



Determinants of Access to Credit by Agribusiness Operators in the Kumasi Metropolis, Ghana

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Authors' contributions

This work was carried out in collaboration between both authors. Author SOM designed the study, reviewed literature, collected data and wrote the first draft of the manuscript. Authors SOM and HA analyzed data as well as discussion of results and second draft of the manuscript. Authors SOM did the final write-up of manuscript. Both authors read and approved the final manuscript.

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ABSTRACT

Aim: The study was conducted to analyze the factors that influence access to credit by Agribusiness operators in the Kumasi Metropolis of the Ashanti Region of Ghana.

Study Design: The study used a multi-stage sampling technique to select 151 SME operators engaged in the agribusiness sector. Well structured, mostly closed ended questionnaires were used to collect cross sectional data from the respondents.

Location and Place of Study: The study was conducted in the Kumasi Metropolis, which is the capital of Ghana's second largest city with a population of about 2 million people and has a relatively large agribusiness sector, especially in the informal sector.

Methodology: Both qualitative and quantitative methods were employed to analyze data. The Logit model was employed as the statistical tool to quantitatively analyze the factors that influenced access to credit by the agribusiness operators in the study area.

Results and Discussion: The empirical results showed that the factors that significantly influenced

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credit accessibility for respondents in the study area were the credit management skills, borrowing experience, possession of collateral security, firm size, extra income earned by operators and membership of business organization. The major constraining factors faced by respondents in their credit application from the formal sector include high interest rate, inadequate loan amount and unfavorable loan terms.

Conclusion and Recommendation: Agri-SME operators should be encouraged to form or join business organizations and also strengthen such associations for enhanced networking leverage. Agri-SME operators should be encouraged to build on their credit management skill by engaging more with financial institutions and strengthening relationship as a means of enhancing credit access. Financial institutions, especially the Rural and Community Banks and Savings and Loans Companies, should strive to offer more competitive terms and conditions, especially interest rates to Agri-SMEs that apply for credit as a group.

Keywords: Credit access; credit constraints; agribusinesses; agri-SMEs operators; Kumasi metropolis; logit regression.

1. INTRODUCTION

Agricultural and agribusiness finance is very significant in developing countries because it can potentially serve as an enabler of inclusive growth and poverty reduction, productivity enhancement, improved income for agribusinesses operators, and overall balanced regional development [1]. For a developing country like Ghana whose economy is fundamentally agriculture-driven, any financial investment in small-scale agribusinesses is very critical and worth considering because of their dominance and pervasiveness. Across the advanced world and developing countries, the small and medium enterprises (SMEs) sector, including Ghana's Agri-SMEs, generates the bulk of economic activity [2,3,4,5,6]. There is wide spread consensus that access to finance, particularly bank financing, can radically transform the outlook and performance of the SME sector, especially in the developing countries. For example, a number of studies including firm-level data from the World Bank over the years, show that inadequate financing is a greater obstacle for SME's than it is for large firms, particularly in the developing world, and that inaccessibility to finance constrains the growth of the SME sector more than that of large companies [7,8,9,10]. For many agribusinesses access to credit can readily support investments in productive operations, allow for the adoption of latest technologies and the scale-up of production activities to enhance productivity and competitiveness [11,12,13] and increase profitability [14].

Although support from development agencies, international donors and government to boost agriculture production in recent years through

various policy interventions and programs in Ghana has increased (for example, Millennium Development Authority – MiDA program, Root and Tuber Improvement and Marketing Program - RTIMP, Northern Rural Growth Program – NRGF etc), lack of access to formal credit, especially for agribusinesses engaged in downstream processing, distribution and marketing has constrained the fullest realization of enhanced value-added and economic growth [1]. Agribusinesses and their value chain actors usually need a comprehensive suite of well-crafted financial services and products to improve their overall productivity and growth. Smallholder farmers need working capital to procure inputs and adopt modern technologies (improved seeds, fertilizer application, crop protection chemicals, basic storage facilities etc) that enhance output and profit. Aggregators, processors, and marketers of agricultural commodities also need credit to undertake product transformation and other downstream value-adding activities. Conceptually, the flow of adequate, well-structured and prompt credit facilities through these agri-value chains can potentially stimulate the much-needed growth within the agribusiness sector which remains largely rudimentary for a country like Ghana.

