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SMEs' access to credit: The case for Zimbabwe (2009-2017)

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Abstract

This study examined these challenges faced by Zimbabwean Small to Medium Entreprises (SMEs) in accessing credit in the form of loans from providers of funding namely banks and Microfinance institutions and the effectiveness of government programs in addressing such challenges. The major objective was to quantify the impact of each and every challenge on access to credit such that appropriate recommendations can be drawn. A conceptual framework was established from the available empirical literature which formed the basis of the model that was established. An explanatory research design was adopted to explain the casual relationships between the variables. The study employed quantitative methods on secondary data sourced from ZAMFI and RBZ. Results from the regression analysis estimated by pooled ordinary least square in a log-linear model showed that collateral, Repayment Period and Required Amount are the major determinants of access to credit by SMEs in Zimbabwe and were therefore identified as the major challenges when accessing credit by SMEs in Zimbabwe. The study recommends that policy makers and management of SMEs should combat the various challenges highlighted herein.

KEY WORDS: Small to Medium Enterprises, credit, financial institutions

List of Abbreviations

GDP	-	Gross Domestic Product
IMF	-	International Monetary Fund
ICT	-	Information and Communication Technology
NPL	-	Nonperforming loan
RBZ	-	Reserve Bank of Zimbabwe
SADC	-	The Southern African Development Community
ZAMFI	-	Zimbabwe Association of Microfinance Institutions
ZIMASSET	-	Zimbabwe Agenda for Sustainable Socio Economic Transformation
ZimStat	-	Zimbabwe National Statistics Agency
R & D	-	Research and Development

1.0.Background to the study

SMEs are the lifeblood of most economies. To be successful in this and other business sectors, credit plays a major role. As far as SMEs are concerned as part of business enterprises, they need credit to start up, expand, and diversify and to use for their various working capital requirements. Without credit, no business enterprise (whether start up or matured) can achieve its set objectives. Both in the developing and developed world, small firms have been found to have less access to external credit and to be more constrained in their operation and growth (Galindo & Schiantarelli, 2003).

SMEs are viewed as a key driver of economic and social development in the African context. They represent a large number of businesses in a country, generate much wealth and employment and are widely considered to be vital to a country's competitiveness. SMEs are hailed for their pivotal role in promoting grassroots economic growth and equitable sustainable development (Pelham 2000). SMEs tend to be large in number, accounting for about 90 percent of all enterprises in many African countries and over 80 percent of new jobs in a given country (Reinecke, 2002).

Recognising the critical role small businesses play in the Zimbabwean economy, the government through the National Financial Inclusion Strategy envisages the accessibility of formal financial services (credit facilities included) by previously excluded entities like SMEs and other players in the economy. However, it is generally recognized that SMEs face unique challenges, which affect their growth and profitability and hence, diminish their ability to contribute effectively to sustainable development. The International Finance Corporation (IFC) (2011) has identified various challenges faced by SMEs including lack of innovative capacity, lack of managerial training and experience, inadequate education and skills, technological change, poor infrastructure, scanty market information and lack of access to credit.

SMEs contribute substantially to the Gross Domestic Product (GDP), export earnings and employment opportunities of many countries and have been widely acknowledged as the springboard for sustainable economic development (Osotimehin, Jegede, Akinlabi, & Olajide, 2012). Apart from that, they also contribute to the increase in per capita income and output, encourage the development of indigenous entrepreneurship, enhance regional economic balance through industrial dispersal and generally promote effective resource utilization that are considered to be critical in the area of engineering economic development (Oboh, 2004; Odeh, 2005).

Despite their significance, past statistics indicate that 3 out of 5 businesses fail within the first few months of operation and those that continue, 80 per cent fail before the fifth year (Kenya National Bureau of Statistics, 2007). This menace is attributed to poor financial management among small businesses (Harvie and Charoenrat 2015). Accessing credit is a major constraint to the development and growth of SMEs. This is mainly due to the behaviour of lenders in terms of hedging against borrowers' risks by demanding collateral, which they lack, and also information asymmetry. Consequently borrowers who are willing to pay prevailing credit interest rates cannot access the funds at those rates because lenders are unwilling to lend to them due to dearth of information about them and lack of collateralisable assets, severely constraining their access to credit. This behaviour is common amongst formal financial institutions. Evidence shows that such borrowers may then be forced to limit their investments to retained earnings (International Finance Corporation, 2000) thereby restricting enterprises growth and development.

