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The Influence of Financial Leverage, Customer Deposit and Capital Adequacy on the Financial Sustainability of Some Selected Nigerian Micro Finance Banks

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Abstract- How to attain financial sustainability of microfinance banks in Nigeria today is one of the main problems bedeviling our microfinance banks. Several Scholars have investigated the determining factors affecting financial sustainability of Microfinance Institutions in various countries using large and well developed Microfinance Institutions. In consideration of some factors that may impact on the sustainability of microfinance banks in Nigeria, this study aims to examine the influence of financial leverage, customer deposit and capital adequacy on financial sustainability of some selected microfinance banks in Nigeria. This study utilizes secondary data sourced from the certified annual reports of the selected microfinance banks. The data for the study were analyzed using OLS regression and fixed effect regression and it was observed that there is no statistical evidence to suggest that financial leverage, customer deposit and capital adequacy has significant influence on both financial and operational sustainability. The study found insignificantly positive influence of financial leverage and insignificantly negative influence of customer deposit and capital adequacy on financial sustainability of MFBs. Capital adequacy shows significantly positive influence and financial leverage and customer deposit indicates negative influence on operational sustainability of MFBs in Nigeria.

Keywords: financial sustainability, operational sustainability, financial leverage, customer deposit, capital adequacy.

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The Influence of Financial Leverage, Customer Deposit and Capital Adequacy on the Financial Sustainability of Some Selected Nigerian Micro Finance Banks

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Keywords: financial sustainability, operational sustainability, financial leverage, customer deposit, capital adequacy.

I. Introduction

The concern of corporate financial managers is to boost up shareholders wealth and minimize the cost of capital. Financial managers are always deeply concern on decision making most of which are taken with regards to investment, dividend policy and financing. According to Raza (2013), investment decisions relate to three areas such that either the manager has to take decision about opening a new venture or decision may relate specifically to expansion of current business venture or it may be to replace current assets or machinery because of technological improvements. Once the investment decision is done, the next important and critical decision is how to finance the investment decision that has been taken by corporate financial managers. Some of these investment decisions can be financed by debts, either long term or short term. According to Pandey (1999: 633) assets of a company can be financed either by increasing the owners claims or the creditors' claims. The owners claim increases when the firm raises funds by issuing ordinary shares or by retaining earnings while the creditors claim increases by borrowing. The various means of financing represent the financial structure of an enterprise. The concept of leveraged buy-out relates to an acquisition of a company in which the acquisition is substantially financed through debt. The use of the term trade on equity is derived from the fact that it is the borrowers' equity that is used as a basis to raise debt, that is, the equity that is traded upon. According to Pandey (1999: 1123) debt typically forms 70 to 90 percent of purchase price and it may have a low credit rating. Assets can be financed through different options of capital structure. A firm can use different mixes of debts, equity or other financial arrangements. According to Raza (2013) for enhancement of high market value, a firm can go for different combinations of bonds, lease financing, bank loans or many other options. Decision taken with respect to capital structure is a crucial decision particularly in the area of corporate finance.

The way in which assets are financed has several implications. Firstly finance between debt and equity, debt is more risky compare to equity from the point of view of firms. Firm has a legal obligation to pay interest to debt holders irrespective of the profits made or loss incurred by the firm. If the firm fails to pay to debt holders in time, debt holder can take legal action and in extreme cases, force the firm into liquidation. Secondly, the use of debt has two advantages for shareholders. 1. Shareholders can retain control of the firm with a limited stake and 2. Their earnings can be magnified when the firm earns a rate of return on the total capital employed higher than the interest rate on the borrowed funds. The process of magnifying the shareholders returns through the use of debt is called "financial leverage" or "financial

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gearing" or "trading on equity". However, leverage can work in opposite direction as well. If the cost of debt is higher than the firms overall rate of return, the earnings of shareholders will be reduced. There is also threat of insolvency. If the firm is actually liquidated for nonpayment of debt holder's dues, shareholders being the residual owners will be the worst sufferers. Therefore use of debts magnifies shareholders earnings as well as increases their risk. Thirdly, a high debt burden firm will find difficulty in raising funds from creditors and owners in future. The owner's equity is treated as margin of safety by creditors such that if the equity base is thin, the creditor's risk will be high. Leverage ratio is therefore calculated to measure the financial risk and the firm's ability of using debt to shareholders advantages (Pandey, 1999:117). Whichever way the debt ratio is calculated, it show the extent to which debt financing has been used in the business. High ratio signifies that claims of creditors are greater than those of the owners while a low debt – equity ratio signifies a greater claim of owners than creditors (Pandey, 1999:121).

