Analyzing the Impact of Microfinance Banks Credit Variables on Micro, Small Enterprises Growth Indicators in South-West, Nigeria

Obadeyi J.A¹ Ogbeide Sunday¹ Adesuyi I.O²
1. Department of Accounting & Finance, Elizade University, Ilara-Mokin, Ondo State
2. Department of Business Administration, Elizade University, Ilara-Mokin, Ondo State

Abstract
Despite several reforms both in the banking and informal sectors; it is sad that there have been dwindling development in both sectors. In view of this, this study analyzed the impact of Microfinance Banks (MFBs) credit variables on Micro Small Enterprises (MSEs) growth indicators in South-West, Nigeria. Sampled MFBs, MSEs and some South-West States were purposively selected. Secondary data was extracted from financial statements of eight selected MFBs from 2007-2016 (10years). Relationship between MFBs variables and MSEs’ growth was analyzed using Correlation matrix, while extent at which MFBs variables influenced MSEs growth was analyzed using panel regression. Results showed the relationship between MFBs credit variables and MSEs’ growth with an average ‘r’ at 68.56% (p<0.05); and the extent at which MFBs credit variables influenced MSEs growth (p<0.05) such as profit, total asset, number of employee growth and sales with R² were 61.4%, 58.3%, 48.1% and 52.1%, respectively. The study concluded that MFBs credit variables influenced MSEs growth. It was recommended that MFBs should moderately increase loan size in order to improve MSEs’ business operations.

Keywords: Microfinance Banks, Micro Small Enterprises, Credit Variables, Growth indicators, South-West, Nigeria
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1. Introduction
Evidence from the literatures showed that microfinance bank was a financial institution closest to the grassroots and the equity was 100 percent private sector owned (Schreiner, 2002; Acha, 2007; Oladejo, 2013). The concept of microfinance banking was a self-sustaining financial institution designed for the provision of financial services to the people for the promotion of rural development (Acha, 2007). Microcredit remained a tool that enhanced economic development to the poor in the society and regarded as an important strategy used to reduce poverty among many countries across the globe. Microcredit involved an ‘extremely small credit given to alleviate people in pain to help them become self-employed (Besley, 2008; Akande, 2014).

In recent years, economies of the world have a great support for Micro and Small Enterprises (MSEs) which had exponentially led to economic development. This was because of the contribution of MSEs to the employment creation. MSEs contributed to the provision of employment opportunities (Bwisa & Wanambisi 2013; Akande, 2014; Obadeyi, 2015. MSEs held the key to possible revival of economic growth and the elimination of poverty on a sustainable basis. Despite the substantial role of the MSEs particularly in Nigeria’s economy, MSEs were denied financial support, particularly micro loans from institutionalized financial service organizations, which were responsible for the provision of funds. The MFBs were regarded as the best alternative source of financing low income earners and mini business to help raise income and the ability to reduce poverty level in the economy (Muktar, 2009). The Microfinance Institutions (MFIs) have succeeded in providing opportunities; managing scarce household and enterprises resources more efficiently, protection against financial risks by taking advantages of investment opportunities and gaining economic returns (Okpara, 2010; Taiwo, Onasanya, Agwu & Benson, 2015; Shabbir, 2016). The number of Microfinance Institutions (MFIs) serving the informal sector was at increase because at least 133 million clients had been served by averagely 3300 MFIs globally which stood at 26% during 2005-2007 financial periods (MIX, 2009). Though, the evolution of MFIs was completely different from cooperatives, self-help and informal credit groups. But since late 70s, Non-Government Organizations (NGOs) had been regarded as new players to have further supported the existence and awareness of microfinance institutions globally (Vanroose, 2008).

2. Literature Review
2.1 Microfinance Bank Credit Variables
2.1.1 Loan size
Loan could be described as the lending of money from one entity to another, but the disbursement vary that is, disbursement could be small or large (Odongo, 2014). Rosenberg (2009) in his study, findings showed that financial institutions preferred to extend large credit because the administrative costs decreased proportionately to
the size of the loan. Various studies (Wole Adamolekun, 1993; Odongo, 2014; Makorere, 2014; Laetitia et al, 2015) also indicated that most MSEs considered micro and small loans amount to meet immediate needs because MSEs lacked the capacity or experience to handle large sums of money in their businesses and even could lead to business failure. Loans were given depending on the level of savings performance with financial institution and the MSEs previous loan repayment. Most of these loans were lent out depending on the collection convenience, payment and flexibility with experienced clients. Financial institution motives were to meet their clients’ working capital by giving short term loans and limit long term loans. Financial institutions cite weak MSE management, lack of collateral and unreliable financial information on MSE operations as the main constraints to funding MSEs (Nguta & Guyo, 2013).

2.1.4 Factors that influence the firm’s Growth

2.1.4.1 Profitability

According to Barbosa (2016), profitability involved the degree to which a business or activity yielded profit or financial gain. It was also a special difference between the amount earned and the amount spent in producing and distributing goods and services. Profitability referred to the operating efficiency of the enterprise. It also explained the ability of the enterprise to make profit on sales. Profitability was the ability of the company to make a profit in relation to sales, total assets and own capital (Wanjohi, and Mugure, 2008).

