity the loan is applied for; the lower her rate of outstanding payments will be.

Ha4: the closer the borrower is to the MFI, the better she reimburses her loan.

Ha5: the more experienced women are in business, the better they reimburse their loan.

4.2.2. Factors linked to the institution

The literature shows that the factors linked to the borrower are not enough to explain the rate of outstanding payments in MFIs and it is therefore necessary to integrate factors linked to the lending institution. This explains why some authors (Hudon and Ouro-Koura, 2006; Lanha, 2002; Honlonkou et al., 2006) go beyond the characteristics linked to the borrower to include those linked to the MFI. Lanha (2003) finds that the amount of the loan, the type of collateral and the credit cycle explain the default risk in microfinance. Honlonkou et al. (2006) show that the nature of the collateral, the amount of the initial deposit and the number of past experiences of the borrower with the MFI significantly influence loan recovery performance of MFIs in Benin. The types of collaterals requested are many and vary between MFIs. We can cite among others the level of confidence, the level of previous savings and joint guarantees (Wamba, 2008), title deeds for land and material properties (Honlonkou et al., 2006). This last variable is frequently requested in most MFIs and this generally has a positive effect because most micro-entrepreneurs do not always have the possibility of offering landed and material property (Kodjo et al, 2003). Likewise, joint guarantees usually used to guarantee loans financed with funds other than savings should be handled with care in urban areas, including small producer cooperatives like craftsmen, because the solidarity witnessed here is not always the same as that in rural areas. Moreover, MFIs have loan recovery schemes that are specific and are characterised by a high payback frequency. They have also developed substitutes to material collaterals such as loan insurance. When lenders are facing high demand for credit, they sometimes prefer to ration the borrowers in order to maximise profits. The interest rate is then used as a filter allowing to identify good borrowers, thus avoiding adverse selection. This is also the case with lenders, who request material collaterals (Bernanke and Gertler, 1989). Drawing from the loans policy at MUFFA, we selected eight variables related to the institution that are likely to influence the rate of outstanding payments: amount of the loan, rank, objective, follow up and average duration, movements in the savings account, and the rigidity of collateral. Thus, we frame our second hypothesis as follows:

Hb: risk minimisation strategies implemented by MFIs have a significant effect on the loan recovery rate.

This hypothesis can be divided into the following seven sub-hypotheses:

Hb1: the orientation of loans towards commercial and productive purposes minimises the risk of default.

Hb2: the amount of a loan granted to a woman affects the level of outstanding payments.

Hb3: as the number of loans granted to a woman increases, the risk of outstanding payments reduces.

Hb4: as the rigidity of required collaterals increases, the rate of outstanding payments reduces.

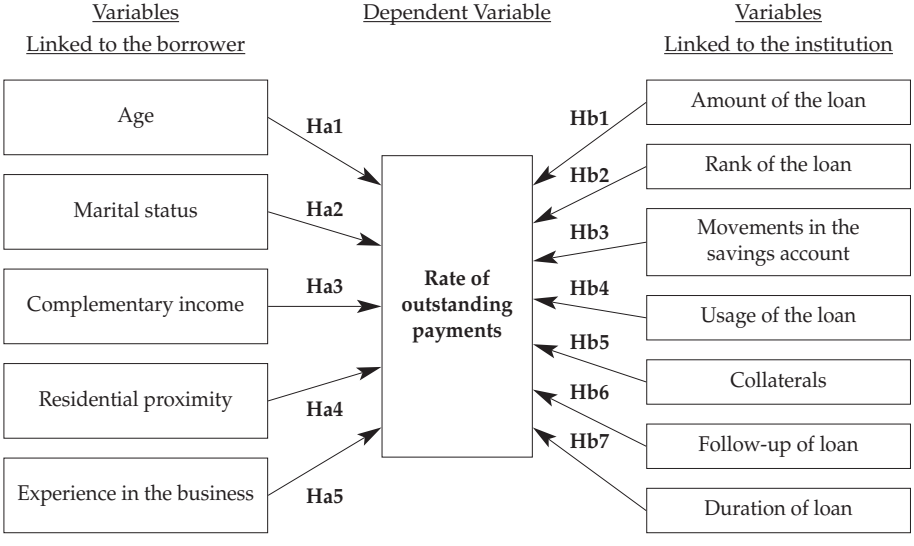
Hb5: the number of savings operations carried out by a woman prior to a loan does not affect outstanding payments.