Microfinance bank operation in Nigeria is significant to the country's socio-economic development as it plays a fundamental role in financial inclusion. Despite its role, the sector has been facing numerous challenges threatening their growth and expansion. The facts that all the microfinance banks in Nigeria are deposit taking, an operating system in line with that of deposit money banks, they also give out loan to their customers signifying that they also rely heavily on debt and possibly retain earnings and according to Waweru and Wanyoike (2016) this is a huge challenge due to inadequacies of retain earnings and exorbitant interest rates charged by conventional deposit money banks when lending to microfinance banks. Therefore when microfinance banks lacks sufficient funds to advance to customers in form of loans, it means profit forgone, consequently leading to losses and ultimate collapse of the banks.

Several studies have been conducted in various countries on the issue of sustainability and profitability of microfinance institutions and there are a lot of inconsistencies in their findings. In Nigeria, such studies include the study of Anyanwu (2004), Achalkechukwu (2012), Adekunle (2011) Muhammed and Hassan (2008) and Mejeha and Nwachukwu (2008). A major criticism of these studies conducted in Nigeria is that some of the studies were exploratory as they only try to explore the challenges and prospect for microfinance sustainability. Subsequently, the empirical studies conducted on effect of equity capital and debt capital on profitability of MFIs used primary sources data which findings cannot be heavily relied upon due to its subjectivity. This study is therefore unique from existing studies as it tries to source for documentary evidence which are certified by professional auditors to conduct the study. Though, documentary source of data from MFIs are hardly accessible. This study was able to have access to certified financial statements of microfinance banks selected for the study by which reliable and objective findings can be achieved.

Hence, this study is designed to examine the influence of financial leverage, customer deposit and capital adequacy on financial sustainability of some selected Nigerian microfinance banks. The major objective of this study is to examine the degree of influence of financial leverage, customer deposit and capital adequacy on the financial sustainability of some selected Nigerian microfinance banks.

The specific objectives of this study are;

i. To examine the degree of influence of financial leverage, customer deposit and capital adequacy on financial sustainability of some selected Nigerian microfinance banks.
ii. To investigate the degree of influence of financial leverage, customer deposit and capital adequacy on operational sustainability of some selected Nigerian microfinance banks.

The following hypotheses are formulated;

H_{0i}: Financial leverage, customer deposit and capital adequacy have no significant influence on financial sustainability of Nigerian microfinance banks.

H_{0ii}: Financial leverage, customer deposit and capital adequacy have no significant influence on operational sustainability of Nigerian microfinance banks.

This study focuses on financial leverage as independent variables proxied by (total debt to total equity, total debt to total asset), customer deposit proxied by (deposit to equity and deposit to asset) and capital adequacy proxied by equity to total asset. Dependent variables are financial sustainability (FSS) and operational sustainability (OSS).

Period of the study is seven years (2010 - 2016) because this period is their first seven years of existence, expansion and growth.

II. Literature Review

a) Concept of Financial Leverage

Financial leverage is the degree to which debt is used by companies' in order to finance the operations of an entity. In other words, financial leverage is the amount of debt an enterprise uses to fund operations. The more a company uses debt to finance business operations, the higher its financial leverage. If the degree of financial leverage is high it implies high interest payments, consequence of which negatively affects the company's corporate earnings (earnings per share). An increase in debt financing causes financial risks to stockholders because as company increases debt, interest payment increases thereby reducing corporate earnings resulting to increase in the risk to stockholder returns. Financial leverage is the borrowing

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of funds to increase volume of production and it is the financial risk an entity employs. According to Peavler (2017) leverage, as a business term, refers to debt or to the borrowing of funds to finance the purchase of inventory, equipments and other company assets. An entity can use either debt or equity to finance or buy the company's assets. The use of debt or leverage increases the company's risk of bankruptcy and also increases the company's return on equity because if debt financing is used instead of equity financing, then the owners equity is not diluted by issuing more shares of stock (Peavler, 2017).