A crucial element in the development of the SME sector is access to credit, particularly to bank credit, given the relative importance of the banking sector in serving this segment. Firm-level data collected by the World Bank show that access to credit is perceived as one of the main obstacles to doing business. A number of studies have shown that access to credit is a greater obstacle for SMEs than it is for large firms, particularly in the developing world, and that access to credit adversely affect the growth of the SME sector more than that of large companies (Schiffer, &Weder, 2001; Beck, T., Demirgüç-Kunt, &Maksimovic, 2005). It is, therefore, unsurprising that the international development community has listed small and micro enterprises (SMEs) access to credit as an important policy priority.

African SMEs have little access to credit, which thus hampers their emergence and eventual growth. Their main sources of capital are their retained earnings and informal savings and loan associations, which are unpredictable, not very secure and have little scope for risk sharing because of their regional or sectoral focus. Access to formal credit is poor because of the high risk of default among SMEs and due to inadequate financial facilities. Small businesses in Africa (Zimbabwe included) can rarely meet the conditions set by financial institutions, which see SMEs as a risk because of poor guarantees and lack of information about their ability to repay loans.

The financial system in most African countries is under-developed and provides for very few financial instruments. Capital markets are in their infancy, shareholding is rare and limited long-term financing is available for SMEs in the generality. Non-bank financial intermediaries, such as microcredit institutions, could be a big close gap in lending money to the smallest SMEs but they do not have the resources to follow up their customers when they expand (Kauffmann, 2005).

In recognition of the enormous potential roles of SMEs in economic development, measures and programmes have been designed and policies enunciated and executed by governments to encourage their development and to make them more vibrant yet the challenge of access to credit has remained the major detriment factor to the success of SMES, though somewhat addressed. One of such programmes is the Zimbabwe National Financial Inclusion 2016-2020 which seeks to improve SME access to formal financial services, financial literacy, financial innovation, financial consumer protection as well as microfinance. Another one of the programs is the availing of various empowerment schemes earmarked for improving the capacity operation of SMEs in Zimbabwe. These are detailed as follows:

- SME facility
- Tourism Support facility
- Gold Support Facility
- Women Empowerment Facility
- Youth Facility
- Horticulture Support Facility
- Cross border Trader Facility
- Disability Fund

1.1.Statement of the problem

The SMEs in Zimbabwe have not performed creditably well and hence have not played expected vital and vibrant role in the economic growth and development of Zimbabwe. This situation has been of great concern to the government, citizenry and the organized private sector groups of all time. The government through its budget allocations, policies and pronouncements have signified interest and acknowledgement of the crucial role of the SMEs, sub-sectors of the economy and hence made policies for energizing the same. SMEs have unique issues, which affect their growth and profitability and hence, diminish their

ability to contribute effectively to sustainable development of the economy. Among those issues is inadequate access to credit facilities. The study sought to establish the challenges faced by SMEs in accessing credit facilities in Zimbabwe. The specific objectives were to drill down to finer obstacles cited by SMEs as well as determine how effective national programs have been in addressing the highlighted challenges.

1.2.Research Objectives

The study aimed to attain the following primary objective and two secondary objectives as follows:

Primary Objective

- To identify the challenges faced by SMEs in accessing financial credit and to determine whether the responsive measures taken by government have been successful in addressing SME challenges or not.

Secondary Objectives

- To determine whether SME credit plays a crucial role in the growth and development of an economy
- To determine whether SMEs have historically performed according to expectation in terms of positive contribution to the economy

2.0 Research Methodology

A positivism philosophy was adopted in this study as the main objective of the study was to evaluate quantitatively the impact of the identified challenges faced by SMEs in accessing credit in Zimbabwe. Positivism philosophy is linked to natural sciences and involves empirical testing which is also the aim of the study. The study had its prime focus on establishing causes and effects of determinants of SMEs access to credit in Zimbabwe hence an explanatory research design was adopted for this study. Quantitative methods were used to analyse quantitative secondary data. The use of quantitative data is objective because it eliminates bias which arises from the use of judgments when a qualitative approach is employed. The study made use of 110 registered SMEs with Zimbabwe Association of Microfinance Institutions (ZAMFI) that were operational in Zimbabwe for the period 2009 to 2017.