1.2 Problem Statement

It is rather ironic that in spite of the obvious economic growth potential of the agribusiness sector to the economy of developing countries including Ghana, agribusinesses are the most constrained when it comes to the supply of financial investments or access to finance [15,16,17]. Currently, only about 6% of total commercial bank credit goes to the agriculture

sector, including cocoa, forestry and fisheries [18], and overall only 2%–10% of Ghana's financial institution's portfolios support agribusiness, which is much lower than agriculture's share of GDP (30%) in 2010. The formal financial sector particularly, commercial banks, which makes up the mainstream source of finance for businesses across countries (see [19,20,21,22]) are reluctant to offer credit to SMEs in general and the agriculture sector in particular. The formal financial sector is reluctant to lend to agribusinesses, including upstream primary production, because of the real and perceived high risk of the sector. Small agribusiness operators on the other hand also perceive formal credit as inaccessible due to rigid terms and conditions. For example the demand for more secured collateral, regular loan repayments typically on monthly basis instead of seasonal repayments and cumbersome loan applications and disbursement process are all deterrent to most agribusiness operators. These demand-side and supply-side constraints have resulted in a yawning financial gap within the formal credit market in Ghana. Increasingly therefore, many agribusiness entrepreneurs including input-suppliers, smallholder producers, distributors, processors, wholesalers and retailers usually resort to informal sources of credit to finance their businesses. Unfortunately these informal credit services come as unreliable, costly, inefficient and very expensive [23]. According to the International Finance Corporation (IFC), access to finance for agribusinesses is severe for upstream activities, particularly farm production than it is for downstream operators like processors, wholesalers, marketers, and retailers [24]. However, [25] has argued that access to credit for downstream Agri-SMEs is as challenging as it is for upstream production activities.

Given the crucial role of credit in enhancing the competitiveness of agribusinesses, especially in value-adding activities, this study attempts to gauge the credit situation for agribusinesses. This study attempts to find out whether agribusiness operators have easy access to credit. For those who are able to get access to credit, what are the major sources of credit? What factors influence access to credit by Agri-SMEs and what constraints do they meet in their credit acquisition process from the formal financial sector in Ghana? The goal of this paper was to investigate the factors that influence access to credit by agribusinesses in the study area. Specifically, the study sought

to examine the credit status and experience of agribusiness operators in the study area; to measure and quantify the factors that influence credit access and lastly, identify and rank the constraints in loan acquisition by agribusiness operators.

While empirical research on credit for SME's in general and smallholder farmers in particular abound in Ghana, there is a dearth of information on credit access for Agri-SMEs operating within the agribusiness sector. The outcome of this study will bridge the research gap, particularly credit experience and accessibility by Agri-SMEs along the pre-farm and post-farm end of the agricultural value chain.

2. LITERATURE REVIEW

Agricultural SME finance is defined as financial services for small and medium scale enterprises engaged in agricultural production and production related activities along the agribusiness value chain, such as input-supply, processing, wholesaling, marketing, trade, and export [24]. This study considers those Agri-enterprises engaged in off-farm activities within the agricultural value chain.

Credit is an instrument whose effectiveness depends on the economic and financial policies that go with it [26]. According to [27] credit means the ability to command capital in return for a promise to pay at some specific time in the future. Access to credit is very crucial to agribusiness, especially in less developed countries of the world. Access to credit (formal or informal) is the ability of an individual to borrow from a particular source, although for a variety of reasons he or she may choose not to [28]. The degree to which a person can get access to credit is measured by the credit limit of the individual. Thus people with positive credit limits are said to have access and vice-versa.

According to [29], 'credit accessibility' refers to the ease or difficulty of acquiring credit from borrowers to enhance business performance. Access to credit (also called financial inclusion) is the absence of both price and non-price barriers in the use of financial services. [30], therefore posit that access to credit is limited to a small proportion of the population who can overcome significant barriers to credit such as high minimum balance for account opening, collateral requirements and a long and costly bureaucratic process.