In finance, financial leverage is any technique involving the use of borrowed funds in the purchase of an asset, with the expectation that the after tax income from the asset and asset price appreciation will exceed the borrowing cost. According to Brigham (1995), leveraging enables gains and losses to be multiplied. While leverage magnifies profit when the return from the asset is more than offset the cost of borrowing, leverage may also magnify losses. A corporation that borrows too much money might face bankruptcy or default during a business downturn, while a less leveraged corporation might survive (Bodie et al, 2008).

b) Concept of Financial and Operational Sustainability

Sustainability of an organization is its ability to operate profitably as a going concern without relying solely on external funds. It is the ability of bodies responsible for administering the affairs of organizations to maintain its operation over a long term. It is an ability of organization for being able to exist for the beneficiaries in the long term without ceasing activities as a result of poor financial performance. According to Thapa et al (1992) financial sustainability is the ability of microfinance institutions to cover all its costs from its own generated income from operations without depending on external support or subsidy. This definition according to Kinde (2012) implies that a loss making microfinance institutions (microfinance institutions with poor financial performance) will not be classified as financially sustainable. Again, a profit making microfinance institutions whose profitability is determined after covering some of the operating costs by subsidized resources or funds will also not be considered as financially sustainable.

Operational sustainability according to Meyer (2002) is the ability of microfinance institutions to cover its operational costs from its operating income regardless of whether it is subsidized or not.

c) Concept of Corporate Earnings

Earnings conceptually refers to after tax net income and they are the core determinants of stock price, because earnings and the issues leading to the earnings can indicate whether the business will be profitable and successful in the long run. They are the amount of profit that a company produces during a specific period and represent a direct link to the company performance. Earnings per share is a commonly cited ratio used to show the company's profitability on a per share basis. According to Mulama (2014) earnings retained are defined as the portion of net profit after tax which is kept by the firm instead of distributing it as dividends.

d) Concept of Microfinance Bank

According to Hartarska (2005) microfinance is the provision of small scale financial services to low income or unbanked people. According to Ledgerwood (1999) microfinance has evolved as an economic development approach intended to benefit low income women and men. The term refers to the provision of financial services to low income clients, including the self employed. According to Central Bank of Nigeria (2012) "a microfinance bank (MFB) unless otherwise stated shall be construed to mean any company licensed by central bank of Nigeria to carry on the business of providing financial services such as savings and deposits, loans, domestic fund transfers, other financial and non financial services to micro clients".

III. Empirical Review

a) Effect of Leverage on Sustainability

There has been mixed result of studies on the effect of debt on returns ranging from those supporting a positive relationship hypothesis to those with the contrary view. Some studies found that capital structure have relationship with the returns of firms. Wambugu and Ngugi (2012) empirically examined the factors influencing financial sustainability of microfinance institutions in Kenya and found a positive association between capital structure and financial sustainability of microfinance institutions in Kenya. This study therefore seeks to establish relationship between financial leverage, customer deposit and capital adequacy and financial sustainability of some selected Nigerian microfinance banks. Abor (2005) empirically examined the effect of debt on performance of firms in Ghana and confirmed a significantly positive relationship between total debt and total assets and return on equity thereby indicating a positive leverage. A firm's debt level and its value will be positively related especially when shareholders have absolute control over the business of the firm and it will be negatively related when debt holders have the power to influence the course of the business. The impact of debt on value of firms therefore, depends on the balance of power within a firm. If shareholders have more power, a positive leverage will prevail and if debt holders have more power, a negative leverage would take place (Belkovitch and Isreal, 1996).