The survey method was chosen as it allows the researcher to deeply evaluate historical and contemporary phenomenon. The research is based on all commercial SMEs in Zimbabwe. The study made use of a pooled regression technique in estimating the regression equation. The model was specified as follows:

$$Ln\ (Loans)\ (t)) = \hat{\alpha}\ it + \beta_0 it\ ln\ (amount)\ it + \beta_1 it\ ln\ (interest\ rate)\ it + \beta 2\ it\ ln\ (repayment\ period)\ it + \beta 3\ it\ ln\ (collateral) + \beta 4\ it\ ln\ (size) + \beta 5 ownership + e\ it$$

Where:

Loans	Loans disbursed to SMEs
Amount	Loan amount required by the SME on loan application
Interest rate	Interest rate offered by the lender
Repayment period	Total period required to repay the loan
Collateral	Value of security or guarantee required as collateral
Size	The size of the SME, measured by number of employees
Ownership	Whether the business is male or female owned

Justification of Variables

The study involved the selection of key variables that affect SMEs access to credit in the

multiple currency environments and the selection of these variables was influenced by previous studies done on SMEs access to credit in other developing countries. The variables included measure the contribution of availability of collateral, interest rates, required loan amount, size of the SME, repayment period and ownership on access to credit.

Dependent Variable

Loans

Loans are generally the absolute value of credit offered to clients. Loans disbursed to SMEs were used as the dependent variable. Studies by Grenade (2007) suggest that an increase in loans to SMEs is a true reflection of easy accessibility of credit to this segment. However, Grenade (2007) further pointed out that sometimes government intervention may cause a rapid growth in the loans to SMEs.

Independent Variables

The set of independent variables comprise of availability of collateral, interest rates, required loan amount, size of the SME, repayment period and ownership.

Collateral

Historical development and the associated culture, of the financial system underpin the problem of the emphasis on the provision of collateral as a primary condition in lending. Lending institutions have always adopted a risk adverse stance towards small firms, with an accompanying inability to focus on the income generating potential of the venture, when analysing the likelihood of loan repayment (Beaver, 2002). Credit constraints can occur when lenders increase collaterals for loans. As a result, low interest borrowers (including SMEs) may be removed from the list of potential customers and lenders may skip these customers (Stiglitz& Weiss, 1981).

Gangata &Matavire, (2013) in their study on challenges facing MSEs in accessing finance from financial institutions, found out that very few MSEs succeed in accessing funding from financial institutions, the main reason being failure to meet lending requirements, chief among them being provision of collateral security. As such, this study used collateral as one of the explanatory variables on access to credit by SMEs.

Interest Rate

Interest rate in this study measures the cost of credit. It refers to the amount of money the entrepreneurs pay in process of borrowing money from financial institutions. It includes processing fees, negotiation fees, interest rates, personal insurance, legal fees and travelling expenses that the entrepreneurs meet in the process of acquiring credit. Hallberg, (2002) singled out high risks associated in lending SMEs and fixed costs associated in acquiring sound information about the borrower by financial institutions as the major driving force to the high cost of credit.

High transaction costs do therefore not only increase the cost of borrowing, but can also restrict access to external finance for some borrower groups. While transaction costs are restraining for all borrowers, there are arguments that they are even more constraining for small and micro enterprises. Their diverse characteristics and their relative opaqueness increases assessment and monitoring costs. Unlike other credit categories, such as consumer credit or mortgage lending, SME lending is still considered a high-cost lending product. More specifically, unlike other lending products that can be reduced to simple transactions, SME lending often still depends heavily on relationships between borrowers and lenders (Berger &Udell, 2006).

Size of the SME

It is a measure of the possibility of the SME to enjoy economies of large scale operations. SMEs that have greater scope for economies of scale incur lower costs of operations which entail greater financial flexibility. With financial flexibility it would be easy to penetrate markets, absorb risk and can give them power to access credit. A positive relationship is therefore expected between SME size and access to credit.

Repayment Period

Most borrowers prefer loans with longer repayment period (Muntaga 2012). Repayment period has an implication to amount that can be accessed by borrowers. Repayment period as such has been included as an explanatory variable in this study.

Ownership

Ownership which is either male or female owned was included to check whether there are any differences in access to credit among SMEs owned by people of different genders. Females are generally considered as more cautious and robust in terms of their risk models and credit appetite.

3.0 Data Types and Sources

The study utilized data obtained from year-end reports found at ZAMFI and RBZ. The study covers the period from February 2009 to December 2017. The study was restricted to this period because of significant differences in operating environments brought by use of different currency regimes prior to 2009 and the availability of latest data for investigation.

