

## Credit Access by Small and Medium Enterprises in Tanzania: A Case Study of Dar es Salaam City

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### Abstract

The contribution of Small and Medium Enterprises (SME) in economic development has been recognized worldwide. The main challenge of the sector to contribute fully is a limited access to finance. This study examined the factors influencing access to credit by SMEs operators. Since the study was explorative in nature it employed survey method of which the data were thought to meet descriptive and inferential analysis. Therefore the study intended to collect data through questionnaires to 300 SMEs owners in Dar es Salaam city in Tanzania. The results of descriptive analysis which were presented in percentages showed that the major challenges that lenders encounter when lending among SMEs include; high interest charged and collateral requirement as the decisive factor for loan approval. Furthermore the main reasons for bad loans among SMEs operators in the region are credit management, high interest rate, short term repayment and poor business skills. The logistic results indicated that business information is the critical factor that largely influences credit access by SMEs in the region. The government should strategically regulate the stringent conditions and requirements posed to SMEs operators while education should be offered to SMEs operators in the region to improve their business operations.

**Keywords:** Credit access; Small and medium size enterprises; Owner/manager characteristics; Business characteristics; Dar es Salaam; Tanzania

### Introduction

Limited access to credit for Small and Medium Enterprises (SMEs), especially in developing countries, has been identified as a major bottleneck limiting their size, growth, profits, activations, liquidations and scope of business operations [1]. According to Alexander, credit access constraints and other credit market imperfections may severely limit the investment and operations of firms.

About 365 million to 445 million enterprises in emerging markets which account for 85% suffer from credit access constraints. Only 15% can access credit and 70% of all emerging-market Micro, Small and Medium Enterprises (MSMEs) do not access and use any formal credit at all [2]. Hence, at the global level SMEs have been reported that a difficulty in access to finance is obvious [3].

In Tanzania, the full potential of the SME sector has yet to be tapped due to the existence of a number of constraints hampering the development of the sector. These constraints to mention are unfavorable legal and regulatory framework, undeveloped infrastructure, poor business development services, limited access of SMEs to finance, ineffective and poorly coordinated institutional support framework etc. It is for this reason that this SME Development Policy was formulated so as to address the constraints and to tap the full potential of the sector [4].

The issue of credit access is critical problem that over time facing SMEs in Tanzania that limit their start and growth. The situation is reported to be more critical in Tanzania due to the fact that SMEs operators in Tanzania are perceived as high risk one. Other reasons that are mentioned in the literature include; inability of SMEs operators fulfills the collateral requirements. Furthermore, the credit supply side is blamed of operating in limited geographical areas; some banks do not have SMEs financing window, inexperience of staff in issues related to microfinance.

In most countries with strong/stable financial market the main source of external financing for SMEs is equity and debt [5]. However

to access credit SMEs operators and their businesses should maintain desirable attributes to enable them access credit from financial institutions. The characteristics include attributes such as firm age, firm legal status, collateral and business information, experience, education, firms performance, memberships with business association, owning tangible assets, well-kept financial records, location of business, industry sector, ownership, age of the business operator, size of the firm and business plan play a significant role in influencing credit access by SMEs operators from financial institutions [6-15].

The study investigated the factors that influence credit access by SMEs by analyzing SMEs operators' characteristics and their business characteristics as well. The study used primary data collected from SMEs operators in Dar es Salaam city. The study provides an extensive understanding on the factors that influence SMEs operators to access credit, challenges that lenders do face when issuing loans and reasons for bad loans among SMEs operators.

### Statement of the Problem

Studies on SMEs' sector have attracted attention from researchers, policy makers and practitioners due to SMEs contribution to economic growth. Despite the potentials that SMEs have on economic development and growth, the sector is facing a serious challenge arising from limited access to financial services especially small enterprises the issue is more serious. The situation has resulted into little growth of the SMEs sector or inability of the SMEs to start or grow/expand

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Received September 04, 2017; Accepted September 14, 2017; Published September 15, 2017

Citation: Magembe Y (2017) Credit Access by Small and Medium Enterprises in Tanzania: A Case Study of Dar es Salaam City. Int J Econ Manag Sci 6: 459. doi: 10.4172/2162-6359.1000459

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substantially less contribution to job creation and GDP at large. Also the policy makers are of the view that credit access by SMEs is a problem.

With limited information and statistics on SMEs' operations especially in developing countries Tanzania being one of them, but there is general agreement that the sector face limited access to credit and this is considered as a serious barrier. The situation has led the SMEs in Tanzania to use outdated technology in production such as in crafts, processing of food stuffs and clothes. One of the main reasons for this is limited access to credit by these SMEs operators thus they fail to raise enough capital for research and improvement in production technology so as to raise productivity and maintaining competitiveness in local and global market.