There are a plethora of arguments about financing for SME operators and the factors that enhance or constrain their access to or demand for credit. In the forgoing literature, this study examines some key variables that influence access to formal credit using evidence from SMEs in agribusiness as well as non-agriculture related activities. In other words, the study assumes that Agri–SMEs behave and thus share some similar characteristics or profile with both regular SMEs and agribusinesses.

2.1 Ghana's Financial Sector

Ghana's financial sector is classified into three: formal, semi-formal and informal. The formal sector includes Commercial Banks, Non-Bank Financial Institutions (NBFIs), Rural and Community Banks (RCBs), and Savings and Loans Companies (SLCs). As at 2010, Ghana had 23 major banks, including, 3 development banks, 4 commercial banks, and 16 universal banks. The NBFIs sector includes 36 institutions made up of 17 savings companies, 13 savings and loans companies, 4 leasing companies, 1 discount house, and 1 mortgage company. The 23 major banks account for about 90% of the total assets of the banking and non-banking sector, whereas the NBFIs account for 5% of the total assets [31]. Most financial institutions in the formal sector are concentrated in the urban and peri-urban areas of Greater Accra, Ashanti and the Eastern regions, with limited outreach to the rural areas of Ghana. According to [18] the formal financial sector controls about 40% of the money supply in the overall financial sector with the remaining amount outside the formal system [32]. Thus, institutions such as RCBs and semi-formal and informal financial service providers play an important role in addressing the lack of access to financial services for many clients outside the formal sector.

2.2 Empirical Analysis and Evidence of Determinants of Access to Credit

Access to financial services, particularly credit, is dependent on or influenced by several factors which are within and beyond the control of borrowers. Based on evidence from several empirical findings, this study conveniently conceptualized that credit access by agribusinesses is influenced by four major factors namely socio-economic characteristics, managerial attributes, firm characteristics, and institutional factors.

2.2.1 Socio-economic characteristics and management attributes

Several demographic and socio-economic variables have been cited in various studies as determining access to credit by SME borrowers. [33] in a study of determinants of access to credit by SMEs in Kenya showed that the marginal effects of educational level, and occupation type (salaried, off-farm income, self-employment) significantly and positively influenced access to credit while distance to credit source and total value of income were negatively significant to credit access. However, age, gender, marital status and group membership did not significantly influence credit access. Females in many developing countries seem to have limited access to credit and are even discriminated against [34,35] compared to their male counterparts, apparently due to socio-cultural factors. However, studies by [36,37] in Ethiopia showed that the formal financial institutions offered more credit to female headed households than their male counterparts.

Also [38] in an analysis of determinants of access to institutional credit by SMEs in India showed that business registration, accounts record keeping, and higher education of business owners positively influenced access to credit. This is because well-educated entrepreneurs are better placed to have access to information on credit, have high financial literacy ability and good managerial skills in production, finance and marketing compared to their less educated or illiterate counterparts [39]. Thus there is a close relationship between the educational status of entrepreneur and their managerial competency and hence their propensity to easily get access to credit. Indeed empirical studies have also proven that managerial competencies of SME operators greatly influence ease of access to credit and vice-versa [40,41].

In another study in Limpopo, South Africa [42] found that loan repayment periods, distance between borrower and lender, and business experience of borrower were significant but negatively influenced credit access. [38], showed that access to credit by SMEs improved with business registration, record keeping and the educational level of the entrepreneur.

2.2.2 Firm-specific characteristics

For many Agri-SMEs as with mainstream SMEs the characteristics of the firm can influence or

affect credit access. [43,44] in a study of enterprise access to credit in India, showed that the firm size, age, and collateral security of enterprise had positive and significant influence on access to bank loans. Financial institutions consider and are more likely to use firm size (proxied by employee numbers in some cases) as a criterion for lending [43]. This is because large firms are more diversified and less prone to failure [45] and are most often endowed with more valuable assets which enable them to attract long-term debt than smaller firms [46].

Firms and SMEs who have adequate fixed assets can use them as collateral security and this offers borrowers with high financial leverage to secure credit facilities [47]. Firms with more secured and valuable collateral therefore present better chances of accessing credit than their less endowed counterparts [48]. [42], again showed that assets accumulation or value of assets though significant, negatively influenced credit access in the study area.