Data Analysis

The study adopted the use of pooled ordinary least squares in estimation. This method does not consider the differences between the individuals across the time period hence it can be taken as an ordinary least squares technique. The study pooled observations from 110 SMEs for the period 2009 to 2017. Although the method is criticized for failure to account for heterogeneity between individual SMEs, the researcher assumed that the method would produce unbiased and consistent estimates.

Diagnostic Tests

Estimation using ordinary least squares methods is based on a set of assumptions. Violation of the laid down assumptions results in estimates that are biased and inconsistent. This study conducted diagnostic tests that were aimed at detecting situations where the assumptions have been violated to produce robust regression results.

Multi collinearity tests

Multi collinearity exists if the explanatory variables are highly correlated with each other. These strong interrelationships make it difficult to disentangle the individual effects of independent variables on the dependent variable. The correlation matrix was used to detect the presence of severe multi collinearity where a zero order correlation coefficient is high if it is in excess of 0.8.

Panel Unit Root Tests

A number of time series show a trend overtime implying that they do not conform to the specifications of weak stationery. If estimates are made using non-stationery series spurious regression estimates will be obtained whereby the coefficients look statistically significant while in actual fact a relationship does not exist. It has been found out that panel-based unit roots are comprehensive than unit root tests based on individual time series. The study will make use of the panel based Fisher-Augmented Dickey Fuller test which is based on a null of the presence of a unit root.

Cointegration Test

Cointegration is used to test for the existence of a long-run equilibrium relationship between the variables. The test is conducted by running a unit root test on the error term. If the variables are cointegrated, that is the error term is stationary, it means that there is a long run relationship between the variables and that the model is rendered fit for prediction. The study will conduct the test to establish the nature of the relationships between the variables in the long run.

Heteroscedasticity and Model Specification Test

Whites' test can be used to test for both the presence of heteroscedasticity and to check for model misspecification. The test is conducted under the null of homoscedasticity in the residuals, no omitted variables and that the linear model is correctly specified. The null assumes that the errors are homoskedastic and independent of the regressors and that the model is correctly specified hence it is applicable as a test for heteroscedasticity and model specification.

4.0 Findings

Introduction

This section of the paper presents the results of the study which are based on secondary data obtained from ZAMFI and RBZ on borrowed SMES in Zimbabwe over the period 2009 to 2017. Panel data regression analysis was used so as to determine the impact of the identified factors on access to credit by SMEs. In this chapter, descriptive and regression analysis results will be presented as well as a discussion of the findings made.

Descriptive Statistics

The tables below shows the descriptive statistics of the variables used.

Table 4-1: Descriptive Statistics

	Loans (US$)	Collateral (US$)	Required Amount (US$)	Repayment Period (Years)	Interest Rate (%)	Size
Mean	15,459.37	42,560.4	64,095.1	2.586	298.720	14.00000
Median	5,157.00	6,461.0	3,410.0	2.215	201.387	13.00000
Maximum	95,982.00	252,596.0	490,875.0	10.000	381.127	52.00000
Minimum	103.00	400.0	1,902.0	0.167	167.025	1.00000
Std. Dev.	21,298.02	274,557.5	187,187.8	609.2	3,690.36	7,644.57
Skewness	1.892999	2.921548	2.572484	2.695611	2.675781	3.158910
Kurtosis	6.164572	12.97564	9.946096	11.47935	10.55419	14.15406
Jarque-Bera	106.5238	584.7410	326.8953	441.7201	374.9594	718.9346
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Observations	105	105	105	105	105	105

Source: Researchers data

From the descriptive results from Table 4-1, all variables have high standard deviations for the period of study suggesting that the variability of their values was high over time. These variables are however expected to have high variability as there is no uniformity in Zimbabwe's SMEs and lenders. Another factor could be that these SMEs and lenders were also adjusting differently from the structural shifts of the economy.

The Jarque-Bera results suggest that all variables are statistically significantly different from a normal distribution model. However, the normality distribution assumption though necessary may be ignored as it is just for convenience. The estimators will still remain unbiased and efficient. A correlation analysis was done and the results are discussed in the next section.

Diagnostic Tests

The researchers conducted diagnostic tests to guard against the possibility of obtaining and interpreting spurious regression results. The results of the tests are presented in the tables that follow.

Multi collinearity Test Results

The results of the multi collinearity test are presented in Table 4-2 below. The results showed that the problem of multi collinearity did not exist because all the correlation coefficients were within the recommended range of no multi collinearity which is -0.8 to 0.8. Hence all the variables were retained for use in estimations.