The literature on credit access by SMEs operator show that the examination have covered factors such as education, experience, business operation, firm's location, firm's size, age of the firm, collateral and business information. This study included all relevant factors that influence credit access by SMEs from banks and nonbanks. Hence, this study at the same time added more factors that are thought to be of importance to policy and decision makers. These factors among others include internal fund, gender, marital status and age of the business operators. Furthermore the study has examined the challenges that the lenders face as well as the reasons for bad loans among the SMEs operators in Dar es Salaam city.

## Objectives of the Study

The broad objective of this study was to investigate the factors that influence credit access by SMEs from banks and non-banks which substantially affect the growth, development of SMEs and low contribution to the GDP in Tanzania. Specific objectives of the study are as follows:

- (i) To identify the major challenges that lenders encounter when lending to SMEs.
- (ii) To explore the main causes of bad loans among SMEs operators.
- (iii) To examine empirically the factors that influence credit access by SMEs.

## Significance of the Study

This study is useful to policy and decision makers, lenders and other SMEs' stakeholders as it involves empirical evidences to help the practitioners to intervene the problem of credit access by SMEs as major source of capital. To the academicians and researchers, the study adds knowledge in the literature on the issues of credit access specifically on SMEs and provides an empirical framework that will further serve as a reference to the subsequent studies on the same topic/field.

## Literature Review

### SMEs performance in Tanzania

The sector has a huge potential for creating employment, generating income, contributing to foreign exchange earnings and overall economic development and poverty alleviation [16]. Since 1990s SME sector has been taking important position in employment creation and has contributed a significant percentage to GDP. By 2008 it was reported that 30% of GDP originated from SME sector. The contribution had increased from 30% in 2010 to 35% in 2011 [17]. The

SME sector is estimated to occupy about 20% of total labour force [18]. SIDO' report in 2008 shows that 92% of school leavers (at all levels) are potentially absorbed by SME sector. This shows that SMEs is a good option for absorption of unemployed individuals, school leavers, and college and university graduates in the country.

### Theoretical literature review

The study adopted the theoretical perspectives from two very common and prominent theories of capital structure of the firms. These theories are pecking order theory and credit rationing theory.

The former theory was first pioneered in the seminal papers of Modigliani in 1958 and Miller in 1963. The theory postulate that under perfect market conditions firms financing themselves or what they call capital structure has no influence on firm value. In the theory of pecking order, firms prefer internal to external finance due to adverse selection. If the SMEs operators/firms are hungry of finance (outside fund) they will prefer debt to equity because of lower information costs associated with debt issues [19]. The theory pins out those SMEs operators/firms generally prefer to maintain control and maintain managerial independence [20].

Also the study in the formulation of the important factors for analysis on the factors influencing credit access by SMEs has adopted credit rationing theory. This theory postulates that group of individuals in the population who with a given supply of credit are unable to obtain loans at any interest, even though with a large supply of credit they would [21]. I adopted this theory because bank and non-bank financial institutions are concerned in lending money to SMEs operators who are going to return it or to borrowers who are not likely to default after taking the loan. Based on my study the issue of the imperfect information is the main reason to some lending institutions to choose exclude some borrowers [22].

### Empirical literature review

Scholars have drawn attention on SMEs credit access and have conducted empirical investigation on factors which influence credit access however the empirical studies in most cases are not consistent with their results from one country of study to another. Scholars conduct the studies on the issues of credit access by SMEs basing on the firm' and SMEs owners/manager' characteristics. The selection of the factors to be involved in the analyses is subjective to the author and varies considerably from one study to another. The empirical studies employed in this study incorporated both firms' and owners' characteristics as independent variables.

In their investigation they involved factors such as collateral, business plan, financial institution, and age of the firm, size of the firm, location of the firm (town or city), ownership, sectors, and sources of finance. The results indicated that collateral, business plan, financial information, age of the firm, size of the firm, size of the firm, firm location (town or city), ownership, and internal funds were statistically significant in influencing credit access by SMEs operators.

Furthermore empirical investigation done by Pandula in 2011, in his study involved factors such as experience, education, firms performance, sectors, tangible assets, financial auditing, location of the firm, age of the firm, size of the firm, membership association, the results indicated that education of the entrepreneur and having membership with business associations are associated with access to bank finance.

## Conceptual Framework

The conceptual framework is designed to capture both dependent and independent variables. The framework captures all factors that are likely to influence credit access by SMEs in Tanzania.

- i. SMEs credit access that depends on exogenous variables.
- ii. Reasons for bad loans among SMEs.

Furthermore on Figure 1, SMEs accumulate capital (loans) from financial market; subsequently enhance performance in the economy. Within this context there are factors that interact or affect the process. These factors include challenges that lenders encounter when lending among SMEs operators, factors that influence credit access by SMEs operators and reasons for bad loans.

## Methodology

### Research questions

1. What challenges that lenders do encounter when lending SMEs?
2. What are the main causes of bad loans among SMEs operators?
3. What are the factors that influence credit access by SMEs from lenders?