The geographic proximity or distance between banks and customers has a relationship on a firm's use of leverage [49], because it allows banks to assess, evaluate and monitor clients at a cheaper cost and more efficiently.

The number of years a firm has been in operation also has an impact on access to credit. Thus Agri-SMEs with long years of operation would have developed or built business operational capacities and experiences including, management, financing, and marketing that are likely to make them more resilient and attractive to the formal financial sector compared to relatively new firms [50,51,52,53].

2.2.3 Financial institutions

Financial institutions which are the suppliers of financial services have peculiar characteristics that impact on the availability or otherwise of credit to borrowers. These institutional factors include a condition like operating an account with the financial institution which usually gives an indication of the credit management capacity of borrowers. Similarly the number of years a business owner or SME client has operated an account with the financial institution builds some level of relationship between lender and borrower, and thus enhances access to credit. The ability of a firm to keep basic and proper financial records, including financial statements, suggest some level of management capacity

thereby reducing information asymmetry problems which in turn also builds the level of transparency from the lender's perspective [54,55].

3. METHODOLOGY

3.1 Study Area and Location

The study was conducted in the Kumasi Metropolis, which is in the Ashanti Region of Ghana. The Ashanti Region lies between longitude 0° 15'W– 2° 15' and latitude 6° N– 7° 30'N of the equator. Kumasi is Ghana's second largest city and has a population of about 2,035,064, according to the 2010 National Housing and Population Census conducted by the Ghana Statistical Service (GSS). The city, a typical cosmopolitan area, depicts a fair share of vibrant economic activities, particularly commerce and artisanal activities within the informal sector. The metropolis is awash with thousands of small and medium enterprises engaged in several business activities of which agribusinesses and Agri-SMEs are well represented.

3.2 Sampling Technique and Data Collection

A multi-stage sampling technique was used to select some 151 respondents for the study. In particular agri-food processors, agri-food marketers, and agro-input dealers were purposively selected for the survey as they are quite dominant in the metropolis, particularly within the urban (central business district of Adum and the central market) and other peri-urban areas. The second stage involved a random selection of each respondent. Data were collected using well structured, mostly close ended questionnaires that captured information on the socio-economic and firm characteristics as well credit history and experience of the respondents.

3.3 Analytical Framework and Specification of Econometric Model

A decision by an entrepreneur to go for credit is influenced by a number of factors and considerations. Decision and choice model of this nature usually involves the use of an appropriate utility maximization approach such as the logistic regression model. The logistic regression model was employed to analyze the

factors that influence an entrepreneur’s ability to access credit from the formal financial sector. Logistic regression is particularly useful where the dependent variable (access to credit) is dichotomous.

In this analysis, Y_i represents an entrepreneur’s decision to access or not to access credit from the formal financial institution. Y_i is assumed to be dependent on a vector of individual socio-economic characteristics, as well as institutional factors (X_i). The relationship between the dependent and explanatory variables is stated as:

$$Y_i = a + \beta'X_i + \mu_i \dots\dots\dots (1)$$

Where Y_i (which is dichotomous) takes on the value of ‘1’ or ‘0’.

The decision of the agribusiness operator to access credit is informed by the marginal cost and benefit he or she expects to derive from the use or otherwise of the credit. However, practically speaking the marginal utility (cost and benefit) is not observed, thus equation (1) cannot be estimated. The observation can only be derived from the responses made by the respondents in the survey. Thus, another variable is introduced to capture the reality of the use or non-use of credit as Y_i^* , such that:

$$Y_i^* = \begin{cases} 1 = & \text{if respondent was able to} \\ & \text{access credit from formal sector} \\ 0 = & \text{if respondent did not} \\ & \text{access credit from formal sector} \end{cases} \dots\dots (2)$$

Thus

$$Y_i^* = \alpha + \beta^i X_i + \mu_i \dots\dots\dots (3)$$

Though in the analysis of data involving binary choice models, three commonest approaches such as the Linear Probability Model (LPM), the Logit and the Probit Models, are possible, several research analysts have settled for the latter two. The Logit and Probit models according to [56,57] are preferred because of their similarity and most importantly to avoid the limitations associated with the LPM, where the estimated probabilities can lie outside 0-1 [58].