2.1.4.2 Sales Growth

Sales growth was defined as the amount of the average sales volume of a company’s products that has increased tremendously from a particular period to another on a yearly basis. Hansen and Mowen (2012) argued that sales growth was an increase in sales from a particular year to another. Companies with increase in sales growth volume would require additional investment in the different composition of assets i.e. fixed or current asset. Though, the sales growth could easily assist the company to predict the expected profit in the future. Venkatraman and Ramanujam (1987) examined the extent of convergence among techniques measuring business performance and concluded that profit and sales growth remained a different measures of dimensions of business enterprise performance. Wanjohi, and Mugure, (2008) argued that sales growth would be represented by the percentage change in sales for each company in the sample over a single year, adjusted for the industry average.

2.1.4.3 Number of Employee Growth

Murphy, Trailer and Hill (1996) defined number of employee growth as the increase in number of persons
employed in a firm to improve its productivity capacity; that is, the total number of people who worked in an organization. Employee growth represented the change in the number of people employed by an organization between two time periods. Murphy et al (1996), further claimed that employee growth believed to be the second best performance indicator to the use of sales growth. They added that growth in employees could be suggested as a proxy for various organizational performance indicators. This was because companies might inject additional number of employees in anticipation of coincident with, sales growth. Therefore, the development of employment remained a component of critical knowledge, having been adopted as a measure of performance (Baum, Calabrese, & Silverman, 2000).

2.1.4.4 Total Assets

Hoff & Stiglitz (1990) and Alex, (2014) claimed that assets were economic values that associated with items that expended over a particular period of time to generate benefit. Total asset was the final amount of all gross investments, cash, receivables, and other assets as contained in the financial statement particularly the balance sheet. Dunne & Hughes, (1994) claimed that the ability of a firm to always attract capital was based on critical performance dimension. Therefore, growth in assets was considered as an effective measure of organizational performance. It must be noted that sales has a crucial role to manage working capital. Sales helped the firm to effectively predict expected profit to be realized in the future; while total asset growth encouraged the firm to increase its overall resources by expecting to expand and increase number of branches within and outside its primary location. The expansion and business diversification via the increase in asset attracted more labour force (employees) to manage the company. Also Rosenberg (2009) claimed that there were proxies that measure business growth in an informal market includes total sales, number of employees and total assets.

2.2 Theoretical Framework

2.2.1. Theory of Microfinance Development

Theory of Microfinance Development was popularized by Yunus Mohammad, while establishing the Grameen Bank in Bangladesh 1976. The development theory of microfinance bank used microcredits to assist people out of poverty but without providing collateral facilities. The theory propounded by Yunus concentrated in helping business people that lived in rural settlements, but who needed financial institutions (mini banks) assistance. Financial Institution that would assist in developing their social-cultural and economic lives. This led to the provision of alternative institutional frameworks that would encourage the livelihood alternatives through the availability of credits for production, distribution and investment among the people. The theory of microfinance development also claimed that less developed economies were more associated with underdevelopment, poverty, hunger and low credit opportunities because the people could not access mini credits from traditional financial institutions. However, it is of great importance to elaborate on available and targeted credit provision programmes in order to extend the outreach of lenders to provide credits to the poor people particular in the rural areas through a strong and feasible regulatory and supervisory policy guidelines. Microfinance development theory also clarified that inability of business people in rural centers to access available credits/loans had a serious negative effect on the people with poor results, which was not limited to bad nutrition, lack of information and technology, low agricultural output, dwindling production level, poor health care facilities, increase in unemployment etc. Therefore, the theory believed that availability of credits to the people would promote their standard of living and overall economy.

2.3 Empirical Review

According to Dunne & Hughes (1994), sales growth was used as a proxy for firm growth in the context of five different countries. Also, Gallagher, (2006) have used growth in total assets in the context of Baltic listed companies. Guerin and Palier (2005) used the same proxy in the context of Pakistan, Kung & Thomas (1981) in the context of China and Hansen and Mowen (2012) used growth in real assets in the context of ten developing countries. Considering the Indian context, Kazanjian & Drazin, (1989), Hajela (2009), Hartaska (2005); these studies have adopted growth in total assets and Kibera (2012) used annual growth in sales as a proxy for growth. Liedholm (2002) examined the determinants of survival and growth of SMEs in Africa and Latin America, and concluded that firms located in urban areas were more likely to survive, while location was central features in identifying firm growth prospects. Gonzalez and Sushma, (2009) investigated the effect of economic control on firm growth, and concluded that the economic development and a healthy financial system were associated with firm growth. Gonzalez and Sushma further emphasized that there was a relationship between firm growth, banks, non-banks and financial market, and concluded that effective legal and conducive environment could protect investors’ interests, promote financial sector development and encourage firm growth. Studies (Dunne & Hughes, 1994; Mata & Portugal, 1994; Audretsch, 1995; Yang, 2005) claimed that firms that were more capital intensive often grew faster. Tight monetary policy via the increase in the interest rate continued to encourage high cost of borrowing for firms thereby worsen the informal sector’s situation to access finance, and destabilized the corporate sector. The informal sector and financial system could be significantly affected by reducing the flow of income.
available to meet current obligations and increasing uncertainty about future liquidity needs of banks. A high inflation rate could also affect the firm’s ability to pay interests on its debt, thus increasing the risk of financial distress, and threatening the viability of firms (Bernanke, 1983; Wadhwani, 1986; Gordon, 1988).