### Theoretical background and model specification

Based on the theoretical background already presented, the variables to be estimated in the model are specified according to Pecking Order Theory and Credit Rationing Theory. Nevertheless more specific oriented variables affiliated to the situation prevalent in Tanzania have been added to make this study more precise and concise.

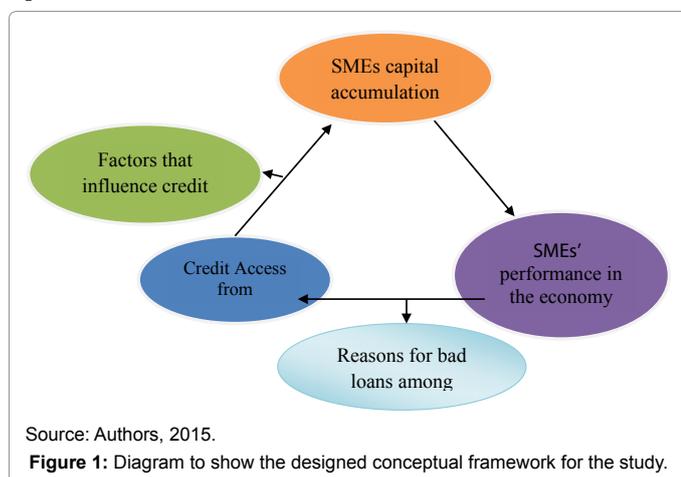
$$\text{Borrowing model (credit access by SMEs)} = \log(y_i) = X_i' \beta + \varepsilon_i \quad (1)$$

Where,  $y_i$  is the dependent variable, is  $X_i'$  a vector of explanatory variables,  $\varepsilon_i$  is the error term and  $\beta$  is vector of coefficients to be estimated.

The logistic regression model assumes the probability of being given/accessing credit from bank and non-banks to be defined by latent variable  $Y^*$  as presented by the relationship in the eqn. (2):

$$Y^* = \beta' X_{ik} + \varepsilon_i \quad (2)$$

However, in practice we observe  $Y$  defined by  $Y_i=1$ , if  $Y^*>1$  and  $Y_i=0$  otherwise. The likelihood of the  $\log_{it}$  model is as shown here in eqn. (3):



$$\text{Prob}(Y_i = 1) = \frac{\exp(x_i' \beta)}{1 + \exp(x_i' \beta)} \quad (3)$$

Where  $Y_i$  is the true dependent variable that takes two values where, 1 if the SMEs operator accessed loan and 0 if the SMEs operator did not access loan. The dependent variable is assumed to depend on individual SMEs operator' and business/firm' characteristics contained in the vector  $x_i$ . The explanatory variables  $x_i$  and error term  $\varepsilon_i$  are distributed with zero mean and constant variance.

### Model specification

The log linear model is,

$$\log(y_i) = x_i \beta + \varepsilon_i \quad (4)$$

Where,  $y_i$  is the credit access as the dependent variable and  $x_i$  is a vector of explanatory variables and  $\varepsilon_i$  is the random error term.

With the logistic regression model, the dependent variable is binary, taking only two values, 1 if the SMEs owner/operator accessed loan and 0 if did not access loan. Hence the probability of accessing credit from banks or non-banks depends on the explanatory variables  $X_i$ .

Thus

$$\text{Prob}(Y=1) = F(\beta' x)$$

$$\text{Prob}(Y=1) = 1 - F(\beta' x) \quad (5)$$

Using the logistic distribution we have,

$$\text{Prob}(Y = 1) = \frac{e^{\beta' x}}{1 + e^{\beta' x}} = \Lambda[\beta' x] \quad (6)$$

Where,  $\Lambda$  represents the logistic cumulative distribution function. The probability model is the regression:

$$(Y/x) = 0[1 - F(\beta' x)] + [F(\beta' x)] = F(\beta' x) \quad (7)$$

Where,

$(Y/x)$  = Binary variable with 1 if SMEs operator accessed loan and 0 if SMEs operator did not access loan,

$\beta$  = Coefficients,

$x$  = Independent variables,

This specification is adopted from Maddala, Green and Gujarati.

The use of  $\log_{it}$  model is justified by the fact that the data to be used have more than one response. Moreover explaining why some individuals/SMEs operators can get loan or not is best done with the  $\log_{it}$  or  $\text{prob}_{it}$ .

### Data and sampling procedures

For analysis of the Credit Access, the study has basically used cross-sectional primary data which were collected from Dar es Salaam city. This study primarily sought to investigate empirically factors that influence credit access by SMEs from banks and non-bank financial institutions in the region. Within the region the survey was conducted in the three Municipalities of the city, namely Ilala, Temeke and Kinondoni.

