

# Farmers Liquidity Value for Unused Credit and the Sustainability of Microfinance Schemes in Akwa Ibom State, Nigeria

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## ABSTRACT

This paper assesses farmers' liquidity value for un-used credit reserves and examines how the microfinance schemes can attain self sustainability. It draws inference from data obtained from 147 farmers in the crop, pig and poultry sub-sectors of Akwa Ibom State. The results show that the farmers' liquidity value for un-used credit reserve was generally low, indicating that farmers generally allocate more credit to reserve than to loans. Consequently, micro finance schemes that can lure farmers to allocate more credit to loans than to reserve can increase the liquidity value of the farmers credit, increase outreach and attain self-sustainability; provided, their package of financial services include efforts to improve farmers knowledge of sources as well as lending practices of lenders, farmers attitude towards the use of external finance; and their managerial know-how.

**Key Words:** Farmers; Liquidity value; Credit reserve; Micro finance schemes

## INTRODUCTION

The well being of the numerous micro-enterprises that are responsible for the production of the bulk of agricultural outputs has been the primary reason for the introduction of government based micro-finance schemes in Nigeria. Beginning 1991 when the Central Bank of Nigeria, acting on behalf of government, introduced the Self-Help Groups' Linkage with commercial banks under the Agricultural Credit Guarantee Fund Scheme (ACGFS), many government based microfinance schemes have been introduced by local, states and federal governments. These schemes direct their financial services to micro enterprises, particularly, in the agricultural sector. The proliferation of government based microfinance schemes serving the small operators in the agricultural sector is a good thing (particularly, in Nigeria where direct intervention efforts of formal financial institutions have produced negative results), but what bothers many observers is how can these finance schemes operate on a sustainable basis. The sustainability of these schemes is particularly worrying because the majority of the micro finance schemes are only provided with a start-up fund with which they make the initial loans. Subsequent loans can only be made if the previous beneficiaries repay. Invariably, in these schemes subsequent amount of loans given is more or less a function of the amount of loans repaid rather than the volume of support from the donor agency. Such a donor-microfinance scheme relationship is likened to a situation where a donor agency presses a microfinance organization to rapidly attain financial sustainability by withdrawing support from the organization

and experience elsewhere confirm that the problem of non-performance of some statutory functions arise for a multipurpose organization involved in such schemes, (McNamara & Morse, 1998). However, given the nature of support from government, the sustainability of the schemes depend in part on the viability of the microfinance schemes. According to Siebel and Parhusip (1998), and McKeman (1996), in an event of withdrawal of financial support by a donor agency, only viable microfinance schemes with sustainable financial services can achieve self-sustainability. One way that a microfinance scheme can attain self sustainability is to increase viability by improving outreach. In fact, high self sustainability is synonymous with high outreach (Yaron *et al.*, 1996). This is particularly so because the viability of any microfinance scheme as well as the sustainability of its services depend in part, on the volume of internal resources that the microfinance scheme can generate, which is a function of the level of outreach achieved by the scheme.

The liquidity value of farmers for un-used credit reserve is central to the ability of these microfinance schemes to achieve high outreach. In fact, an individuals liquidity value for un-used credit determines in part, how readily he pushes the use of leverage to very high levels. If the farmers' liquidity value for unused credit reserve is already high the operators of the micro finance schemes are likely going to have it tough trying to increase outreach. This paper assesses the farmers liquidity value for unused credit; analyses the determinants of the extent of allocation of credit between loans and reserve; and examines their implications for the sustainability of microfinance schemes

in Akwa Ibom State, Nigeria.

**On the liquidity value concept.** The statement of the liquidity value concept has it that every farmer values every amount of un-used credit since it serves as an immediate source of liquidity to the farmer (Lee *et al.*, 1988). Invariably, every farmer has a liquidity value for un-used credit, which, according to Barry *et al.* (1983), increases as more credit is allocated to loans. Each time credit reserve is traded for loans, the farmer's liquidity value for un-used credit determines how much of this credit reserve the farmer can forego in order to obtain external finances. However, the net liquidity value can be very high or very low, depending on the farmer's level of risk aversion.

An individual's liquidity value for maintaining credit reserve can be destabilized to improve his borrowing behaviour. One way of doing this is for the lenders to make loan packages user friendly such that it compels farmers to trade credit for loans. According to Yaron *et al.* (1996), a financial market with good quality services can encourage farmers to allocate more credit to loans than to credit reserves. Also Besley (1994) argues that appropriate complementary institutions, minimum covariant risk and absence of credit market segmentation could destabilize the liquidity value of the farmers in favor of the allocation of more credit to loans. The existence of a formidable insurance company becomes invaluable in encouraging farmers to allocate more credit to loans since insurance indemnifies loans against specific events thereby acting as an alternative source of liquid reserve for the farmer.