2.4. Conceptual Framework

![Diagram showing the impact of microfinance banks (MFBs) credit variables on micro small enterprises growth in South-West, Nigeria. Source: Researchers' Compilation, (2018).]

3. Methodology

The study adopted secondary source of data by assessing financial statements of selected MFBs. Purposive sampling technique was chosen to select the MFBs, MSEs operators and States in the South-West, Nigeria. The reason for choosing Lagos and Ogun States was because there were large numbers of MFBs concentration and their financial statements were made available for assessment. The study also used correlation coefficient matrix model to measure the strength and direction of the linear relationship between variables, represented with ‘r’. Consequently, coefficient of determination measured the proportion of variability in a data which was accounted by a statistical model; often called $R^2$ (Gujarati, 2004). Correlation coefficient as stated;

$$r = \frac{\sum XY - (\sum X)(\sum Y)n}{\sqrt{(\sum X^2 - (\sum X)^2/n)(\sum Y^2 - (\sum Y)^2/n)}}$$  

(1)

$r =$ correlation coefficient; $x =$ independent variable; $Y =$Dependent variable; $\sum =$ Summation

Hence, MSEG (MSEs Growth) = $f$(Loan size, Cost of Money and Credit Period)

MSEG = $f$($X_1$...$X_n$)……………………………. (i)

Where,

MSEG = dependent variable was a measure of the factors that caused MSE to grow (Number of employee growth, profit, total asset and sales growth);

$f =$ a function to be specified

$X =$ an explanatory variables of microfinance characteristics that pertain to MFB variables.

From equation (i) above, it can be adjusted to equation iii:

MSEG = $\beta_0 + \beta_1 X_1 + \ldots + \beta_n X_n + \mu_2$……………………………. (iii)

Where, MSEG = dependent variable (MSE Growth)

$\beta_0 =$ intercept term

$\beta_1 =$ partial regression coefficient

$X_1 =$ explanatory variables / regressor

$X_1$, ……………$X_n$ were slopes / independent variables (MFB variables).

(Where LD= Loan size, CM= Cost of money, CP= Credit period).

The predictor variables are given as $X_1$, … $X_3$.  

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Where

\( X_1 = \text{Loan size} \)
\( X_2 = \text{Cost of money} \)
\( X_3 = \text{Credit period} \)

\( \beta_1, \beta_2, \beta_3, \ldots, \ldots, \beta_n \) was a slope parameters or partial regression coefficients which determined the contribution of the independent variables

\( \mu = \text{stochastic term / Error term (which revealed the strength of } \beta_1 X_1 \ldots \beta_n X_n. \) To determine the proportion of variation that would be explained required a measure of “goodness of fit” in regression analysis, which could otherwise be called as the coefficient of determination, \( r^2 \). It helped to measure the variation in the dependent variables accounted for the variation on the independent variables.

Therefore the equation was written newly as;

\[
MSEG_i = \beta_0 + \beta_1 LS_1 + \beta_2 CM_2 + \beta_3 CP_3 + \mu_2. \quad \text{(iv)}
\]

### 4. Result

#### 4.1 Pearson Correlation Matrix Result

This described the relationship between MFBs variables and MSEs’ growth indicators. The result was displayed in table 4.1. Table 4.1 showed the Pearson Correlation matrix of the variables depicting the relationship between microfinance bank credit variables and MSEs’ growth indicators such as sales, profit, total asset and number of employees growth (NOE) and cost of money, loan size and credit period respectively. It revealed that loan size shared a positive relationship with sales (\( r = 0.6991 \)), NOE (\( r = 0.6194 \)), total asset growth (\( r = 0.5823 \)) and profit (\( r = 0.7422 \)). The average correlation coefficient (\( r \)) of loan size to MSEs growth was 0.6605. This underlined the possibility of an increased growth made possible through moderate loan size disbursed by MFBs. The loan was part of the organization additional resources that increased turnover and earnings of MSEs. This also showed that every increase in loan size would automatically increase sales, asset, NOE and profit. The result further revealed that cost of money has a negative relationship with sales (\( r = -0.5162 \)), NOE (\( r = -0.5686 \)), total asset (\( r = -0.6348 \)) and profit (\( r = -0.4956 \)). The average correlation coefficient (\( r \)) of cost of money to MSEs growth was -0.5538 (-55.4%). This result explained that the increase in interest rate could discourage the performance on MSEs activities and could lead to stagnated performance. While the credit period showed a positive relationship with sales (\( r = 0.5200 \)), NOE (\( r = 0.5517 \)), total asset (\( r = 0.6323 \)) and profit (\( r = 0.6117 \)). This result showed that an increase in credit repayment period allowed MSEs operators to achieve increase in sales, profit, asset and NOE. The result further showed that repayment period to the borrower was moderate to assist the sales performance of the enterprise. The average correlation coefficient (\( r \)) of credit period to MSEs growth was 0.578925 (58%). Therefore, the general result showed that there was a positive relationship between MFBs and MSEs growth variables where \( r = 0.6856 \) (69%). This result corroborated with Nguta & Guyo, (2013), Oladejo, (2013), Bwisa & Wanambisi, (2014) and Multhoni, (2016) who opined that size of loans determined the size of profit and turnover of firms and there existed a relationship between the variables.
Table: 4.1: Correlation Matrix