### Sampling Procedure

A number of 14 wards found in the three Municipalities were surveyed and the study successfully interviewed 300 SMEs from the

total of 405,902 MSMEs<sup>1</sup> in Dar es Salaam region. The sample covered all the three Municipalities due to the following reasons: Firstly, the proximity of the three Municipalities where the Municipal districts namely Ilala, Temeke and Kinondoni are closer and could be reached as targeted. Secondly, SMEs especially those falling into small and medium sizes as per URT (2003) definition are few and spread across all Municipalities. The possible way to include them in the sample was to cover a wide area of the city.

The study used the stratified random sampling procedure to obtain SMEs owners and managers found in the region. Respondents from the 14 wards were selected using a systematic random sampling. Stratification criterion was based on the possible large number of SMEs operating in that particular area and they were selected randomly.

Each of these respondents was surveyed and the study administered the structured questionnaires to the SMEs operators whether owners or a managers of the businesses/firms. This was purposely done to foster cooperation and ensure accuracy of information. The number of respondents varied from one ward to another due to the fact that it depended on the number of SMEs found in that particular place. Some areas had a limited number of SMEs operators that fell into small and medium enterprises. SMEs involved in the interviews were those with capital above 5,000,000 TZS to 800,000,000 TZS and employed up to 99 employees in their business/firm.

### Instruments for data collection

The instrument used to collect data was structured questionnaire with both closed and open ended questions items. Twenty (20) questionnaires were distributed to the identified sample for piloting to test the validity and reliability of the questionnaire. This was done for identifying possible errors and to see the sensitivity of the questions and correct them, also to get additional information to be included in the questions. Data were collected from February 2014 to April 2014.

### Data processing and analysis

The open and close ended questionnaires were used to collect the primary data from respondents and were coded using Statistical Package for the Social Sciences (SPSS) and analyzed by using STATA. MS Excel was used for drawing the figures and tables. The study used descriptive analysis for challenges to lenders and reasons for bad loans among SMEs. Logitistic regression was used to analyze the factors that influence the credit access by SMEs from banks and non-banking financial institutions in the city.

## Results and Analysis

### Description of the variables used in the analysis of the credit access

The functional form of the Credit Access for SMEs owner/manager can therefore be presented as follows in the eqn. (8) below:

$$\text{Credit} = \beta_0 + \beta_1 \text{Age} + \beta_2 \text{Gender} + \beta_3 \text{Educ} + \beta_4 \text{Experience} + \beta_5 \text{Stup\_capital} + \beta_6 \text{Ownership} + \beta_7 \text{Size\_firm} + \beta_8 \text{Age\_firm/business} + \beta_9 \text{Location} + \beta_{10} \text{Bss\_plan} + \beta_{11} \text{Fn\_statement} + \beta_{12} \text{Activity} + \epsilon \quad (8)$$

The dependent variable (Y=Credit access) in eqn. (8) is a binary, that is, the SMEs operator to access credit or not from banks and non-banks given their characteristics. When there is a demand for credit from banks and non-bank financial institutions the SMEs' operator

<sup>1</sup>Means Micro, Small and Medium Enterprises from National Baseline Survey Report, December 2012, p. 23.

will choose to apply for the loan from these institutions depending on his/her perceived probability of obtaining the loan from either of the financial institutions. Formally, variables included are the characteristics of SMEs' operators and their businesses who seek capital for their investment operations in terms of loan from banks and non-banks. The financial institutions include; commercial banks, community banks, SIDO schemes, SACCOS, NGOs and informal groups or associations such as ROSCAs, family and friends, and money lenders (Table 1).

### Descriptive

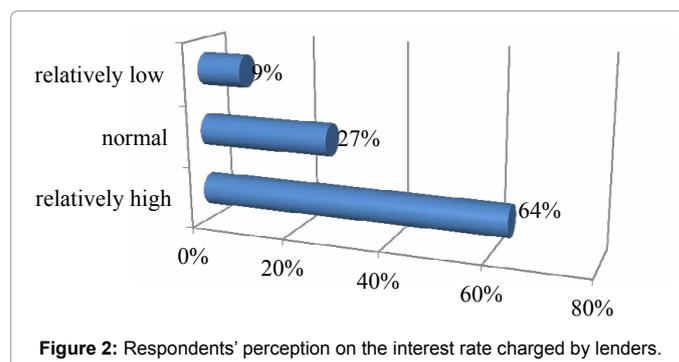
#### Challenges that lenders encounter when lending SMEs in the region

**I. Interest rate charges:** An average of 17% of interest rate was charged to the respondents who borrowed from banks and non-banks financial institutions. The minimum interest rate charged was 2% and 56% as maximum interest. The SMEs owners and managers perceived the interest rate as too high to them to the extent that it affected the gain from their businesses. Interest rate affected mostly small businesses, as for quite a long period they were obliged to repay the loans to rescue their collaterals they pledged for loan. After loan repayment some remain unable to run their business or remain stagnant even become bankrupt. The interest rates charged discouraged some of SMEs operators to opt for debt to finance their businesses. SMEs try to hedge risk in business which is associated with interest rate and business failures. The interest rate charged is a challenge to both demand side and supply side of credit in financial market. A mutual agreement is required between borrowers and lenders in financial market to enable borrowers to access credit with a fair charge of interest rate.