However, several authors (Adam & Ladman, 1978; Ojo, 1988; Adam 1990; Jerome 1991; Besley, 1994) identify scarce collateral, low literacy, distrust, ignorance of available financial services as variables that are likely to influence the liquidity value for unused credit reserve. But Barry *et al.* (1983) argued that age, years of experience, changes in preference and other factors that are likely to alter the importance of risk can destabilize individual farmer's liquidity value for un-used credit.

## MATERIALS AND METHODS

This study was conducted in Akwa Ibom State, the cradle of wetland agriculture in Nigeria. Because of the advantage of the wetland, some agricultural practices occur all the year round without irrigation. The state is characterized by a wide expanse of flood plain and swampy terrain in the south. The vegetation consists of mangrove swamp forest along the coast and thick rain forest in the hinterland. The soil is sandy loam, which favors a variety of agricultural activities and agriculture is the occupation of 80% of the population, (Akwa Ibom State Agricultural Statistics, 1991). However farm enterprises are characterized by sole proprietorship. The majority of farming activities are done in small scale but with some form of specialization. A typical farm concentrates of a combination of crops or on the production of poultry or on

swine production. This study used the stratified random sampling technique to select 147 farmers, whose major source of income and livelihood is their chosen agricultural practices. Consequently, this study included 72 crops farmers, 42 poultry farmers and 33 pig farmers. Data analyses used simple statistical tools and the multiple regression analytical technique.

**Empirical model.** In this study, it is postulated that the extent of use of credit (C) by a particular farmer is a function of his net worth (N), knowledge of sources as well as lending practices of lenders (K), attitude towards the use of external finances (A), age (G), and the farmer's managerial ability (M). Consequently, the mathematical model is

$$C = f(N, K, A, G, M)$$

And, the apriori expectation is that  $C = a + b_1N + b_2K + b_3A + b_4G + b_5M + e$

Where,

a is the constant;  $b_1 - b_5$  are the parameters; and e is the error term. The function f, is continuous and differentiable.

The multiple regression analysis (OLS) is used to estimate the effects of the independent variables on the dependent variable. The index of capital rationing was used as a measure of the extent of use of credit to obtain loans (C), and it formed the basis for estimating the farmers' liquidity value for un-used credit reserve. The index was computed for each farmer by dividing the largest amount of his indebtedness during the 2004 production seasons with the largest amount of loans he could obtain if he mortgage, all his farm property and the quotient was subtracted from one. The result, multiplied by 100 gave the index of the extent of use of credit reserve. A farmer, who had used all his credit in obtaining loans had the index of 0; whereas a farmer who had used no credit to obtain loans has an index of 100.

The Guttman Scaling Technique was used to measure farmer's attitude (A) towards the use of external finances; the Likert scaling technique was used to assess the knowledge of sources and lending practices of lender (K) and the farmer's managerial ability (M) was measured by proxy: a set of twenty (20) questions were asked, relating to how the farmers' manage their farm businesses, each with three (3) options,. Each set of response were scored three (3) if the best option was selected followed by two (2) and then one (1) accordingly. The measure of management is the percentage of the sum of the scores obtained by a respondent.

## RESULTS AND DISCUSSION

**Characteristics of the respondents.** The sampled population comprises 48.98% of respondents in the crops, 28.57% in the poultry and 22.45% in the pig production sub-sectors. According to Table I, the majority of the crop farmers were aged 41 - 50 years compared to 31 - 40 years for the poultry and pig farmers.

**Table I. Characteristics of respondents**

S/no	Characteristics	Frequency			Total (n = 147)
		Crops N = 72(48.98)	Pig N = 33 (22.45)	Poultry N = 42(28.57)	
1	<b>Sex</b>				
	Male	60	29	37	126 (85.71)
	Female	12	4	5	21 (14.29)
2	<b>Age</b>				
	21 – 30	8	1	11	20(13.61)
	31 – 40	19	18	18	55(37.41)
	41 – 50	21	8	9	38(25.85)
	51 – 60	19	4	4	27(18.37)
	61 – 70	5	2	0	7(4.76)
3	<b>Marital Status</b>				
	Single	8	5	11	24(16.33)
	Married	62	26	29	117(79.59)
	Divorced	1	0	1	2(1.36)
	Widowed	1	2	1	4(2.72)
4	<b>Education:</b>				
	No formal education	6	0	0	6(4.08)
	Primary education Attempted	5	6	0	11(7.48)
	Primary education completed	16	3	4	23(15.65)
	Secondary education attempted	7	4	2	13 (8.84)
	Secondary Education completed	14	4	10	28(19.05)
	Tertiary Education completed	24	16	27	67(45.58)
5	<b>Investment (*000 Naira):</b>				
	Mean Subjective Optimum Investment	147.72	417.17	450.50	1015.39
	Mean Actual Investment	41.72	86.19	76.48	204.39
6	<b>Years of Experience:</b>				
	1 - 10	31	19	31	81 (55.10)
	11 - 20	23	8	9	40 (27.21)
	21 - 30	13	4	2	19 (12.93)
	31 - 40	4	2	0	6 (4.08)
	41 - 50	1	0	0	1 (0.68)

Source: Field Survey 2004.