Table 4-2: Correlation Matrix

	Loans	Collateral	R_Amount	R_Period	Interest_Rate	Size
Loans	1.000000	0.565408	0.611696	0.572246	-0.667868	0.686684
Collateral	0.565408	1.000000	0.444455	0.336508	0.227156	0.113731
R_Amount	0.611696	0.444455	1.000000	0.336671	0.225334	0.117385
R_Period	0.572246	0.336508	0.336671	1.000000	0.055073	0.091186
Interest_Rate	0.667868	0.227156	0.225334	0.055073	1.000000	0.059914
Size	0.686684	0.113731	0.117385	0.091186	0.059914	1.000000

Source: Researchers

Table 4-2 also shows that the dependent variable Loans is positively correlated to all independent variables except interest rate. All coefficients are greater than 0.5 implying that the relationship is strong. This implies that an increase in collateral, required amount, size of the SME, and Repayment Period will result in increase in loans to SMEs whilst increase in interest rates has a reducing effect. This is consistent with assumptions made in Chapter 3 about the expected signs of the variables.

The variance inflation factors (VIF) was done and the results are presented in table 4-3 below.

Table 4-3: Variance Inflation Factors

Variable	VIF	1/VIF(Tolerance)
Loans	1.84	0.542937
Collateral	1.71	0.584794
R_Amount	1.58	0.632050
R_Period	1.51	0.660930
Interest_Rate	1.46	0.686811
Mean VIF	1.52	

Source: Researchers

Multi collinearity between explanatory variables may result wrong sign in the estimated coefficients and bias the standard errors of coefficients. To overcome this problem, VIF test was conducted. That means, the larger the value of VIF indicates the more collinearity of the variables with each other. According to the rule of thumb, if VIF of a variable exceeds 10, the variable is said to be highly collinea. The results are shown in Table 4-3.

Based on the results, there is no multi collinearity problem in this study. This is due to the fact that the mean of VIF of variables is 1.52 which is much lower than the threshold of 10. Furthermore, the VIF for each variable is also very low. This indicates that the explanatory variables included in the model were not correlated with each other. This means that the explanatory variables are the basic influence of SMEs' access to credit in Zimbabwe. This of course enhances the reliability of regression analysis. However, to reach such conclusion, this has to be supported by regression result after the appropriate model is applied as discussed in the upcoming sections.

Panel Unit Root Tests

The study made use of the panel based Augmented Dickey Fuller (ADF) test to test for the presence of unit roots. The test was done at 5% significance level and the hypothesis of the test is stated as follows:

H_0: unit root

H_1: no unit root

Table 4-4: Unit Root Test Results

Variable	ADF Statistic	Z-statistic	P-value	Order of integration
Collateral	42.7493	-2.61374	0.0051	I(0)
R_Amount	44.1087	-2.60306	0.0046	I(0)
R_Period	41.1087	-2.32799	0.0139	I(0)
Interest_Rate	104.8	-7.5876	0.0000	I(0)
Size	79.2472	-2.96047	0.0000	I(0)
Loans	13.728	-9.14863	0.0000	I(0)
RESIDUAL	39.6010	-2.47427	0.0067	I(0)

Source:
Researcher

Table 4-4 which shows unit root testing results shows that all the variables are stationary at the level. The problems of unit roots did not exist in the data. Stationarity using the ADF test occurs when the z-statistic value is greater than the critical value at the chosen significance level.

Cointegration Tests Results

Results in table 4.3 show that the residuals are stationary at the level. This implies that there is cointegration between the variables. When cointegration exists, then there is a long run relationship between the variables under study. Thus the forecasts values obtained using the model are statistically and economically reliable to predict the long run equilibrium.

Heteroscedasticity Test Results

The Whites' test was used to check for the presence of heteroscedasticity in the residuals. The test can also be used to test for model misspecification since it is conducted under the null of homoskedastic errors and that the model is correctly specified. A significant test statistic shows the failure of any one of the assumptions:

H_0: homoscedasticity, no omitted variables, linear model correctly specified

H_1: heteroscedasticity, omitted variables, linear model incorrectly specified

Table 4-5: Heteroscedasticity Test Results

White Heteroskedasticity Test:

F-statistic	1.580401	Probability	0.117419
Obs*R-squared	16.53642	Probability	0.122356

Test Equation:
Dependent Variable: RESID^2
Method: Least Squares
Date: 07/26/18 Time: 12:09
Sample: 1 105
Included observations: 105