|              | SALES    | PROFIT   | NOE      | ASSET    | LOAN_SI  | CRE_PE   | COST-M  |
|--------------|----------|----------|----------|----------|----------|----------|----------|
| **Correlation** | 1.0000   | 0.5330** | 0.6241*** | 0.6141*** | 0.6691** | 0.5200** | -0.5162** |
| **Probability** | (-----)  | (0.0143) | (0.0000) | (0.0002) | (0.0305) | (0.0232) | (0.0214) |

| **SALES** | 1.0000   | 0.5330** | 0.6241*** | 0.6141*** | 0.6691** | 0.5200** | -0.5162** |
| **PROFIT** | (-----)  | (-----)  | (-----)  | (-----)  | (-----)  | (-----)  | (-----)  |
| **NOE** | 0.6241*** | 0.6499   | 1.0000    | (-----)  | (-----)  | (-----)  | (-----)  |
| **ASSET** | 0.6141*** | 0.5601   | 0.3328**  | 1.0000    | (-----)  | (-----)  | (-----)  |
| **LOAN_SIZE** | 0.6691** | 0.5422** | 0.6194**  | 0.5823**  | 1.0000    | (-----)  | (-----)  |
| **CREDIT PERIOD** | 0.5200** | 0.6117** | 0.5517**  | 0.6323**  | -0.2356** | 1.0000    | (-----)  |
| **COST_OF_MONE** | -0.5162** | -0.4956** | -0.5686** | -0.6348** | 0.4673**  | 0.5418*** | 1.0000    |

|              | (-----)  | (-----)  | (-----)  | (-----)  | (-----)  | (-----)  | (-----)  |

Source: Author's Compilation from E-Views 9.5 (2018)

The level of significance is denoted as *P<0.1, **P < 0.05 and ***P < 0.01. Figure in the parentheses are (P-values).

4.2 Panel Regression Result on Profit.

This described the extent of MFBs credit variables’ influenced on MSEs’ growth using profit as proxy. The result displayed in table 4.2. Table 4.2 showed the panel regression of the variables depicting the extent of microfinance bank credit variables proxy by cost of money, credit period and loan size influenced on MSEs’ growth, adopting profit. In this section, we presented our estimates of the various hypothesized variables explaining one of the performance indicators (profit) in the study. The pooled OLS result showed a positive marginal impact of loan-size with coefficient value (8.19) and credit period (2.17) but cost of money (-6.59) has a negative influence on profit performance. For every loan disbursed by MFBs, 8.19 profits would be accrued to MSEs operators for improved business performance. Also for every loan repayment period the profit would increase by 21.7 to micro and small business entrepreneurs. All the variables were statistically significant (p<0.05). The variables that were combined accounted for 0.614035 (61.4%) of the variation in the profit as shown by the R-squared value. While the value of adjusted R -squared was 0.591237 (59%). The Durbin Watson (DW) was 1.382144. This was closed to 2. This explained no sign of autocorrelation. While the high cost of funds would affect the performance of profit by -6.59. This result was in tandem with Rosenberg, 2009; Varue, 2012; Nguta & Guyo, 2013 and Makorere, 2014). They opined that low cost of money could improve performance on MSEs activities resulting to increase in turnover and profit, while high cost of money would lead to stagnated performance. The fixed effect model in column two revealed all the explanatory variables have positive coefficient values with loan-size (5.48), credit period (0.03) and cost of money (0.08). All the variables were statistically significant (p<0.05). 48% of the variation experienced in the value of profit was accounted for by the bank variables.
Table 4.2: MFBs credit variables influence on MSEs’ Growth (Profit).

|                | ALL          | ALL          |
|----------------|--------------|--------------|
|                | OLS          | FE           |
| LOAN SIZE      | 8.19E-06***  | 5.48E-07**   |
|                | (1.76E-06)   | (1.61E-07)   |
| COST OF MONEY  | -6.590040*** | 0.082034*    |
|                | (1.168929)   | (0.079560)   |
| CREDIT PERIOD  | 2.173114**   | 0.033930*    |
|                | (0.073591)   | (0.004255)   |
| CONSTANT       | ………………   | 11.68149     |
| R²             | 0.614035     | 0.476738     |
| OBSERVATION    | 79           | 79           |
| N              | 8            | 8            |

Source: Authors’ Compilation, 2018

Note: All independent variables are differenced to ensure stationarity and thereby avoiding spurious regression while the dependent variable profit is in log form. The level of significance is denoted as *P< 0.1, **P < 0.05 and ***P < 0.01. Figure in the parentheses are (standard error).