According to [59] both the Logit and Probit are non-linear models and are estimated using maximum likelihood (ML) method. In addition, [60] noted that both Logit and Probit models guarantee that the estimated probabilities lie between the logical limit of 0 and 1. Due to these

advantages, the Logit and the Probit models are the most frequently used models when the dependent variable happens to be dichotomous [61,62,63]. The main difference between the Logit and Probit is in the nature of their distribution which is captured by cumulative distribution function (CDF). In this study, the logistic regression model is selected because it has been widely used by many researchers and most importantly because of its comparative simplicity, convenience, flexibility and also a powerful estimator of models [64].

Following [59,62,33], the cumulative logistic probability model is econometrically specified as:

$$P_i = F(Z_i) = F(a + \sum_{i=1}^n \beta_i X_i) = \frac{1}{1+e^{-Z_i}} \dots (4)$$

Where,

- P_i = Is the probability that an individual accesses credit given X_i .
- X_i = Represents the i^{th} explanatory variables
- e = Represents the base of natural logarithms, which is approximately equal to 2.718
- α = Constant terms
- β_i = Coefficient of independent variables to be estimated

Central to the use of logistic regression is the Logit transformation of P_i given by Z . That is, to obtain linearity, the natural logarithms of odds ratio equation (4) is taken, which results in the Logit model as given by:

$$Z_i = \ln\left(\frac{P_i}{1-P_i}\right) = \alpha + \beta_1 X_1 + \beta_2 X_2 + \dots + \beta_n X_n \dots\dots\dots (5)$$

Where Z_i is the indicator of the agribusiness entrepreneur’s access to credit or not; P is the probability of the event’s occurrence; and X_i is a vector of household socio-economic, managerial, firm characteristics, and factors characteristic of financial institutions.

3.4 Specification of Empirical Model

In this study, ‘access to credit’ refers to those respondents who were able to receive credit from a lending institution. This takes a dichotomous response variable of ‘yes’ or ‘no’ for those who had credit and those who did not respectively. Access to credit by agribusiness SMEs can be formulated implicitly as:

$$Agri - SME Credit Access = f \left(\begin{array}{l} \text{socioeconomic characteristics,} \\ \text{management characteristics,} \\ \text{firm characteristics, Institutional factors} \end{array} \right)$$

The Logit Model can therefore be specified as:

$$Credit\ access = \beta_0 + \beta_1 Age + \beta_2 Gender + \beta_3 EducL + \beta_4 YBExp + \beta_5 OIncome + \beta_6 MBOrg + \beta_7 FirmSize + \beta_8 GMSales + \beta_9 Colattsec + \beta_{10} CrdtSkill + \beta_{11} MgtRec + \beta_{12} BRegist + \beta_{13} ProxFI + \beta_{14} CrdtExp + \mu_i \dots\dots\dots (6)$$

A summary of variables and descriptions used in the regression analysis is presented in Table 1.

Table 1. Description of variables used in regression of access to credit by agri-SME’s

Variable	Description	A priori sign
Age	Age of agribusiness entrepreneur (yrs)	+/-
Gender	Sex of respondent 1=male; 0=female	+
EducL	Educational status/years of schooling (yrs)	+
YBExp	Years of experience in business (yrs)	+
OIncome	Other source of income 1=yes; 0 = no	+
MBOrg	Membership of business association 1=yes; 0 = no	+
FirmSize	Firm size measured by number of hired employees	+
GMSales	Estimated Gross Monthly Sales (GH¢)	+
Colattsec	Availability of securable collateral 1 = yes; 0 = no	+
CrdtSkill	Credit management skill of respondent 1 = good ; 0 = not good	+
MgtRec	Ability to keep management records 1=yes; 0 = no	+
BRegist	Registration status of business 1 = registered ; 0 = otherwise	+
ProxFI	Proximity to financial institution 1 = close; 0 = far	+
CrdtExp	Years of banking or credit with FI measured in (yrs)	+
μ_i	Error term	