The study further investigated the perceptions of SMEs operators on the interest rate charged to them by lenders. Figure 2 shows the results where 64% rated the interest charge as "relatively high", 27% rated "normal" and 9% rated "relatively low".

Moreover, Figure 2 may imply that SMEs operators perceive the interest rate charges are high but because of limited capital to start or expand their businesses operations are forced by the situation to opt for loans to finance their businesses. Therefore, government and other stakeholders in SMEs should regulate the financial market through credit bureau to enable SMEs operators to access credit at low cost.

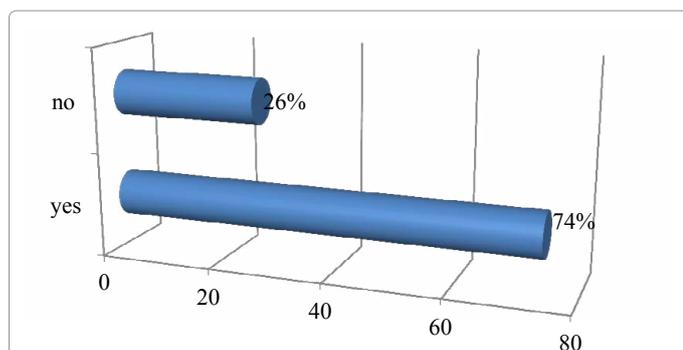
Furthermore, Ansah argues that from the SMEs' perspective there is a need for banks to improve their efficiency in terms of reduction of loan processing time and cost of borrowing (interest rate). This will improve access to bank credit by SMEs and promote their growth thereby stimulating economic diversifications, employment creation and increase household incomes.



Variables	Description	Mean	Std. Dev.	Min	Max
Age	Actual age of the respondent in years	40.44667	8.873346	21	68
Gender	Gender of respondent 1=Male 0=Female	0.7733333	0.4193747	0	1
Marital [5]	Marital status of the SMEs operators (owner or manager).	0.8333333	0.3733007	0	1
Educ	1 if is primary 0 if is secondary and above	0.37	0.483611	0	1
Exprnce	Actual years that the SMEs owner/manager has operated the business/firm	10.49333	7.744884	1	37
Captral	Initial capital for investment of the SMEs owner/manager.	4.42e+07	1.05e+08	200000	1.00e+09
Ownership	1 if the business/firm is individually owned; 0 otherwise	0.79	0.4079888	0	1
Size_firm	1 if is small; 0 if medium	0.9566667	0.2039466	0	1
Agebss_frm	Actual age of the business/firm	10.61333	7.552082	1	37
Bss_plan	Whether SMEs owner/manager had a formal business plan and was required for loan: 1 if yes; 0 no	0.7091837	0.4553019	0	1
Fn_statement	Whether SMEs owner/manager had financial statement (business records)and was required for loan: 1 if yes; 0 no	0.6	0.4907911	0	1
Actvty	Activity of the respondent	4.736667	0.9470897	1	6
Intr_rate	Interest rate charged by lenders to SMEs operators who seek loans.	17.45082	10.31564	2	56
Colteral	Tangible properties 1 if was required; 0 if was not required.	.7424893	.4382044	0	1

Source: Author's computation from the Survey data, 2015.

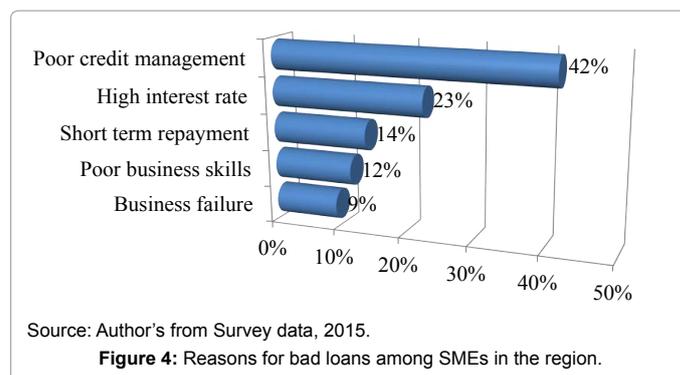
Table 1: Description and summary statistics of variables.



Source: Author's from Survey data, 2015.

Figure 3: Collateral requirement by lenders.