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-177.4032	59.21339	-2.995998	0.0035
SIZE	-3.728218	7.838768	-0.475613	0.6355
SIZE^2	0.099082	0.210808	0.470007	0.6395
R_AMOUNT	-2.920236	3.899180	-0.748936	0.4558
R_AMOUNT ^2	0.068457	0.108962	0.628270	0.5314
INTEREST_RATE	24.44432	10.31392	2.370032	0.0199
INTEREST_RATE ^2	-0.631690	0.269457	-2.344311	0.0212
R_PERIOD	0.299939	1.387753	0.216133	0.8294
R_PERIOD ^2	-0.004835	0.050360	-0.096010	0.9237
COLLETARAL	0.784390	2.919068	0.268712	0.7887
COLLETARAL ^2	-0.028923	0.096423	-0.299959	0.7649
OWNERSHIP	-0.487390	0.474074	-1.028087	0.3066
R-squared	0.157490	Mean dependent var		1.335596
Adjusted R-squared	0.057838	S.D. dependent var		1.662556
S.E. of regression	1.613761	Akaike info criterion		3.902222
Sum squared resid	242.1928	Schwarz criterion		4.205532
Log likelihood	-192.8667	F-statistic		1.580401
Durbin-Watson stat	1.763728	Prob(F-statistic)		0.117419

Table 4-5 shows an observed R squared = 16.53 with probability = 0.122. The test statistic is not significant hence the model is free from heteroscedasticity. The linear model is also correctly specified.

Regression Analysis

The general to specific approach was used, eliminating all insignificant variables to come up with the final results. All variables were first transformed to their natural logarithms since the model is in natural logarithm form.

MODEL

The model is of the form below:

$$Ln\ (Loans)\ (t)) = \hat{\alpha}\ it + \beta_0 it\ ln\ (R\_amount)\ it + ß_1 it\ ln\ (Interest\_Rate)\ it + ß2\ it\ ln(R\_period)\ it + ß3\ it\ ln(collateral) + ß4\ it\ ln(size) + ß5 ownership + \epsilon\ it$$

Where:

Loans	Loans disbursed to SMEs
R_Amount	Loan amount required by the SME on loan application
Interest_rate	Interest rate offered by the lender including processing fees
R_period	Total period required to repay the loan
Collateral	Value of security or guarantee required as collateral
Size	The size of the SME, measured by number of employees
Ownership	Whether the business is male or female owned

Table 4-6: Model 1 Regression Results

Dependent Variable: LOAN
Method: Least Squares
Date: 07/26/18 Time: 11:44
Sample: 1 105
Included observations: 105

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-17.65406	3.688734	-4.785940	0.0000
SIZE	0.133264	0.298963	0.445754	0.6569
R_AMOUNT	0.496523	0.199640	2.487084	0.0148
COLLATERAL	0.980156	0.315726	3.104451	0.0026
INTEREST_RATE	-0.339079	0.217682	-1.557680	0.1230
R_PERIOD	0.438281	0.132312	3.312490	0.0014
OWNERSHIP	0.209459	0.547414	0.382633	0.7029

R-squared	0.713266	Mean dependent var	15.48571
Adjusted R-squared	0.649173	S.D. dependent var	1.635627
S.E. of regression	0.968793	Akaike info criterion	2.944111
Sum squared resid	79.77756	Schwarz criterion	3.449628
Log likelihood	-134.5658	F-statistic	11.12853
Durbin-Watson stat	1.934448	Prob(F-statistic)	0.000000

Ownership: Dummy variable: Ownership =1 when female 0 when male owned

Source: Researchers

The table above summarises the regression results. R-squared value at 71.3% and Adjusted R-squared value of 64.9% indicates the amount of variance in the dependent variable (Loans) explained by all explanatory variables, required amount, repayment period, collateral, size, interest rate and ownership. The R-square values indicate that the model is a good fit. The Durbin-Watson stat at 1.73 which is less than 2 indicates that the residuals are not serially correlated.

Using the individual t-test, required amount, collateral and repayment period are all statistically significant at 5% level whilst size, interest rate and ownership are not statistically significant. Using the statistics in Table 4-6 to fit in the model specified in chapter three, the following regression model was established:

$$\text{Ln(Loans)} = -17.65+0.50\ln(\text{Required Amount}) + 0.98\ln(\text{Collateral}) + 0.44\ln(\text{Repayment period})$$
$$R^2 = 0.713266$$

The table and model above shows the outcome of the regression of access to credit measured by loans to SMEs using panel data techniques and the interpretations of each statistic is discussed below.