4. RESULTS AND DISCUSSION

4.1 Credit Experience, Status and History of Agri–SME Operators

The summary of credit experience and status of respondents is presented in Table 2. The result showed that the major credit need for most of the Agri–SME operators was for working capital (60%), business expansion (18%) and start-up capital (10%). This confirms the well documented assertion that for many SMEs, working capital for operational activities was the most critical credit need. All the Agri-SMEs in the survey operated as sole proprietors who typically require funds to take care of routine operational activities hence the high demand for working capital loans. All the respondents indicated that they had business relationship with or patronized at least one of the financial services or products offered by the financial institutions. Most of the Agri-SME operators either banked with the RCB–Rural and Community Banks (29%) or the SLC–Savings and Loans Company (26%). Also 23% dealt with the UB–Universal Banks while 7% banked with

Micro-Finance Companies. The relatively high preference for the services of RCBs and SLCs in a typical cosmopolitan area like Kumasi suggests and gives an indication of the growing importance of these financial institutions in the country as far as SME financing is concerned. Although all the 151 respondents had enjoyed some form of banking services, only about 55% stated that they had ever applied for a loan before, especially from the formal financial sector.

The results again revealed that contrary to common assertion, most respondents (67%) indicated that the financial institutions did not *strictly* demand collateral security while (33%) indicated that collateral security was required. These results are not surprising, given that a growing number of SLCs and RCBs in urban Ghana now place much emphasis on the relationship and bank transactional history of clients as opposed to the universal banks where collateral security is a major requirement.

Furthermore, when the respondents were asked to state whether they were able to meet loan

application requirements apart from the usual demand for collateral security, 12% indicated that they were 'always' able to, 67% stated 'sometimes' and 21% stated 'not at all'.

Credit management is important for many business operators who require especially formal credit. When respondents were asked to rate their skills in credit management, 58% rated that it was *good* while 42% stated that it was *not good*.

Finally, the survey showed that about half of the respondents (53%) declared that they had

access to credit while 47% stated otherwise. And for those who have ever attempted applying for credit, a little above average (54%) were of the opinion that loan application was cumbersome while 46% stated otherwise.

4.2 Logistic Analysis of Factors that Influence Access to Credit by Agri-SME Operators

The Logistic regression model was employed to analyze the factors that affect access to credit by Agri-SME operators in the Kumasi Metropolis.

Table 2. Summary of credit experience and status of agri-SME's in the metropolis

Variable	Frequency	Percentage (%)
Primary credit needs		
• Working capital	91	60
• Start-up capital	15	10
• Inventory/stocks	7	5
• Capital/assets	10	7
• Business expansion	28	18
Form of business status		
• Sole proprietorship	151	100
• Partnership	0	0
• Limited liability company	0	0
Source of financial services		
• Universal banks	34	23
• Savings and loans	39	26
• Rural and community banks	44	29
• Micro finance institutions	11	7
• Others	23	15
Credit application history		
• Yes	83	55
• No	67	45
Collateral demands from lenders		
• Yes	35	33
• No	70	67
Able to meet requirements		
• Always	11	12
• Sometimes – partly	61	67
• Rarely – not all at all	19	21
Loan application process		
• Simple	61	46
• Cumbersome	71	54
Credit management skills		
• Good	87	58
• Not good	64	42
Access to credit		
• Yes	80	53
• No	71	47

Source: Field survey, 2013

Results from the regression analysis, as posted in Table 3, indicate that the goodness of fit of the logistic model tested by means of the Log-Likelihood Ratio show a 1% level of significance. This means that the explanatory variables included in the model jointly explain the probability of Agri-SME operators' decision to access credit from financial institutions. Out of the 14 explanatory variables, six; namely, other income, membership of business organization, firm size, borrower/credit experience, collateral security, and credit management skills were found to be statistically significant determinants of credit accessibility. Membership of a business organization was significant and positively influenced access to credit at 10% level and this is in tandem with the findings of Kiplimo [33]. It is most likely that business organizations or associations that are well structured, functional, and vibrant are able to offer network opportunities, to link up members to credit sources, and thus enhance access to credit. Credit experience of Agri-SME operators also had a positive and significant influence on credit access at 1% level. Similarly credit management skill of Agri-SME operators and their ability to present valuable collateral security were significant and positively related to access to credit at 5% probability level. The marginal effects of the Logit model showed that the probability of credit access by Agri-SME operators increases by about 11%, 17% and 30% for every a percent increase in the credit experience, credit management skill and collateral respectively. All these three variables (credit experience of borrower, credit management skills and collateral security) and their outcomes in this study corroborate the findings of Fatoki and Assah [40], Herrington and Wood [41], Kohli [43], Abor and Quartey [48], and Eastwood and Kohli [44]. Formal financial institutions now place some level of premium on client relationship, credit and financial management skill of clients and their ability to provide valuable collateral security. These attributes or variables have always played an important role and enhanced access to credit from the formal sector, as shown in this study.