4.3 Panel Regression Result on Number of Employee (NOE).

This described the extent of MFBs credit variables’ influence on MSEs’ growth using number of employees as proxy. The result displayed in table 4.3. Table 4.3 showed the pooled OLS with positive coefficient values of loan-size (1.30), credit period (0.14) and cost of money has a negative coefficient value (-1.09) on number of employee growth. For every loan disbursed to MSEs operators, it generated 1.3 growth of employees while credit repayment period allowed for 0.14 of employee growth. Also for every interest charged by MFBs it attracted a negative -1.09 on employee growth. The reason for the negative result on cost of money (-1.09) might be as a result of high interest rate charged which has affected the revenue performance of MSEs and to sustain the employees in terms of salaries and wages and other expenses incurred by micro and small business operators might be difficult or endanger (Wellen & Mulder, 2008). Loan size was statistically significant (p<0.05). Credit period was statistically significant (p<0.01) while cost of money was statistically significant (p<0.01). The variations in the number of employee growth were accounted for 0.481044 (48%) by bank variables as shown by the R-squared value. The adjusted R-squared value was 0.442681(44.3%). The Durbin Watson (DW) was 1.324022. This was closed to 2. This explained no sign of autocorrelation. The fixed effect model in column two revealed that coefficient values of loan size (7.61) and credit period (0.008) have positive influence on number of employees while cost of money (-0.099) has negative influence on number of employee growth. Loan size was statistically significant (p<0.05), credit period (p<0.1) and cost of money statistically significant (p<0.05). 60% of the variation experienced in the value of number of employees was accounted for by the bank variables.

Table 4.3: MFBs credit variables influence on MSEs’ Growth (Number of Employees)

|                | ALL          | ALL          |
|----------------|--------------|--------------|
|                | OLS          | FE           |
| LOAN SIZE      | 1.30E-06**   | 7.61E-07***  |
|                | (3.25E-07)   | (1.15E-06)   |
| COST OF MONEY  | -1.087527*** | -0.099709    |
|                | (0.215646)   | (1.67E-07)   |
| CREDIT PERIOD  | 0.138103**   | 0.008923     |
|                | (0.013516)   | (8.18E-07)   |
| CONSTANT       | ………………   | 0.705098     |
| R²             | 0.481044     | 0.600975     |
| OBSERVATION    | 79           | 79           |
| N              | 8            | 8            |

Source: Authors’ Compilation, 2018

Note: All independent variables are differenced to ensure stationarity and thereby avoiding spurious regression while the dependent variable profit is in log form. The level of significance is denoted as *P< 0.1, **P < 0.05 and ***P < 0.01. Figure in the parentheses are (standard error).
4.4 Panel Regression Result on Sales.
This explained the extent of MFBs credit variables’ influence on MSEs’ growth using sales as proxy. The result was shown in table 4.4. Table 4.4 showed the pooled OLS with positive coefficient values of loan-size (8.37) and cost of money was negative (-7.53) and positive credit period (0.21) on sales growth. For every loan disbursed, it generated 8.37 turnover for MSEs operators. Also for every credit period enjoyed by the MSEs operators, 0.21 of sales would be realized while for every interest rate charged, there would be decrease in the volume of sales. Loan size was statistically significant (p<0.05). Credit period was statistically significant (p<0.05) while cost of money was statistically significant (p<0.1). Some of the variables were more statistically significant P<0.05. The Durbin Watson (DW) was 1.342486. This was closed to 2. This explained no sign of autocorrelation. The variables that were combined, accounted for 0.521321 (52%) of the variation in the sales performance as shown by the R-squared value. The adjusted R-squared value was 0.451286. The reason for the negative result in cost of money may be due to high cost of funds thereby resulting to dwindling revenue from sales. The Random effect model in column two revealed that loan-size (4.21) positively influenced sales while credit period (-0.005) and cost of money (-0.006) showing a negative coefficient values. 45% of the variation experienced in the value of sales growth was accounted for by the bank variables.

Table 4.4: MFBs credit variables influence on MSEs’ Growth (Sales)

|                  | ALL             | ALL             |
|------------------|-----------------|-----------------|
|                  | OLS             | RE              |
| LOAN SIZE        | 8.37E-06***     | 4.83E-07**      |
|                  | (2.07E-06)      | (1.55E-07)      |
| CREDIT PERIOD    | 0.214279**      | -0.005953       |
|                  | (0.086566)      | (0.004147)      |
| COST OF MONEY    | -7.529366***    | -0.006991       |
|                  | (1.375039)      | (0.077509)      |
| CONSTANT         | ................. | 13.38112        |
| R²               | 0.521321        | 0.451286        |
| OBSERVATION      | 79              | 79              |
| N                | 8               | 8               |

**Source: Authors’ Compilation, 2018**

Note: All independent variables are differenced to ensure stationarity and thereby avoiding spurious regression while the dependent variable profit is in log form. The level of significance is denoted as *P<0.1, **P < 0.05 and ***P < 0.01. Figure in the parentheses are (standard error).