Tauseef, Lohano and Khan (2015) examined empirically the effect of debt financing on firms financial performance, measured as return on equity, using panel data of 95 textile companies in Pakistan and finds a non

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linear relationship between return on equity and debt to asset ratio. Kyereboah (2007) also examined the impact of capital structure on the performance of microfinance institutions and the finding of the study indicates that highly leveraged microfinance institutions have higher ability to deal with moral hazards and adverse selection than their counterparts with lower leverage ratios.

Ganka (2010) empirically examined the determinants of financial sustainability of rural microfinance institutions in Tanzania and finds that equity financing is the cheaper option and as such improves the performance of microfinance institutions. The study also noted that how capital of microfinance is structured determines the performance of the institution and not having different sources of capital structure. Kipkoech and Muturi (2014) conducted an empirical study to establish the relationship between capital structure and financial performance of microfinance institutions sampling 52 respondents from selected microfinance institutions in Nakuru town. The study found that the capital structure had the greatest influence and enhances the performance of microfinance institutions. Waweru and Wanyoike (2016) also examined the effect of equity capital and debt capital on profitability of microfinance institutions adopting a cross-sectional survey research design targeting 171 employees within the institutions using SPSS to facilitate the analysis. The study found equity capital not significantly influencing profitability but debt capital had a significant influence on profitability. Raza (2013) in his study of effect of financial leverage on firm performance using panel data analysis found negative relationship between leverage and performance. Ahmed, Salman and Shamsi (2015) studied a stochastic relationship between financial leverage and profitability of cement sector operating in Pakistan using 18 cement manufacturers out of 21as sample size for the period of six years (2005-2010) and the study found that financial leverage has a statistically significant inverse impact on profitability.

b) Debt Capital and Performance of Microfinance Banks

Kaloo (2015) also examined the determinants of financial performance of microfinance banks in Kenyan coast in the model using descriptive research design with a target population of 65 members of Nanimo and Jumbe MFIs in Jomvu Kuu from which a sample of 60 members was identified. Questionnaires were used to collect primary data. The data collected was analyzed using descriptive statistics to determine the mean, standard deviation, minimum and maximum of the various variables. The findings indicated that loan and savings portfolio affects the performance of MFIs, this was because savings ensured liquidity of the MFIs and prudent allocation of loans Group lending, effective loan portfolio management and diversification of loan portfolio enhances the performance of MFIs.

c) Customer Deposit and Performance of Microfinance Banks

Okun (2012) in a bid to investigate the gradual rise in customer deposits and consequently boosting the profitability of banking sector conducted a study on the effect of level of deposits on financial performance of commercial banks in Kenya. His study adopted a causal research design using secondary data from 2004 to 2011 employing the use of SPSS found that there exist a positive and significant relationship between deposit ratio and return on equity. The result also indicates a positive and significant relationship between deposit ratio and return on asset. Tuyishime et al (2015) investigated the effect of deposit mobilization on financial performance of commercial banks in Rwanda and the research used a census to study a population of 27 staff. The main source of data was the primary and secondary data. The documentary method, the questionnaire as research instruments were used to get the data needed for the research. Data were processed by the use of descriptive statistics after editing have been done. The computer software SPSS version 20 was used as a device to accommodate analysis. Pearson and Spearman's correlation analysis was used to test the nature of relationship. The findings indicated that a positive change in deposits interest rate affects the level of deposits received and later on the profitability of the bank.

Jenyo and Adebayo (2015) investigated the performance appraisal of microfinance banks in Nigeria and the method of data collected was based on the use of both descriptive survey and analytical presentation. The study revealed that generally, the liquidity position of MFB was weak and the debt equity ratio revealed that these banks rely heavily on borrowed capital; hence, if for any reason the creditors withdraw their funds, the banks would be faced with a situation of imminent collapse. Similarly, there are strong relationships between their capital base, liquidity stability and relative income.

d) Equity Capital (Capital Adequacy) and Performance of Microfinance Banks

Ngumo, Collins and David (2017) examined the determinants of financial performance of microfinance banks in Kenya and among the independent variables in his model is capital adequacy measured by equity to total asset (eta). The study found a positive and statistically significant relationship between capital adequacy (eta) and financial performance of microfinance banks in Kenya.