Expectations are that agribusiness operators who had other sources of income would be better placed to use credit from the formal financial institutions. However, results from the analysis showed that the variable rather had a negative relationship with the dependent variable. The possible reason for this could be that business operators earning extra income from other

activities may not experience any financial constrains as to warrant external financing, hence the negative impact on access to credit. Another reason could also be that the financial institutions did not rate this as a necessary condition. The study also revealed that firm size though significant at 10%, negatively influenced credit access by Agri-SME operators. This finding is contrary to the assertions of Kholi [43] and Burkhart and Ellingsen [46], who indicated that large firms have relatively easy access to credit than smaller firms. Indeed it is not surprising that this variable negatively influenced credit access as most of the Agri-SMEs had on average staff strength of three persons

On the other hand, none of the socio-economic variables included in the model had any significant impact or influenced Agri-SME operators' decision to get access to credit. Also coefficients of variables such as the gross monthly sales, years of business experience and proximity to financial institution were not statistically significant to influence access to credit; thus contrary to a priori expectation and some empirical evidence. It is most likely that although some financial institutions demand collateral, their decision to approve credit fell short of determining the value of these assets. Again it is most likely that the financial institutions did not consider or make lending decision based on gross monthly sales of loan applicants probably because those data could not be verified. Rather, the banks depended more on the relationships they had with their customers vis-à-vis borrowing experience and credit management skills.

4.3 Constraints in Loan Application Process for Agri-SME's in the Metropolis

Agribusiness operators, like most SMEs have peculiar constraints in the loan acquisition process. In this study, the respondents were asked to rank in order of importance or severity the most constraining factors that affect their credit or loan application with their bankers, mostly formal credit sources. Out of the total of 151 Agribusiness operators involved in the survey, between 74 and 111 responded to the various issues of credit constraints. The results as presented in Table 4 shows that about 88% of Agri-SME operators ranked *high interest rate* as the most severe constraint, 57% ranked *high interest rate* as the next constraint, while 50% ranked *inadequate amount of loans* as the third

constraining factor. More than 50% of the respondents contend that there was a difference between the loan amount requested and the amount granted. Next a Kendall Coefficient of Concordance Test (W), to analyze the level of agreement among the agribusiness operators, showed that there was a significant difference at 1% level between the rankings of the constraints faced by respondents. The results of the analysis

as presented in Table 5, revealed that *high interest rate* was ranked topmost with a mean rate of 1.47, followed by *inadequate loan amount* at 2.98 and *unfavorable loan term* with a mean score of 3.13. Lastly, the respondents perceived that the issue of cumbersome loan application procedures was the least severe constraint among the list.

Table 3. Logistic (marginal effect) regression results of the factors influencing credit access to agri-SME operators