Hb6: the more a loan is followed-up, the less the risk of outstanding payments during loan recovery.

Hb7: the greater the duration of the loan, the lesser the quality of loan recovery.

A diagrammatic representation of the research framework is shown below:

Figure 1: ***Framework of the determinants of the rate of outstanding payments at MUFFA***



Source: authors

4.3. Empirical model and operationalisation of variables

The econometric model below is constructed in view of identifying the factors that determine the rate of outstanding payments. Our dependent variable is represented by *OUT_PAY.* The estimated model is:

$$OUT\_PAY = a_0 + \sum a_i X_i + e \quad \textbf{(1)}$$

Where *Xi* represents the explanatory variables, a_0 is the constant term, a_i are the regression coefficients and *e* is the error term.

The expanded form of the model is the following:

$$\begin{aligned} OUT\_PAY = {} & a_0 + a_1 AGE + a_2 SITMAT + a_3 REVCOMP \\ & + a_4 PROXRESID + a_5 EXP + a_6 MONTCRED \\ & + a_7 RANGCRED + a_8 MVCOMPT + a_9 OBJECTCRED \\ & + a_{10} GARANT + a_{11} SUIVICRED + a_{12} DUREECRED + e \end{aligned} \quad \textbf{(2)}$$

The dependent variable is the state of outstanding payments (*OUT_PAY)* and lies between 0 and 100%. Considering the fact that a rate of 0% can conceal a diversity of situations going from no reimbursement to complete late reimbursement (Honlonkou et al., 2006), we defined the dependent variable as a *dummy* variable. It takes the value 1 if debts were reimbursed at maturity (i.e. no outstanding payments) and 0 if there was at least one default during the loan recovery (outstanding payments).

With regard to the explanatory variables, *AGE* designates the age of the borrower expressed in years. *SIT_MAT* her marital status (single, married, widowed or divorced), *REV_COMP* designates the complementary incomes other than those related to the loan (professional, rents, other, none). *PROX_RESID* designates the borrower's residential proximity (distant, near). *EXP* designates the number of years in the activity. *OBJET_CRED* designates the activity for which the loan has been applied for (retail trade, small enterprise, provision of service, other). *MONT_CRED* designates the amount of the loan. *RANG_CRED* designates the average number of loans already granted by the institution to an individual. *GARANT* designates the rigidity of the guarantee (less rigid, rigid, and more rigid). *MV_COMP* designates the number of saving transactions during the six months preceding the loan. *SUIVI_CRED* designates the follow-up of the credit before disbursing the loan and during its repayment (no visit, visit). *DUR_CRED* represents the average length of repayment of the loan.

Given the nature of the variables, we opted for a «Logit» regression be-

cause this type of regression permits us to explain the binary dependent variable (*OUT_PAY*) as a function of one or more explanatory variables, be them nominal and/or ordinal.

5. RESULTS AND DISCUSSION

We first present the descriptive statistics of the variables; then the analysis of correlations between the different variables of the model; and finally the results of the regression analysis.

5.1 Descriptive statistics

The descriptive statistics show that 11.7% of women who demand MUFFA loans are aged between 25 and 35 years, 55% between 35 and 45 years and 26.67% between 45 and 55 years. Only 6.67% are more than 55 years of age. More than 71% are single, 18.33% are widow and the remaining 10% is equally shared between divorced and married women. About 60% have no extra income while almost 40% have extra income from their business activity (26.7%), from rents (5%) and from other sources (8.33%). 73.33% of women are far from the MUFFA agency as against 26.67% who are near. Almost 68% of the women are into retail trading (sale of clothing or cloth, retail stores, off-licenses, etc.), 16.66% in the provision of services (catering, restaurants, hairdressing, etc.), 3.33% in small transformation (embroidery, natural juice production, etc.) and 11% in agriculture and animal rearing. We also notice the average 7.5 years in business experience.