The study of Waweru and Wanyoike (2016) determined the relationship that exist between equity capital and profitability in MFIs and finds a weak, positive and statistically significant relationship between equity capital and profitability of MFIs.

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Olusuyi and Felix (2017) examined the relationship between capital structure and financial performance using panel data, variables of return on assets and returns on equity were used to measure the financial performance, also variables of debt-equity ratio, asset turnover and age of firm were used to measure capital structure of the sampled manufacturing firms. This study observed that debt-equity ratio has a negative but statistically significant effect on financial performance of manufacturing firms in Nigeria.

IV. Theoretical Framework

This research study will utilize the three theories to explain the capital structure of firms. These theories are the pecking order theory, the trade off theory and the Modigliani and Miller theory.

a) Pecking Order Theory

The pecking order asserts the empirical fact that firms show preferences of internally generated funds to external funds (equity finance preference to debt finance). If equity finance falls short of financing an investment opportunities, firms may or may not acquire external finance (debt financing, share financing, deposit taking etc) and if that decision is taken, firms will choose among the different external finance sources in a way that will minimize cost. The resulting pecking order of financing is as follows: internally generated funds first, followed by respectively low-risk debt financing and share financing (Muturi & Githire, 2015).

b) Trade-off Theory

Trade-off theory affirms that firms determine their optimal capital structure by trading off the costs against the benefits of the use of debt and equity. According to Luigi and Visinescu (2009) the trade-off theory predicts that firms target their capital structure in such a way that if the actual leverage ratio deviates from the optimal one, the firm will adapt its financing behavior in such a way that brings the leverage ratio back to its optimal level.

c) Modigliani and Miller Theory

Modigliani and Miller propounded a theory that assumes a perfect market and states that the value of the firm is independent of its capital structure. It states that the value of the firm remains unchanged irrespective of the structure a firm uses to finance the operation. The theory propounded shows conditions under which capital structure is irrelevant and the following assumptions were made: A world without taxes, no bankruptcy costs, no transaction costs, no growth and all earnings were paid out as dividends and all individuals in the market are homogenous.

V. Methodology

This study adopts a descriptive research design using OLS regression and fixed effect regression analysis covering seven years (2010 - 2016).

Population and sample of the study comprises of Microfinance banks (MFBs) referred to as large and well developed microfinance banks in Nigeria selected for the study as follows;

1. NPF Microfinance banks plc
2. FORTIS Microfinance banks plc
3. Nasarawa Microfinance Bank ltd
4. Amba Microfinance Bank ltd
5. FPN Microfinance Banks ltd
6. Keffi Microfinance Bank ltd

The selection is based on their performances and the study therefore employ the use of OLS regression and fixed effect regression analysis to examine the effect of independent variables (dte, dta, depte depta and eta) on the dependent variables (Financial Sustainability proxied by Total revenue divided by total expenses, operational sustainability measured by Total Revenue divided by (financial expense plus operating expense plus loan loss provision expense).

a) Model Specifications

$$FSS=\beta_0 + \beta_1 dte + \beta_2 dta + \beta_3 depte + \beta_4 depta + \beta_5 eta + \varepsilon$$

$$OSS=\beta_0 + \beta_1 dte + \beta_2 dta + \beta_3 depte + \beta_4 depta + \beta_5 eta + \varepsilon$$

Where;

FSS = Financial Self Sufficiency
OSS = Operational Self Sufficiency
Dte = Debt to Total Equity
Dta = Debt to Total Asset
Depte = Deposit to Equity
Depta = Deposit to Asset
Eta = Equity to Total Assets
β_0 = Constant
ε = Error Term

VI. Discussion of Findings

Table A1: Descriptive Statistics for fss, dte, dta, depte, depta, eta

Variable	Obs	Mean	Std. Dev.	Min.	Max.
fss	42	1.277619	.519727	.05	2.46
dte	42	2.135	2.158905	.11	7.99
dta	42	.6709524	.785201	0	5.44
depte	42	1.938095	1.781537	.11	6.46
depta	42	.4711905	.2248816	.02	.81
eta	42	.3602381	.1524193	.11	.7