**II. Collateral requirement:** The results of collateral requirements by lenders are shown in Figure 3 below. Figure 3 shows that, almost three quarters or 74% of the respondents who applied for loan were required to pledge collateral for the loan they applied for and only 26% were not required so as they got group loan and some used guarantors to access loan. This implies that collateral is an important thing for loan disbursement to SMEs' borrowers. Collateral solves the information asymmetry problems in the evaluation of investment project, the worthiness of the project and risk that might be involved by a borrower as well as the cost related to supervision of borrower's characters. The plausible reason for lenders to require collateral before giving loans to borrowers is to avoid defaults. This is the challenge to borrowers especially those who do not have collateral as demand side, as well as the lenders as supply side. It is difficult for the lenders to disburse loan without pledging tangible property as collateral due to information gap between the borrowers and lenders that require collateral and contracts signing in order to abide by the agreement of paying back the loans for a specified period of time. In that regard Deakins *et al.* undertook a study on SME access to finance in Scotland and found that among other factors that hinder borrower's access to finance from banks, was collateral or security which accounted for 31% of SMEs applied for loans. SME sector faces difficulties to access external finances for their investment projects because of lack of assets to be pledged as collateral.



Source: Author's from Survey data, 2015.

Figure 4: Reasons for bad loans among SMEs in the region.

In that perspective SMEs fail to grow due to lack of collateral to pledge to access external sources of finance.

### Causes of bad loans among SMEs

SMEs in the region particularly loan beneficiaries are affected by several factors during loan repayment. Figure 4 presents the extent of each factor in terms of responses percentage.

Figure 4 shows that 42% of the respondents indicated poor credit management as the critical reason for bad loans among SMEs especially among Small Enterprises (SEs) in the region. SEs in the region failed to manage properly their credit due to the fact that most of them had low education and they lacked business skills to monitor the credit. The credit obtained is used for other activities instead of being used for starting or expansion of business and remains with limited finance for business.

23% of the respondents indicated that the interest rate affects loan repayment; it is too high that affects profit accumulation over time. Too high interest rate attracts risky borrowers<sup>2</sup> who substantially default. It is economical for lenders to charge a reasonable interest rate to attract good borrowers who will not default after taking the loans. Amao [23] in Nigeria concluded that, bad loans among borrowers were due to high interest rate charged by financial institutions.

<sup>2</sup>The situation is called adverse selection effect (Stiglitz et al. 1981).

Short time repayment was reported also as another reason for bad loans among SMEs in the region. This accounted for 14% of the respondents. This was the most common rated by medium SMEs operators who argued that, despite the normal interest rate charged by lenders to most of them, the possible reason for bad loans was the short period given by lenders. The time is very short to the extent that they fail to generate enough benefits from their business operations to start paying back the loans immediately.

Another reason for bad loans is poor business skills that accounted for 12% of the respondents. These were new in business and had not undergone satisfactory entrepreneurial training, seminars or workshops. The study further observed that some of people enter in business while financing their businesses through debt without observing the real situation of the market and because of limited skills they substantially fail to recover the loans.

Last rated reason was business failure which accounted for 9% of the respondents. Some of the respondents argued that bad loans were due to business failures because of competition in the market, wrong location of the business, lack of commitment in business and other unforeseen events such as illness or death of a person to manage or operate the business.

### Regression analysis

#### Regression diagnostic tests

**Specification test:** This test was conducted to test whether the model was correctly specified. The idea behind this is that if the model is correctly specified, one should not be able to find any other significant explanatory variable except by chance. Table 2 shows the test results for the logistic regression. We can see that *hatsq* is statistically insignificant implying that our model is correctly specified as the squared predictions have no much explanatory power.

Table 2 shows that our model is correctly specified since *\_hat* is statistically significant at 1% significance level as reflected by probability value of 0.000 while the variable *\_hatsq* is not statistically significant at all.

**Test of goodness of fit:** The Hosmer and Lameshow's goodness-of-fit statistics was used to test how the model fits the data. Ho: There is no difference between the observed and predicted values of the outcome variable. It was decided whether the model fits data well by checking the P-value. According to Bewick et al. [24], if the results of this test are insignificant, then we fail to reject the null hypothesis, implying that there is no difference between the observed and predicted values of the outcome variable and suggest that the selected model adequately describes the outcome of the study.

Table 3 shows that the p-value is insignificant hence we failed to reject the null hypothesis stated above. This supports our conclusion that the model correctly fits the data.

**Correlation test:** The variables used in the regression models were tested if are correlated, to observe for statistical independence between

	Coefficient.	Std. Err.	z	P>z	95%Conf. Interval
_hat	1.047459***	0.196163	5.34	0	0.662987 1.431931
_hatsq	-0.03427	0.051673	-0.66	0.507	-0.13555 0.067003
_cons	0.188605	0.520978	0.36	0.717	-0.83249 1.209703

Source: Author's computation from the survey data, 2015.

Notes: \*\*\*, \*\*, \*Represent significance at 1%, 5% and 10% respectively.

Table 2: Specification test results.