Concerning the conditions of access to loans, 80% of the women provide less rigid collaterals (consent, daily savings), 6.67% rigid collaterals (pledge, deposit of check, sales certificate) and 13.33% more rigid collaterals (land title). More than 96.67% of the women are visited by MUFFA before the loan is granted, whereas only 46.67% are visited during the recovery period. The average amount of loans granted is 244 450 CFAF and all applicants have already received loans about 3.5 times in the past. Six months before the loan is granted, the average number of savings operations carried out by the borrower is 11.

5.2 Correlation results

We examine the relationships between the dependent and independent variables to detect any cases of multicollinearity between the independent variables. Table 4 in the appendix shows the correlation matrix between the

different variables. The correlation analysis is done using Pearson's method. We notice several significant relationships between variables representing the characteristics of the borrower, management of the MFI and the default rate.

We first of all find that the reason for the loan positively affects the default rate. Secondly, we notice a significant negative relationship between the rank of the loan, its amount, visits after the loan is granted and the default rate. Other variables do not have a significant effect.

With regards to the correlations between the independent variables, although some correlations are significant, no severe problem of multicollinearity between the independent variables is identified given that the correlation coefficients are quite low (generally less than 0.5).

5.3 Regression analysis

We carry out a multivariate analysis that takes into account the correlations that could exist between the explanatory variables. In this wise, we estimate a «Logit» model. The dependent variable «*OUT_PAY*» is binary and takes the value 1 if there was a default in the loan recovery and 0 if not. The estimation results are in Table 2 below.

Table 2: ***Estimation results***

Variables	B	S.E.	Wald	df	Sig.	Exp(B)
PROXRESI *(distance)*	-0.738	3.887	0.036	1	0.849	0.478
GARANT			**3.991**	**2**	**0.136**	**0.000**
Less rigid	12.904	8.258	2.442	1	0.118	40.260
Rigid	4.093	4.441	0.850	1	0.357	59.943
AGE			**2.990**	**3**	**0.393**	**0.000**
25-34	2.962	3.426	0.747	1	0.387	19.326
35- 45	-23.519	13.681	2.955	1	0.086*	16.00
SITMAT			**18,15**	**3**	**0,849**	
Married	-6,968	28,38	0,06	1	0,106	0,801
Divorced	4,473	1,108	16,3	1	0,510	87,663
Widowed or single	3,147	0,874	12,97	1	0,374	23,26
REVCOMPL			**4.217**	**3**	**0.239**	**0.000**
Professional	-21.428	11.526	3.456	1	0.063*	0.000
Rents	-1.115	2.967	0.141	1	0.707	0.328
Other	-5.440	4.570	1.417	1	0.234	0.004

EXP			0.159	2	0.924	0.000
DURÉEREM	-5.841	3.131	3.480	1	0.062**	0.003
RANGCRED	0.068	1.175	0.003	1	0.954	1.071
MOUVCOMP	-1.197	0.990	1.464	1	0.226	0.302
MONTCRED	**3.781**	**3.000**	**0.286**			**0.000**
<100 000 FCFA	3.636	2.769	1.724	1	0.189	37.949
<400 000 FCFA	-7.304	5.093	2.057	1	0.152	0.001
<500 000 FCFA	9.695	5.558	3.043	1	0.081*	162.61
VISITDEB *(no visit)*	**5.053**	**3.258**	**2.406**	**1**	**0.121**	**156.44**
VISITPEN *(no visit)*	**5.985**	**3.066**	**3.811**	**1**	**0.050****	**397.38**
OBJETCRE			**2.957**	**4**	**0.565**	**0.000**
Trade	-17.374	99.867	0.030	1	0.862	0.000
Small transformation	-21.249	100.020	0.045	1	0.832	0.000
Provision of services	-13.965	99.784	0.020	1	0.889	0.000
Other	-7.336	99.750	0.005	1	0.941	0.001
Constant	5.34	99.90	0.00	1	0.957	
Chi-Square = 42.661	**df= 23**				**Sign. = 0.000**	
-2 Log Likelihood = 25.932						
Cox & Snell – R^2 = .574		**Nagelkerke – R^2 = .769**				
Dependent Variable = *OUT_PAY*		**N= 603**				

**,*: Significant at respective levels of 5% and 10%.
Source: authors' computations

The results of the estimated regression model reveal a positive value for variables not included in the model (the constant). Moreover, the Wald statistic is significant at the 1% level and -2Log Likelihood is significant with a Cox and Snell R^2 equal to 0.574, whereas Nagelkerke R^2 is 0,769. We also find two variables that are significant at the 5% level and three that are significant at the 10% level. We therefore conclude that the association of the characteristics of women to those of the MFI explains almost 77% of variations of the default rate in the recovery of loans granted by MUFFA.