However, 37.41% of the farmers were aged 31 - 40 years; 25.85% were aged 41 - 50 years; 18.37% were aged 51 - 60 years (mostly crop farmers); 13.61% were aged 21 - 30 years (mostly poultry farmers); and only 4.76% (mostly crop farmers) were aged 61 - 70 years. The sampled population included mostly married male (85.71%) and female (14.29%) respondents. However, 16.33% of the respondents mostly poultry farmers, were single; 1.36% were divorced; and 2.72% were widowed. Only 4.08% of the farmers' (comprising only the crop farmers) had no formal education; 7.48% attempted primary education, 15.65% had completed primary education; only 8.84% attempted secondary education; 19.05% completed secondary education; and 45.58% had completed tertiary education. Although the majority of these farmers had below twenty one years of on-the-job experience, their mean actual investment was less than their subjective optimum investment, (Table I).

**Farmers' liquidity value for un-used credit.** It is expected that when a farmer operates with less than subjective optimum investment he should source for external finance to improve his investment. Unfortunately, this study reveals that most of the farmers' operated less than subjective optimum investments but were not allocating any credit reserve to loans, even though there are formal and informal sources of finance at their disposal. The farmers liquidity

value for un-used credit reserve, shown in Table II shows that, 58.50% of the farmers (mostly crop farmers) allocated no credit reserve to loans, and as such had a liquidity value of zero; 17.01% had a liquidity value of 0.10 - .25; 19.05% had a liquidity value of 0.26 - 0.50; 4.76% had a liquidity value of 0.51 - 0.75 and only one farmer had a liquidity value of between 0.76 - 0.99. There was no respondent with a liquidity value of one and the mean liquidity value for all the farmers was 0.13 or 13%. Invariably, the mean credit allocated to loans by all the respondents was 13.05% whereas 86.95% of the farmers' credit was allocated to reserve.

**Determinants of the extent of allocation of credit between loans and reserves.** The multiple regression analysis was used to analyse the determinants of allocation of credit between loans and reserves by farmers. The regression coefficients and their t-statistics shown in Table III indicate the magnitude and the statistical significance of the determinants. Even though 43%, 56% and 63% of the variation in the extent of use credit reserve is attributable to the explanatory variables selected for crops, pig and poultry farmers, respectively the level of significance of 1% in F-test, for all the farm categories, is an indication that the independent variables were adequate in explaining the variations in the dependent variables. The multiple regression analysis for crop farmers shows that the extent

**Table II. Farmers' liquidity value for unused credit**

Liquidity value	Frequency			All farmers (n = 147)
	Crops (n = 72)	Pig (n = 33)	Poultry (n = 42)	
0.00	44 (29.93)	26 (17.69)	16 (10.88)	86 (58.50)*
0.10 – 0.25	13(8.84)	2(1.36)	10(6.80)	25 (17.01)
0.26 – 0.50	13(8.84)	2(1.36)	13(8.84)	28 (19.05)
0.51 – 0.75	2(1.36)	2(1.36)	3(2.04)	7 (4.76)
0.76 – 0.99	0	1(0.68)	0	1 (0.68)
1.00	0	0	0	0.(0.00)
Mean Liquidity Value	0.11	0.10	0.19	0.13
Mean Credit reserve allocated to loans (%)	10.96	9.58	19.36	13.05
Mean credit allowed in reserve (%)	89.04	90.42	80.64	86.95

\*Figures in parentheses are percentages

Source: Field Survey 2004

**Table III. Regression results for the determinants of extent of use of credit**

Agricultural Sub-Sector	Dependent Variable	Con-stant (G)	Net worth (N)	worth Know-ledge (K)	Explanatory Variables			$R^2$	St. Error	F-Test
					Attitude (A)	Age (G)	Management (N)			
Crop	Extent of Use of Credit (C)	93.6 (3.54)	2.2 x (5.80)*	10 <sup>4</sup> 1.10 (1.83)	-0.78 (1.87)	-0.70 (2.5)**	9.6 x 10 <sup>3</sup> (0.034)	43%	17.68	9.84*
Pig	Extent of Use of Credit (C)	-109.1 (2.15)	3.5 x (1.36)	10 <sup>5</sup> 2.34 (2.26)**	5.65 (1.25)	0.74 (2.51)**	1.99 (4.101)*	56%	7.49	6.9*
Poultry	Extent of Use of Credit (C)	10.4 (0.38)	-2.5 x (1.82)***	10 <sup>5</sup> 0.324 (0.272)	- 17.6 (4.56)*	1.47 (3.69)*	1.14 (3.38)*	65%	9.16	13.27*

\*Significant at 1%; \*\* Significant at 5% (two-tailed test) \*\*\* Significant at 10%.