Logit model, goodness -of-fit test	
Number of observations	275
Number of groups	10
Hosmer-Lemeshow ch <sup>2</sup> [8]	7.08
Prob>ch <sup>2</sup>	0.5277

Source: Author's computation from the survey data, 2015.

Table 3: Results of test of goodness of fit.

them. Table 4 shows the correlation results between independent variables to be used in the regression.

Table 4 above shows the correlation between dependent and independent variables. The problem to be considered is the correlation between financial statement (*Fn\_statement*) and business plan (*Bss\_plan*) which have correlation coefficient of 0.92. Correlation coefficients for these variables are higher than 0.5 moderate level. It is necessary to omit business plan in the log<sub>it</sub> regression so as to avoid the problem of the multicollinearity between independent variables in the regression. The rule of thumb here is that if the pair-wise or zero-order correlation coefficient between two regression is high, say if is above 0.8, then multicollinearity is a serious problem [25]. Furthermore, Field [26] argues that multicollinearity is likely to be a problem in a data set if the correlation coefficient between predictors is greater than 0.90 ( $r > 0.90$ ) [27-30].

### Econometric estimation

**Logistic regression:** The dependent variable for the model is Credit. It was treated as a discrete variable that takes two values: 1 if the SMEs operator took loan and 0 if the SMEs operator took no loan. Of all the variables used in the model, three of them were significant in explaining the likelihood of being given loan from lenders. The rest of the variables provided some clues about their influence on the dependent variable by observing the sign for their odd ratios (coefficients) but their influences were not significant [30,31].

Since we have based our interpretation on the odd ratios of the explanatory variable, the interpretation will be the higher the odd ratio, the higher the likelihood of that group likely to be given loans from lenders compared to the other group of the categorical variables. Table 5 shows the regression results in details.

Theoretically, it is our expectations concerning the coefficients of the variables involved in this study such as age (*Age*), gender (*Gender*), education (*Educ*), experience (*Experience*), startup capital (*Stup\_capital*), ownership (*Ownership*), size of the firm/business (*Size\_firm*), age of the firm/business (*Age\_firm/business*), financial statement (*Fn\_statement*), marital status of SMEs operator (*marital5*) and activity (*Activity*) to carry positive signs. The data for the dependent and independent variables used in the regression analysis were collected from the primary data from field survey [32,33].

Age of the SMEs operator (*Age*) is statistically significant. The odd ratio for *Age* is less than 1 implying that for SMEs operators aged 18-35 are less likely to get loan for about 78% compared to the other category that aged 36 and above years. This may be attributed to the fact that youths are new in business, hence they lack enough experience and tangible assets that can be pledged to lenders as collateral. This argument is supported by Alexander who found that, age of business owner always render positive and statistically significant to influence credit access. However Alexander further noted that, the problem arises when several of these characteristics are included at the same time which may alter the results.

		1	2	3	4	5	6	7	8
1	Credit	1							
2	Activity	0.19	1						
3	Agefirm_bness	-0.04	-0.02	1					
4	Size_firm	-0.01	0.29	0.04	1				
5	Ownership	0.04	0.26	-0.01	0.27	1			
6	Stup_capital	-0.42	-0.29	0.1	-0.23	-0.45	1		
7	Experience	-0.08	0.01	0.59	0.02	-0.05	0.06	1	
8	Educ	-0.02	0.2	-0.06	0.12	0.24	-0.21	-0.11	1
9	Gender	-0.02	0.06	-0.21	-0.06	0.01	-0.06	-0.29	0.19
10	Age	-0.02	-0.16	0.24	0.04	-0.21	0.14	0.39	-0.22
11	Lnprofit [7]	-0.07	-0.43	0.07	-0.33	-0.61	0.68	0.05	-0.25
12	Fn_statement	0.9	0.12	-0.06	-0.01	0.02	-0.38	-0.11	-0.01
13	Marital [5]	0.1	0.15	-0.1	0.05	0.14	-0.18	-0.17	0.15
14	Bss_plan	0.85	0.12	-0.02	0.04	0.02	-0.35	-0.07	-0.06

		9	10	11	12	13	14
9	Gender	1					
10	Age	-0.24	1				
11	Lnprofit [7]	-0.08	0.18	1			
12	Fn_statement	0.02	0.01	0	1		
13	Marital [5]	0.38	-0.48	-0.17	0.08	1	
14	Bss_plan	0.02	0.04	0	0.92	0.05	1

Source: Author's computation from the survey data, 2015.

Table 4: Correlation results for the variables used in the regression model.