We also find that the age of the woman and the existence of complementary incomes have a significant negative effect on the default rate during MUFFA loan recovery. This result suggests that women of average age (35-45 years old) have a higher propensity to payback relative to younger ones (below 35 years old) and older ones (over 45 years old); consequently, there ex-

ists a significant relationship between age and the level of outstanding payments. This contradicts the findings of Lanha (2002) and Honlonkou et al. (2006). As concerns the existence of complementary incomes, the study finds that women with a professional source of income other than that obtained from the financed activity have a lower tendency of having outstanding payments. Other variables capturing the characteristics of MUFFA women were not found to be significant.

As for the impact of the characteristics of the lending institution on outstanding payments, we find that the duration, the amount of the loan granted and visits during the loan recovery period influence recovery performance. This result shows that the more MUFFA grants loans of high amounts to women, the greater the risk of non-recovery. This means that large amount loans generally have more default in recovery than others. This finding is in line with that of Lanha (2002). Concerning the follow-up of loans, we find that an absence of visits by MUFFA to the borrowers during the recovery period increases the chances of having outstanding payments. The loan duration has a negative and significant effect on the default rate. In fact, the duration of the loan is 14 months for women with outstanding payments and 12 months for those without outstanding payments. This means that lengthening the payment period reduces the chances of the loan to be recovered without default. This finding confirms the hypothesis of lack of monitoring, which stipulates that the first installments are carefully monitored, while the later ones are less monitored, leading to more defaults. These results are in line with that of Lanha (2002) and Honlonkou et al. (2006). Table 3 below summarises the findings of the study.

We accept hypotheses **Ha1 and Ha3** linked to the characteristics of women and**, Hb2, Hb6, Hb7** linked to the characteristics of the MFI.

Summarily, we find that the risk minimisation strategies of MUFFA partly explain the rate of outstanding payments in this institution.

6. CONCLUSION

The main objective of this study is to identify the factors that explain the rates of outstanding payments in MFIs and MUFFA-Cameroon in particular.

Thanks to an econometric analysis, which applied a logit regression on data collected from the entire sample, we find that characteristics linked to the borrower and to the institution significantly affect the rate of outstanding payments at MUFFA.

Table 3: ***Summary of findings***

Hypotheses	Accepted
Characteristics of the borrower	
Ha1: The rate of outstanding payments increase when the borrower is young	**Yes**
Ha2: Married women witness more difficulties during recovery than unmarried women	**No**
Ha3: Women with complementary sources of income other than that from the activity being financed have lower outstanding payments	**Yes**
Ha5: The closer the borrower is to the agency, the better she reimburses	**No**
Ha5: More experienced women in their trade have lower outstanding debts	**No**
Characteristics of the institution	
Hb1: The orientation of the loan towards trading and production reduces the risk of non-recovery	**No**
Hb2: The amount of credit granted to a woman influences the risk of non-recovery	**Yes**
Hb3: The higher the number of loans granted a customer, the lower the risk of non-recovery	**No**
Hb4: The more rigid the collateral required, the lower the default rate	**No**
Hb5: The number of savings operations carried out by a woman prior to a loan does not affect the rate of outstanding payments	**No**
Hb6: The closer the follow-up, the lesser the risk of outstanding payments	**Yes**
Hb7: The longer the payment period, the greater the risk of outstanding payments	**Yes**

Source: authors

Despite the use of multivariate analysis, which enables the researcher to assess the joint effects of all the variables and to get rid of problems of multicollinearity between the explanatory variables, this study has various drawbacks. First, the restricted number of variables related to the borrower and the lending institution in the regression model explain only 77% of the outstanding payments at MUFFA; the operationalisation of some variables necessitated simplifications and assumptions that can be improved upon. This is the case for the measurement of collaterals and that of the follow-up of the loan. The fact that the study is restricted to MUFFA makes it necessary to interpret the conclusions with care. These drawbacks clearly show that taking into account other variables linked to the borrower (family history, gender) and to the institution (seniority of interactions between the borrower and the MFI) could better explain the rate of outstanding payments. Following our judgment, the realisation of a wider study is also a way of complementing

this case study. We therefore intend to extend the current study to the entire set of MFIs in Cameroon in our future research.