Variable	Marginal effect	Coef.	Std. Err.	Z	P> z	95% Conf. interval	
Number of obs =102							
LR chi2(14) = 67.11							
Prob > chi2 =0.0000							
Pseudo R ² = 0.5356							
Log likelihood = -29.088872							
Age	-0.00142	-0.01546	0.039554	-0.39	0.696	-0.09298	0.06206
Gender	0.03635	0.39451	0.73425	0.54	0.591	-1.04459	1.83362
EducL	0.01515	0.16442	0.36795	0.45	0.655	-0.55676	0.88559
BRegist	-0.09513	-1.03256	0.98689	-1.05	0.295	-2.96682	0.90171
<i>OlIncome</i>	<i>-0.13789</i>	<i>-1.49666</i>	<i>0.88048</i>	<i>-1.70</i>	<i>0.089*</i>	<i>-3.22237</i>	<i>0.22906</i>
<i>MBorg</i>	<i>0.17524</i>	<i>1.90205</i>	<i>1.10792</i>	<i>1.72</i>	<i>0.086*</i>	<i>-0.26944</i>	<i>4.07354</i>
YBexp	-0.00152	-0.01647	0.05726	-0.29	0.774	-0.12871	0.09577
<i>Firmsize</i>	<i>-0.03851</i>	<i>-0.41802</i>	<i>-0.23662</i>	<i>-1.77</i>	<i>0.077*</i>	<i>-0.88175</i>	<i>0.04579</i>
GMsales	-0.00002	0.00021	-0.00018	-1.13	0.259	-0.00057	0.00015
MgtRec	-0.09626	-1.04475	0.84876	-1.23	0.218	-2.70830	0.61880
ProxiFi	0.05469	0.59363	0.91713	0.65	0.517	-1.20392	2.39118
<i>CrdtExp</i>	<i>0.10891</i>	<i>1.18206</i>	<i>0.35270</i>	<i>3.35</i>	<i>0.001***</i>	<i>0.49078</i>	<i>1.87334</i>
<i>Colattsec</i>	<i>0.30174</i>	<i>3.27502</i>	<i>1.49707</i>	<i>2.19</i>	<i>0.029**</i>	<i>0.34080</i>	<i>6.20923</i>
<i>CreditSkill</i>	<i>0.17189</i>	<i>1.94944</i>	<i>0.88610</i>	<i>2.20</i>	<i>0.028**</i>	<i>0.21272</i>	<i>3.68616</i>
Const		-1.41213	1.65883	-0.85	0.395	-4.66337	1.83911

*Significant at 10%; ** Significant at 5%; and *** Significant at 1%

Table 4. Percentage distribution of constraints to loan application

Variable	Percentage ranking	Ranking
High Interest rate	88.30%	1
Unfavorable term of loan	57.00%	2
Inadequate loan amount	50.00%	3
Delayed loan disbursement	35.40%	4
Cumbersome procedures	25.50%	5

Source: Field survey, 2013

Table 5. Rankings of constraints Kendall's (W) in loan application process

Constraints	Mean rank
High interest rate	1.47
Unfavorable term of loan	3.13
Inadequate loan amount	2.98
Delayed loan disbursement	3.53
Cumbersome procedures	3.88

Test statistics: N=30, df = 4; $\chi^2 = 42.048$; and $P < 0.000$

5. CONCLUSION AND RECOMMENDATIONS

This study sought to analyze the factors that influence access to credit for Agri-SME operators in the Kumasi Metropolitan Area of Ghana. The study revealed that Agri-SMEs in the study area have a relatively good credit history or credit status, with all the respondents patronizing one form of financial services or the other, particularly from the Rural and Community Banks, Savings and Loans Companies and Universal Banks. The most important or prevalent credit need for most respondents was working capital loans, although only about 53% were able to get access to such credit. The logistic regression analysis of one hundred and fifty-one (151) respondents showed that credit access was influenced significantly by six variables namely; extra income earned by respondents, firm size, borrower experience, credit management skills, and possession of collateral security. Contrary to expectation, however, factors such as years of business experience of Agri-SME operators, proximity to financial institution and gross monthly sales were insignificant and did not influence access to credit.

Finally, the study revealed that factors that influence access to credit by Agri-SME operators were similar to those in the mainstream small business sector (or non-agricultural related businesses). This study recommends that Agri-SME operators build and improve upon their credit history and experience by banking with the formal sector for the variety of products and services they offer. For example, agribusiness enterprises with high daily or weekly sales turnover should lodge proceeds with their bankers to build their relationship and credit history, and thus enhance their chances of access to credit. Agri-SMEs should also be encouraged to join well-functioning business organizations or groups which can offer a platform for business networking and linkages to financial services. This would also lead to overall improvement of credit management skills. Financial institutions on the other hand, especially from the formal sector, should increase their engagement with the Agri-SME operators to improve relationship and credit experience of clients by employing innovative means for credit accessibility.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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