4.5 Panel Regression Result on Total Asset.
This described the extent of MFBs credit variables’ influence on MSEs’ growth using total asset as proxy. The result displayed in table 4.5. Table 4.5 showed the panel regression result depicting the extent of microfinance bank credit variables proxy by cost of money, credit period and loan size influence on MSEs’ growth, adopting total asset growth as proxy. The pooled OLS result showed a positive marginal impact of loan-size (6.27) and credit period (0.26) on asset whereas cost of money (-5.21) negatively affected the total asset. The loan size was statistically significant (P<0.1), cost of money statistically significant (P<0.05) and credit period statistically significant (P<0.05). The variables combined accounted for 0.582538 (58.3%) of the variation in the total asset as shown by the R-squared value. The adjusted R-squared value was 0.512683(51%). The Durbin Watson (DW) was 1.264014. This was closed to 2. This explained no sign of autocorrelation. The fixed effect model revealed a positive coefficient value of loan-size (4.21) while credit period (-0.01) and cost of money (-0.04) negatively influenced asset growth. The loan size was statistically significant (P<0.01), cost of money statistically significant (P<0.05) and credit period statistically significant (P<0.01). 43.7% of the variation experienced in the value of asset was accounted for by the bank variables.
Table 4.5: MFBs credit variables influence MSEs’ Growth (Total asset)

|                      | ALL            | OLS            | FE             |
|----------------------|----------------|----------------|----------------|
| **LOAN SIZE**        | 6.27E-06***    | 4.21E-07**     |                |
|                      | (1.03E-06)     | (0.21E-07)     |                |
| **CREDIT PERIOD**    | 0.261276**     | -0.014351      |                |
|                      | (0.068211)     | (0.001129)     |                |
| **COST OF MONEY**    | -5.214521***   | -0.043271      |                |
|                      | (0.121034)     | (0.045804)     |                |
| **CONSTANT**         | ............... | 4.142111       |                |

|                      |                | 0.582538       | 0.436824       |
|                      |                | 4.142111       |                |

|                      |                | 79             | 79             |
|                      |                | 8              | 8              |

Source: Authors’ Compilation, 2018

Note: All independent variables are differenced to ensure stationarity and thereby avoiding spurious regression while the dependent variable profit is in log form. The level of significance is denoted as *P< 0.1, **P < 0.05 and ***P < 0.01. Figure in the parentheses are (standard error).

5. Findings

Findings showed that there was a relationship between credit variables and MSE growth indicators with loan size revealing a positive relationship with sales (r = 0.6991), NOE (r = 0.6194), total asset (r = 0.5873) and profit (r = 0.7422). The average correlation coefficient (r) of loan size to MSEs growth was 0.6605. This underlined the possibility of an increased growth made possible through moderate loan size disbursed by MFBs. The loan was part of the organization additional resources that increased turnover and earnings of MSEs. Findings further revealed that for every increase in loan size there would automatically be an increase sales, asset, NOE and profit. Findings also revealed that cost of money has a negative relationship with sales (r = -0.5162), NOE (r = -0.5686), total asset (r = -0.6348) and profit (r = -0.4956). The average correlation coefficient (r) of cost of money to MSEs growth was -0.5538 (-55.4%). The study also found out that increase in interest rate could discourange the performance on MSEs activities and lead to stagnated performance.

5.1 Conclusion and Recommendations

Microfinance loans provided by MFBs have significant influence on MSEs performance through increase in profit and turnover and while the credit period was regarded as moderate period for loan repayment but the high cost of borrowing associated with the MFBs under review required a holistic approach by regulators and operators. Therefore, considering the extent of influence of MFBs credit variables on MSEs growth, it could be concluded that micro and small businesses profits and sales performance depended on bank loan for business capital growth (business expansion). Furthermore, the relationship between MFBs variables and MSEs growth indices should be strengthened by reducing high interest rate and increasing loan sizes to assist MSEs operators’ achieve high profit and turnover.
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### APPENDIX A

#### CORRELATION MATRIX

| Probability | SALES   | PROFIT | NOE     | ASSET   | LOAN_SI | CRE_PE | COST-M |
|-------------|---------|--------|---------|---------|---------|--------|--------|
| SALES       | 1.0000  | -      | 0.5330**| 0.6241***| 0.6141***| -0.5162**| -0.6691**|
| PROFIT      | (0.0143)| -      | 0.6499  | 1.0000  | 0.5601  | 0.5422**| 0.5200**|
| NOE         | (0.0000)| -      | 0.6499  | 1.0000  | 0.3328**| 0.6194**| 0.5517**|
| ASSET       | (0.0794)| -      | 0.3328**| 0.1033  | 1.0000  | -0.2356**| -0.6323**|
| LOAN_SIZE   | (0.0133)| -      | 0.6194**| 0.0267  | 0.0254  | 1.0000  | ---     |
| CREDIT PERIOD| (0.0305)| -      | 0.5823**| 0.0217  | 0.0167  | -0.2356**| 1.0000  |
| COST_OF_MONE| (0.0443)| -      | 0.5418***| 0.0156  | 0.0215  | (0.0001)| ---     |

*The level of significance is denoted as *P < 0.1, **P < 0.05 and ***P < 0.01. Figure in the parentheses are (P-values).*