Variables	Odds Ratio	Std. Error	z	P>z	95% Conf. Interval	
Age	0.2202103**	0.1576949	-2.11	0.035	0.0541107	0.896173
Gender	0.365256	0.2441189	-1.51	0.132	0.0985591	1.353624
Educ	0.3432306	0.2285303	-1.61	0.108	0.093076	1.26571
Marital [5]	1.042287	0.7494971	0.06	0.954	0.2546233	4.26655
Experience	1.53018	1.11203	0.59	0.558	0.3682542	6.358249
Activity	2.760746	1.738374	1.61	0.107	0.8036112	9.484339
Fn_statement	421.6523***	331.6653	7.68	0	90.24272	1970.139
Agefirm_bness	1.658393	1.425105	0.59	0.556	0.3077691	8.936134
Size_firm	0.4022312	0.5198151	-0.7	0.481	0.031948	5.064171
Ownership	0.8182666	0.5311814	-0.31	0.757	0.2292628	2.920492
Stup_capital	0.0483002**	0.034467	-4.25	0	0.011927	0.1955986
constant	1.464926	2.19823	0.25	0.799	0.0773615	27.74
LR chi² [11]	254.66					
Pseudo R²	0.7001					
Observation (N)	275					

Source: Author's computation from the survey data, 2015.

Notes: \*\*\*, \*\*, \*Represent significance at 1%, 5% and 10% respectively.

Table 5: Results from logistic regression.

The coefficient of firm's financial statement (*Fn\_statement*) was positive and statistically significant and confirms expectations of our hypothesis. The odd ratio for financial statement is greater than one, hence from the Table 5 shows that firms which keeps records (financial statement) are about 65% more likely to get loans. This implies that access to credit by SMEs is positively related to their financial statements. Firms with financial statement and SMEs that keep their business record have a higher possibility to access loan than their equals. The same results from Kira who undertook a study in Tanzania concluded that there is a positive association between financial information and access to debt financing SMEs. Also Le undertook a study in Vietnam on what determines the access to credit by SMEs and concluded that audited firms especially young firm were very critical for credit access from banks.

The coefficient of firm's startup capital (*Stup\_capital*) was positive and statistically significant and confirms expectations of our hypothesis.

The odd ratio for startup capital from Table 5 is less than 1, hence the SMEs operators under this category are about 96% less likely to get loans. This may be due to the fact that SMEs operators with higher capitals are likely to be financed since they have equipment, real estate and other kinds of assets to pledge as collaterals compared to the group with less capital which are limited to access loans. This implies that access to debt financing is positively related to firm's startup capital. Firms with startup capital less than 20,000,000 million TZS have less likelihood of accessing loans compared to other group of SMEs groups that have higher startup capital in the region. This implies that most of lenders especially banks require that borrowers must have some% of startup capital that is allocated to finance the business operations or expansions intended. Similarly, Alexander undertook a study in Costa Rica on Access to Credit and the Effect of Credit Constraints on Costa Rican manufacturing firms. He found that banking credit in the initial development of the firm represents only 14% of the total startup capital

and there is no major difference between firms when they are grouped by age, employment or values.

## Policy Implications and Conclusion

The study revealed that banks, microfinance and other money lenders have enough liquidity; however, due to perceived risk on SMEs, lenders have put into place stringent conditions and high interest rate was being charged. Collateral is a decisive factor by lenders for loan approval to SMEs. The SMEs are obliged to pledge collaterals (houses, cars, plots, farms, house assets and business premises)<sup>3</sup>.

One of the respondents said that: “banks, microfinance and other money lenders do convince us to take loans from their respective institutions, but their requirements and conditions do discourage us taking loans. But even if you take the loan you will service the loan and not improve your business due to high interest rate they charge”(Respondent during interview, April 2014).

Given this situation the government should strategically intervene the financial market to regulate the conditions and requirement for loans by all potential lenders involved in financing SMEs. Collateral should now not be taken as the only most important decisive factor on credit demand by the lenders to finance SMEs operators in the city. The government can intervene in the financial market through establishing Credit bureau to assist SMEs to access credit easily. Also the government through BOT has a special department (SME-CGS)<sup>4</sup> dealing with SMEs credit schemes. This Scheme should build the capacity of offering credit especially to marginalized SMEs operators.

Entrepreneurial education or training is highly needed in order to impact SMEs operators with knowledge and skills to run their businesses with prosperity. Skill is needed in keeping business records, preparing sound business plan since these play a greater role during loan application, and establishing good premises for business operations that can act as collateral for loan approval.

## Limitations of the Study

The limitations of the study are on the data and methodology. The data lack a comprehensive survey of SMEs and financial institutions. Hence the data limited the study to conduct time series or panel analysis which would have given better results. Also endogeneity is a problem with primary data that likely to affect the results. Furthermore the study used log<sub>t</sub> model, where not all variables that could help explain credit access by SMEs were full exhausted. However these limitations do not invalidate the findings of this study.

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<sup>3</sup>Mentioned by respondents during data collecting session (questionnaires).

<sup>4</sup>SME-CGS is a Small and Medium Credit Guarantee Scheme. The Scheme is geared towards promoting and supporting SMEs by creating an enabling environment for expansion and facilitating access to financial resources, according to BOT- Credit Guarantee Scheme Department.

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