Interpretation of R^2

An R^2 coefficient of 0.713266 obtained from the estimated model means that 71.3% variation of the independent variables used to estimate the model was able to explain variation in the dependent variable. The result makes sense because there are other factors such as managerial input and macro-economic factors that were not included in the model but could help in access to credit. These factors were accounted for the in remaining 28.7%.

Interpretation of the Adjusted R^2

The adjusted R^2 measures the proportion of the dependent variable that explains the independent variables. An adjusted R^2 of 0.649173, shows that roughly 64.9% of the dependent variable variation was able to be explained by the independent variables which make it a good model.

Interpretation of the F-statistic
The F-statistics tests the fitness of the model and a recommended F-statistics should be greater than 5 for it to be considered fit. The study obtained an F-statistic of 11.12853 which is greater than 5 hence the model was fit for estimation.

Interpretation of the Dubin Watson Statistic
The Durbin Watson test is used to check for the autocorrelation assumptions that imply zero covariance of error terms over time. That means errors associated with one observation are uncorrelated with the errors of any other observation. If the Durbin Watson computed is nearest to 2, it is assumed that there is no autocorrelation problem. Thus, as shown in Table 4-6 the computed Durbin Watson in this study was 1.93 which is nearest to 2 implying the absence of autocorrelation problem. Thus, this implies that error terms are not correlated with one another for different observations in this study.

Discussion of Research Findings
From the study, the model is as follows:

$$\ln(\text{Loans}) = -17.65 + 0.50\ln(\text{Required Amount}) + 0.98\ln(\text{Collateral}) + 0.44\ln(\text{Repayment period})$$
$$R^2 = 0.713266$$

From the model, the impact of each and every variable on loans is inelastic as all coefficients are less than one. However, collateral has the greatest impact. A percentage increase in available collateral will result in 98% increase in loans to disburse to SMEs. It is followed by Required Amount (β=0.5) implying that a percentage increase in required amount by SMEs results in 50% increase in loans disbursed to them. Repayment period has the least impact but with an important implication. If a repayment period increases by 1%, access to credit by SMEs will increase by 44%. The opposite is true for both variables.

Based on previous studies and the finding of this study, this section discussed the general result obtained via pooled regression analysis. Referring the literature, the result of each explanatory variable including their impact on access to credit was discussed. Thus, result of the finding was discussed in relation to the previous empirical and theoretical evidences.

Access to credit by SMEs in Zimbabwe
Taking into consideration the basic aim of this study, which was to examine access to credit by SMEs in Zimbabwe, major variables or challenges were indentified from literature and their quantitative impact was assessed using regression. The estimation results of the pooled regression model that presents the impact of explanatory variables on access to credit as measured by loans to SMEs were discussed as follows:

SME Size
The results indicate that the size of an SME as measured by number of employees is a statistically insignificant determinant of access to credit and have been discarded from the model. This result is in contrast to the findings of Green (2003) who argued that financial institutions tend to impute a high risk to small enterprises and are therefore reluctant to extend credit to them. Due to their small size and inherent vulnerability to market fluctuations, the mortality rates of small enterprises are relatively high. These firms are, by their very nature, often relatively young and consequently lack a financial history and a track-record of profitable projects. In addition, organization and administrative deficiencies, lower quality management and a lack of appropriate accounting systems may compromise the accessibility and reliability of information from small firms on their repayment capacity. This implies that those SMEs that are orderly and are relatively big in size have higher chances of

accessing credit.

SMEs size is a measure of the possibility of the SME to enjoy economies of large scale operations. SMEs that have greater scope for economies of scale incur lower costs of operations which entail greater financial flexibility. With financial flexibility it would be easy to penetrate markets, absorb risk and can give them power to access credit. The positive relationship established in this study however, conform to the assumptions that were made in Chapter 3. Although insignificant, the results confirm the notion that the larger the SME the easier the access to credit.

According to the Observatory of European SMEs (2003:23), 60% of the SMEs in Europe regularly provide this type of information. The report further indicates that there is a positive correlation between the size of the enterprise and the information provided to banks. It further indicates that 70% of the SMEs without credit lines do not share financial information with the bank. The situation is even worse in the lesser developed countries where the level of literacy is dismally low. However, provision of information to the bank may be a necessity for creating a rating culture among SMEs for purposes of accessing external finance. The findings of this study have confirmed this.