Absolute Values of t-statistics are in parentheses.

Source: Author's calculations

that the crop farmers allocate credit to loan is determined more by the farmers net worth and age. Information presented in table three confirms that younger crop farmers allocate more credit to reserve as their net worth increases. Whereas older and more experienced crop farmers allocate more credit to loans, comparatively. However, crop farmers with better knowledge of the sources of loans as well as the lending practices of lenders; and those with better managerial ability actually have poor attitude towards the use of external finances and as such allocate more credit to reserve than to loans.

Among the pig farmers, the determinants of the extent of allocation of credit between loans and reserve are the farmers' knowledge of sources of loans as well as lending practices of lenders, age of the farmers and their managerial ability. However, the multiple regression analysis in Table III shows that generally older pig farmers with better net worth, knowledge, attitude, managerial ability actually allocate more credit to reserves than to loans. Invariably older and more experienced pig farmers, who are more knowledgeable on the sources of loans as well as lending practices of lenders; have better attitude towards the use of loans; have better managerial ability, earn larger net worth, actually use fewer borrowed funds and as such allocate more credit to reserve than to loans. On the other hand, the younger pig farmers, low in knowledge of sources as well as lending practices of lenders, with poor attitude towards the use of external finance, and with low managerial skills actually allocate more credit to loans than to reserve.

Finally, among the poultry farmers, the determinants

of extent of allocation of credit between loans and reserve are the farmer's net worth, their attitude towards the use of external finance, age and managerial ability. The regression result in Table III indicates that poultry farmers, who allocate more credit to loans actually earn higher net worth. Similarly farmers with low attitude towards the use of external finance, actually allocate more credit to loans. On the other hand, older poultry farmers with better knowledge score as well as better managerial ability actually allocate more credit to reserve than to loans.

**Implications for sustainable micro finance schemes.** By the result presented in the previous section, young and economically active crop and poultry farmers, who actually earn larger net worth allocate more credit to reserve than to loans. If the majority of crop and poultry farmers are young people, microfinance schemes, who serve them are likely to face the problem of poor outreach. This is particularly so because a greater portion of the crop and poultry farmers, who have larger net worth are adamant, and would not allocate their credit reserve to loans. In the crop and poultry sub-sectors, the existing microfinance schemes are patronized by older and more experienced but less active farmers, who actually have lower net worth in investment. In the pig sub-sector, older and more experienced farmers that have better managerial know-how allocate more credit to reserve than to loans. Attempts to get these farmers to allocate more credit to loans are likely to be futile because existing literature confirm that farm businesses operated as sole proprietorship follow a growth cycle, which is closely related to the age of the owner and external finance is

desirable at the establishment and expansion stages when the farmer is younger (Lee *et al.*, 1988). Beyond these stages, the farmer grows older, less active and is bound to allocate more credit to reserve. On the other hand, this study confirms that younger pig farmers actually allocate more credit to loans but have low managerial skills. Consequently, young and economically active farmers should be encouraged to allocate more credit to loans than to reserves.

## CONCLUSION

Un-used credit reserve can be used to support short-term borrowing, particularly in an emergency situation. For this reason, unused credit reserve only serve as a source of liquidity when used to obtain external finance. When used in this manner, the individual's liquidity value for un-used credit reserve increases as more of the credit reserve is used in obtaining external finances. In this study, the farmer's liquidity value for un-used credit reserve is generally low. This confirms that the categories of farmers studied, particularly those that are young and economically active, actually allocate more credit reserve to reserve than to loans. For sustainability to be achieved by microfinance schemes, they must package financial services that lure the economically active farmers to allocate more credit to loans. Such package of financial services must include efforts to improve the farmer's knowledge on the sources of micro finances; attitude toward the use of external finances; and to increase their managerial know-how. These would be invaluable in increasing the farmer's liquidity value for un-used credit; the outreach of the micro finance schemes; ensure that farmers earn net worth that are large enough to guarantee the good health of the farm business and enhance the sustainability of the growing micro finance market in Nigeria.

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