In view of ensuring its continuity, a number of recommendations were made to this institution and to the monetary authorities in charge of ensuring the smooth functioning of the financial system. Given the objective of savings and loan societies, which is to supply financial services at lowest cost while ensuring the profitability and continuity of the institution, managers should have at their disposal tools for prediction upon loans granted, in as much it is easier and less expensive to avoid a loan delinquency crisis rather than manage one. As for the continuity and profitability of MUFFA, particular attention should be paid to the examination of loan application files. The supply of loans should be more oriented towards the women aged 35-45 years and having complementary incomes on activities other than those for which they received the loans. The amount should be small and granted for a relatively short period. As our analyses also showed, a surprise visit to debtors by a MUFFA agent greatly reduces the chances of the loan not being completely recovered. We also call upon the government authorities to implement a Central Risk Office. The project seems to have been discussed but is not yet formalized and being implemented in Cameroon. This central risk office will allow MFIs to improve the follow-up of hedging in the sense that many MFI customers are engaged in many loans in different institutions. Another major problem is the fact that these customers use the same collaterals to obtain several loans. Thus, there exists a risk of chain default reaction in the sector and the authorities should design a framework in this connection.

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Appendix

Table 4: ***Correlation matrix***

	PROX RESI	GAR ANT	AGE	SIT MAT	REV COMPL	EXP	DURÉE REM	RANG CRED	MOUV COMP	MONT CRED	VISIT DEB	VISIT PEN	OBJET CRE	TAUX IMP
PROXRESI	1.000	0.55**	-0.11	-0.14	-0.127	0.05	0.197	-0.080	0.067	-0.184	0.274	-0.219	-0.005	-0.007
GARANT		1.000	-0.11	0.113	-0.134	0.25	0.222	-0.038	0.238	-0.262	0.062	-0.55**	-0.039	0.107
AGE			1.000	0.016	-0.023	0.08	0.146	-0.024	0.040	-0.011	0.050	-0.034	0.248	0.006
SITMAT				1.000	0.016	-0.3	0.127	0.150	0.183	0.168	-0.127	-0.021	-0.183	0.076
REVCOMPL					1.000	-0.4	-0.313*	0.173	-0.34*	0.368**	0.023	0.484**	0.006	0.146
EXP						1.00	0.426**	-0.169	0.204	-0.32*	-0.098	-0.270	0.064	0.022
DURÉEREM							1.000	-0.028	0.256	-0.271	-0.138	- 0.34*	0.340*	-0.102
RANGCRED								1.000	0.171	0.082	0.077	0.044	0.035	-0.07**
OUVCOMP									1.000	-0.36**	0.064	-0.45**	0.107	0.029
MONTCRED										1.000	-0.187	0.578**	-0.180	-0.35*
VISITDEB											1.000	- 0.191	0.049	0.071
VISITPEN												1.000	-0.188	-0.1***
OBJETCRE													1.000	0.241**
TAUXIMP														1.000

***;**;*: significant at respective levels of 1%, 5% and 10%.
Source: authors' computations

Résumé

La Mutuelle Financière des Femmes Africaines, créée pour promouvoir l'entrepreneuriat féminin en zone urbaine au Cameroun, a très vite révélé ses limites en termes de performance de remboursement des crédits. La présente étude identifie les déterminants du taux d'impayés dans cette institution. En s'appuyant sur des analyses économétriques à travers la méthode de régression logistique sur un échantillon de 603 dossiers de crédits accordés aux mutualistes recensées au mois de mars 2013, les résultats montrent que les facteurs liés aux emprunteuses et à l'institution déterminent le taux d'impayés dans cette institution.

Mots clés : IMF, taux d'impayés, MUFFA, asymétrie de l'information, offre et demande de crédit, modèle logit.

JEL : D82, G14, G21, G32, G33.