### APPENDIX B

#### POOLED REGRESSION FOR PROFIT AS DEPENDENT VARIABLE

Dependent Variable: LOG(PROFIT?)
Method: Pooled Least Squares
Date: 03/19/18  Time: 04:29
Sample (adjusted): 2008 2016
Included observations: 9 after adjustments
Cross-sections included: 8
Total pool (unbalanced) observations: 71

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|----------|-------------|------------|-------------|-------|
| D(LOAN_SIZE?) | 8.19E-06 | 1.76E-06 | 4.649529 | 0.0000 |
| D(CP?) | 2.173114 | 0.073591 | -2.352395 | 0.0216 |
| D(CM?) | -6.590040 | 1.168929 | 5.637675 | 0.0000 |

R-squared | 0.614035 | Mean dependent var | 11.85996
Adjusted R-squared | 0.591237 | S.D. dependent var | 1.038833
S.E. of regression | 8.156122 | Akaike info criterion | 7.076749
Sum squared resid | 4523.518 | Schwarz criterion | 7.172356
Log likelihood | -248.2246 | Hannan-Quinn criter. | 7.114769
Durbin-Watson stat | 1.382144 |
### FIXED EFFECT (PROFIT)

Dependent Variable: LOG(PROFIT?)

Method: Pooled Least Squares

Date: 03/19/18   Time: 05:06

Sample (adjusted): 2008 2016

Included observations: 9 after adjustments

Cross-sections included: 8

Total pool (unbalanced) observations: 71

| Variable     | Coefficient | Std. Error | t-Statistic | Prob.  |
|--------------|-------------|------------|-------------|--------|
| C            | 11.68149    | 0.087236   | 133.9060    | 0.0000 |
| D(LOAN_SIZE?) | 5.48E-07    | 1.61E-07   | 3.405953    | 0.0012 |
| D(CP?)       | 0.033930    | 0.004255   | 0.923535    | 0.0194 |
| D(CM?)       | 0.082034    | 0.079560   | 1.031093    | 0.0066 |

Fixed Effects (Cross)

- KARIS—C: -0.627892
- MW—C: -1.098380
- EMERALD—C: -0.913397
- OLIVE—C: 0.698007
- FORESIGHT—C: -0.206447
- NPF—C: 0.098548
- ACCION—C: 0.423625
- AZSA—C: 1.556169

### POOLED REGRESSION FOR ASSET

Dependent Variable: LOG(ASSET?)

Method: Pooled Least Squares

Date: 03/19/18   Time: 04:45

Sample (adjusted): 2008 2016

Included observations: 9 after adjustments

Cross-sections included: 8

Total pool (unbalanced) observations: 71

| Variable     | Coefficient | Std. Error | t-Statistic | Prob.  |
|--------------|-------------|------------|-------------|--------|
| D(LOAN_SIZE?) | 6.27E-06    | 1.03E-06   | 3.015240    | 0.0632 |
| D(CP?)       | 0.261101    | 0.068211   | -1.503560   | 0.0365 |
| D(CM?)       | -5.214521   | 0.121034   | 4.023421    | 0.0281 |

R-squared 0.582538  Mean dependent var 1.983694

Adjusted R-squared 0.512683  S.D. dependent var 0.698317

S.E. of regression 1.607154  Akaike info criterion 3.392141

Sum squared resid 121.4813  Schwarz criterion 3.534294

Log likelihood -128.2201  Hannan-Quinn criter. 3.132260

Durbin-Watson stat 1.264014
FIXED EFFECT (ASSET)
Dependent Variable: LOG (Asset?)
Method: Pooled Least Squares
Date: 03/19/18   Time: 04:52
Sample (adjusted): 2008 2016
Included observations: 9 after adjustments
Cross-sections included: 8
Total pool (unbalanced) observations: 71

| Variable       | Coefficient | Std. Error | t-Statistic | Prob.  |
|----------------|-------------|------------|-------------|--------|
| C              | 4.142111    | 0.091878   | 15.22512    | 0.0000 |
| D(LOAN_SIZE?)  | 4.21E-07    | 0.69E-07   | 2.440923    | 0.0000 |
| D(CP?)         | -0.014000   | 0.001129   | -1.970648   | 0.0511 |
| D(CM?)         | -0.043271   | 0.045804   | 1.159815    | 0.2388 |

Fixed Effects (Cross)
- KARIS—C: 0.631726
- MW—C: -0.520115
- EMERALD—C: 0.383538
- OLIVE—C: 0.011511
- FORESIGHT—C: 0.038924
- NPF—C: -0.233498
- CCION—C: -0.118345
- AZSA—C: 0.159226

Cross-section fixed (dummy variables)

| R-squared       | 0.436824   | Mean dependent var | 1.482194 |
|-----------------|------------|--------------------|----------|
| Adjusted R-squared | 0.414471  | S.D. dependent var | 0.528117 |
| S.E. of regression | 0.476460  | Akaike info criterion | 1.136643 |
| Sum squared resid | 13.62084  | Schwarz criterion | 1.745513 |
| Log likelihood   | -42.13132  | Hannan-Quinn criter. | 1.446561 |
| F-statistic      | 9.036656   | Durbin-Watson stat | 1.312124 |
| Prob(F-statistic) | 0.000000  |                     |          |