Source: Researcher's computation using STATA V.12

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Table A1 presents descriptive statistics for the variables of the study. It describes the mean, standard deviation, minimum and maximum value. The average value of financial sustainability (FSS) recorded in the period of the study is 1.278. The minimum is 0.05 and the maximum reached is 2.46. In the case of leverage proxied by debt to equity (dte) the average value stood at 2.135 with minimum of 0.11 and the maximum reached is 7.99. Leverage proxied by debt to asset (dta) average stood at 0.671 with minimum of 0 and maximum reached is 5.44. Customer deposit proxied by deposit to equity (depte) average value stood at 1.938 with min. of 0.11 and max. reached is 6.46. Customer deposit proxied by deposit to asset (depta) average value stood at 0.471 with minimum value of .02 and maximum reached is 0.81 In the case of capital adequacy proxied by equity to total asset, the average value stood at .360 with minimum value of .11 and the maximum reached is 0.7

a) Correlation Analysis

Table A2: Correlation Result

	fss	dte	dta	depte	depta	eta
Fss	1.0000					
Dte	0.4664	1.0000				
Dta	0.0998	0.0555	1.0000			
Depte	0.4277	0.7309	0.0822	1.0000		
Depta	0.0345	0.0328	-.0837	0.5459	1.0000	
eta	-0.4651	-0.7389	0.0191	-0.8080	-0.3288	1.0000

Source: Researcher's computation using STATA V.12

The correlation result indicates that leverage proxied by (debt to equity and debt to asset) and customer deposit proxied by (deposit to equity and deposit to asset) have positive influence on financial sustainability of Nigerian microfinance banks. It is alternatively found that capital adequacy proxied by equity to asset negatively influences financial sustainability of microfinance banks in Nigeria. The cases above respectively indicate the significance of the relationship given by 1.0000.

b) Regression Analysis

Table A3: Regression Result

Ind. Var.	Coefficient	Std. Error	T	p>/t/	Coefficient	Std. Error	T	p>/t/
Constant	1.562391	.5010529	3.12	0.004	1.751195	.4585886	3.82	0.001
dte	.0278084	.0688177	0.40	0.689	.086801	.0656172	1.32	0.196
dta	.0434004	.0978753	0.44	0.660	.1222792	.0768472	1.59	0.122
depte	.0653163	.107004	0.61	0.545	-.0378282	.0861281	-0.44	0.664
depta	-.3933397	.5229369	-0.75	0.457	-.6036059	.3702569	-1.63	0.113
eta	-.8730718	.8979784	-0.97	0.337	-1.063774	.9263139	3.82	0.260
F	2.65							
P-Value	0.0384							
R-Squared	0.2694							
Wald Chi2 P- Value	0.0927							
R- Squared: Within	0.2526							
Between	0.1758							
Overall	0.1953							

Source: Researcher's Computation Using STATA V, 12.

Table A3 depicts the result of both the OLS and fixed effect regression. The OLS shows the F-value of 2.65 and its P-value is 0.0384. Both the OLS and the random effect show the value of R2 as 0.2694 which is the multiple coefficient of determination that gives the proportion or percentages of the total variation in the dependent variable jointly explained by the explanatory variables. Hence, it signifies that approximately only 27% of total variation in financial sustainability (FSS) of selected MFBs in Nigeria can be explained by financial leverage, customer deposit and capital adequacy (dte, dta depte, depta & eta).

The regression result as shown in table A3 indicates that financial leverage (dte and dta) in both the OLS and fixed effect regression insignificantly positively influences financial sustainability. This implies that as the financial leverage increases the financial sustainability improves. This finding corroborate with the

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findings of Kereboah (2007) and Wambugu and Ngugi (2012) and others. In addition, customer deposit measured by deposit to equity in OLS regression insignificantly positively influences financial sustainability which implies that increase in customer deposit leads to improvement positively in financial sustainability. This finding corroborate with the finding of Tuyishime et al (2015) and Okun (2012). On the other hand, customer deposit measured by depta in OLS influences insignificantly negatively to financial sustainability but both OLS and fixed effect regression indicates insignificantly negative influence of capital adequacy on financial sustainability, the finding which is inconsistent with that of Ngumo et al (2017) while fixed effect regression indicate insignificantly negative influence of customer deposit in the two measurements to financial sustainability.