Collateral

Matavire et al., (2013), in their study on challenges facing SMEs in accessing finance from financial institutions: The case of Belaway, Zimbabwe found out that SMEs fail to secure loans because of restrictive requirements of the financial institutions, top among them being collateral security. This study quantitatively tested the impact of collateral on access to credit and the results confirm the findings of Matavire et al., (2013). The regression result is consistent with the hypothesis developed in this study. The study hypothesized that there is a positive association between collateral and access to credit by SMEs. The results indicate that a 1% increase in collateral, will lead to a 98% increase in loans disbursed. Among the variables examined, collateral has the greatest impact. Makena, et al., (2014), in their study on challenges facing women entrepreneurs in accessing business finance in Kenya: Case of Ruiru Township, Kiambu County, lack of collateral was one of the objectives. The study, just like this study also found out that lack of collateral was a greater hindrance to credit accessibility by women entrepreneurs. This is due to lack of tangible assets like land, which are used as assets to secure credits.

The results stress the role of collateral in accessing credit. Very few MSEs succeed in accessing funding from financial institutions, the main reason being failure to meet lending requirements, chief among them being provision of collateral security. As such, this study used collateral as one of the explanatory variables on access to credit by SMEs and established the same.

Required Amount

This variable was used as an approximate measure of the demand of loans by SMEs. A 1% increase in required amounts was found to increase credit disbursed to SMEs by 50% in this study. The relationship was found to be positive and consistent with the researcher's hypothesis. The finding of this study confirms the finding of Joseph (2011), Saba et al. (2012), Ahmad and Bashir (2013), Hyun and Zhang (2012) and Ali and Eva (2013) that argues positive effect of demand for loans and the actual disbursement. Unlike the findings of Ranjan and Chandra (2003) and Farhan et al. (2012), Louzis et al. (2010), Sakiru et al. (2011), Tomak (2012), Konfi (2012), and Daniel and Wandera (2013) who found a negative relationship as they argued that an increase in amounts needed will result in increased interest rates and more constraints by lenders, thereby resulting in increased challenges in accessing

loans.

5.0 Conclusions and Recommendations

5.1 Conclusions

Based on the findings above, the study draws the following conclusions.

- SME size, Interest rates and SME ownership have no significant impact on their access to credit in Zimbabwe.
- Collateral has the greatest significant impact on access to credit by SMEs in Zimbabwe. The availability and the amount of collateral determine the size of the loan disbursed. To this regard, the researcher also concludes that lenders puts collateral as a priority as they consider lending to SMEs as risky.
- Required amount has an impact on access to credit. This is because it is the source of demand for loans and therefore drives the propensity to acquire loans.
- Repayment period has a significant impact to access to credit in Zimbabwe. The higher the repayment period, the higher the access to credit and size of the loans provided.

5.3 Recommendations

From the study the researchers make the following policy and managerial recommendations:

5.3.1 Policy Recommendations

Collateral

Collateral was found to be top priority among lenders and therefore policy makers are recommended to either provide guarantees to support lending to SMEs or come up with models that make lending institutions lenient on collateral requirements. Government should play its role of enabling SMEs to obtain finance from financial institutions. Most SMEs lack tangible assets like land, which are used as assets to secure credits. It is therefore important for the government to play its role of enabling SMEs to obtain finance from financial institutions. Policies like the movable property registration are therefore important to increase forms of security. It is worth noting that this recommendation is already work in progress in Zimbabwe and hence full assessment of results was not possible at the time of this study.

Repayment Period

Longer dated debt is required by most SMEs as found in the study. Policy makers should therefore ensure that there are longer term credit facilities in the market. Setting up lending institutions that entirely focus on SMEs will therefore assist in availing the right products and understanding the behaviour of these SMEs.

Interest Rate Controls

Although interest rates were found to be insignificant in terms of their impact, the negative sign implied a negative trade off. Policy makers are therefore recommended to put policies that drive lending rates down. Interest rate controls may help improve the operability of the lending market.

5.3.2 Managerial Recommendations

In order to improve access to credit of SMEs in Zimbabwe, it is strongly recommended that management of SMEs should always give a serious attention to the health of their assets and how they are running their businesses. Keeping their records including borrowing records is therefore important. Thus emphasis should be put on strengthening management skills.

Management of lending institutions on the other hand should come up with products for SMEs where collateral requirements are lenient and longer dated. Management of credit giving institutions should also consider lowering their interest rates as a way of encouraging SMEs to borrow from them.

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