POOLED REGRESSION FOR NOE
Dependent Variable: LOG(NOE?)
Method: Pooled Least Squares
Date: 03/19/18   Time: 04:45
Sample (adjusted): 2008 2016
Included observations: 9 after adjustments
Cross-sections included: 8
Total pool (unbalanced) observations: 71

| Variable       | Coefficient | Std. Error | t-Statistic | Prob.  |
|----------------|-------------|------------|-------------|--------|
| D(LOAN_SIZE?)  | 1.30E-06    | 3.25E-07   | 4.005840    | 0.0432 |
| D(CP?)         | 0.138103    | 0.013576   | -2.806590   | 0.0015 |
| D(CM?)         | -1.087527   | 0.215646   | 5.043111    | 0.0054 |

R-squared       | 0.481044   | Mean dependent var | 1.983694 |
Adjusted R-squared | 0.442681  | S.D. dependent var | 0.698317 |
S.E. of regression | 1.504656  | Akaike info criterion | 3.696341 |
Sum squared resid | 153.9513  | Schwarz criterion | 3.791947 |
Log likelihood   | -128.2201  | Hannan-Quinn criter. | 3.734360 |
Durbin-Watson stat | 1.324022  |                     |          |

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### FIXED EFFECT (NOE)
Dependent Variable: LOG(NOE?)
Method: Pooled Least Squares
Date: 03/19/18   Time: 04:52
Sample (adjusted): 2008 2016
Included observations: 9 after adjustments
Cross-sections included: 8
Total pool (unbalanced) observations: 71

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|----------|-------------|------------|-------------|-------|
| C        | 1.678204    | 0.091878   | 18.26562    | 0.0000|
| D(LOAN_SIZE?) | 7.61E-07 | 1.69E-07   | 4.490933    | 0.0100|
| D(CP?)   | 0.008923    | 0.004482   | -1.990898   | 0.0511|
| D(CM?)   | -0.099709   | 0.083793   | 1.189945    | 0.0288|

Fixed Effects (Cross)
- _KARIS—C: 0.831716
- _MW—C: -0.550255
- _EMERALD—C: 0.685528
- _OLIVE—C: 0.031036
- _FORESIGHT—C: 0.037936
- _NPF—C: -0.673468
- _ACCIÓN—C: -0.868348
- _AZSA—C: 0.598268

### POOLED REGRESSION LOG OF SALES
Dependent Variable: LOG(SALES?)
Method: Pooled Least Squares
Date: 03/19/18   Time: 05:29
Sample (adjusted): 2008 2016
Included observations: 9 after adjustments
Cross-sections included: 8
Total pool (unbalanced) observations: 71

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|----------|-------------|------------|-------------|-------|
| D(LOAN_SIZE?) | 8.37E-06 | 2.07E-06   | 4.043856    | 0.0211|
| D(CP?)   | 0.214279    | 0.086566   | -2.475310   | 0.0158|
| D(CM?)   | -7.529366   | 1.375039   | 5.475748    | 0.0000|

R-squared 0.521321 Mean dependent var 13.51994
Adjusted R-squared 0.487351 S.D. dependent var 1.232003
S.E. of regression 9.594242 Akaike info criterion 7.401538
Sum squared resid 6259.365 Schwarz criterion 7.497144
Log likelihood -259.7546 Hannan-Quinn criter. 7.439558
Durbin-Watson stat 1.342486
Random effect
Dependent Variable: LOG(SALES?)
Method: Pooled EGLS (Cross-section random effects)
Date: 03/19/18   Time: 05:47
Sample (adjusted): 2008 2016
Included observations: 9 after adjustments
Cross-sections included: 8
Total pool (unbalanced) observations: 71
Swamy and Arora estimator of component variances

| Variable | Coefficient | Std. Error | t-Statistic | Prob. |
|----------|-------------|------------|-------------|-------|
| C        | 13.38112    | 0.427798   | 31.27904    | 0.0000 |
| D(LOAN_SIZE?) | 4.83E-07 | 1.55E-07   | 3.108790    | 0.0028 |
| D(CP?)   | -0.005953   | 0.004147   | -1.435439   | 0.0558 |
| D(CM?)   | -0.006991   | 0.077509   | -0.090198   | 0.0684 |

Random Effects (Cross)

| Effects Specification | S.D. | Rho |
|-----------------------|------|-----|
| Cross-section random  | 1.186165 | 0.8786 |
| Idiosyncratic random  | 0.440881 | 0.1214 |

Weighted Statistics

| R-squared | 0.451286 | Mean dependent var | 1.674681 |
| Adjusted R-squared | 0.413284 | S.D. dependent var | 0.476781 |
| S.E. of regression | 0.443885 | Sum squared resid | 13.20127 |
| F-statistic | 3.980987 | Durbin-Watson stat | 1.008702 |
| Prob(F-statistic) | 0.011350 | |

Unweighted Statistics

| R-squared | -0.044634 | Mean dependent var | 13.51994 |
| Sum squared resid | 110.9906 | Durbin-Watson stat | 0.119975 |