Hausman Specification test was carried out to decide between fixed or random effect models. The result of the hausman test for the model revealed that it is not correlated because of the chi-square probability of 0.0001 which is significant and hence fixed effect was chosen for the interpretation. This is because in Samaila (2014) as cited by Aza (2017) an important assumption of the fixed model is that those time - invariant characteristics are unique to individual firms and should not be correlated with other firm's characteristics.

Therefore fixed effect regression line fss = 1.751195 + .086801dte + .1222782dta - .0378282depte - .6036059depta - 1.063774eta indicates that the financial sustainability increases as financial leverage increases and decreases as customer deposit and capital adequacy increases but there is no statistical evidence to suggest that the effect is significant since their p-values are greater than the significant level of 0.05. These findings are consistent with the findings of Abor (2005) and others but contradict the findings of Okun (2012) and others.

c) *Post Residual Diagnostic Test*

i. *Multicolonearity Test*

Table A4: Variance Inflation Factor (VIF)

Variables	VIF	I/VIF
depte	6.63	0.150850
dte	4.03	0.248352
eta	3.42	0.292633
depta	2.52	0.396396
dta	1.08	0.928171
Mean VIF	3.53	

Source: Researcher's Computation using STATA V. 12

The vif for depte, dte, eta, depta and dta are 6.63, 4.03, 3.42, 2.52 and 1.08 respectively. This indicate that all vifs are less than 10 respectively. This gives this study a conclusion that there is no problem of multicolonearity as multicolonearity exist only when the vif is greater than 10.

ii. *Heteroskedasticity Test*

Table A5: Heteroskedasticity

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant Variance

Variables: Fitted Values of Fss

chi2 (1) = 0.72

Prob > chi2 = 0.3946

Source: Researcher's Computation using STATA V. 12

The Breusch – Pagan/ Cook- Weisberg test for heteroskedasticity on depte, dte, eta, depta and dta given the chi2 prob. Of 0.3946 indicating that the data are homoskedasticity. Thus the p-value of 0.3946 which is greater than 0.05 significant levels makes the study to accept the hypothesis that the residuals are not heteroskedasticity but homoskedasticity and is desirable.

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VII. Discussion of Findings

Table B1: Descriptive Statistics for Oss, dte, dta, depte, depta, eta

Variable	Obs.	Mean	Std. Dev.	Min.	Max.
oss	42	2.71	4.000082	-1.04	12.84
dte	42	2.135	2.158905	.11	7.99
dta	42	.6709524	.785201	0	5.44
depte	42	1.938095	1.781537	.11	6.46
depta	42	.4711905	.2248816	.02	.81
eta	42	.3602381	.1524193	.11	.7

Source: Researcher's computation using STATA V.12

Table B1 presents descriptive statistics for the variables of the study. It describes the mean, standard deviation, minimum and maximum value. The average value of operational sustainability (OSS) recorded in the period of the study is 2.71. The minimum is -1.04 and the maximum reached is 12.84. In the case of leverage proxied by debt to equity (dte) the average value stood at 2.135 with minimum of 0.11 and the maximum reached is 7.99. Leverage proxied by debt to asset (dta) average stood at 0.671 with minimum of 0 and maximum reached is 5.44. Customer deposit proxied by deposit to equity (depte) average value stood at 1.938 with min. of 0.11 and max. reached is 6.46. Customer deposit proxied by deposit to asset (depta) average value stood at 0.471 with minimum value of .02 and maximum reached is 0.81 In the case of capital adequacy proxied by equity to total asset, the average value stood at .360 with minimum value of .11 and the maximum reached is 0.7.

a) Correlation Analysis

Table B2: Correlation Result

	Oss	dte	dta	depte	depta	eta
oss	1.0000					
dte	-0.1135	1.0000				
dta	-0.0138	0.0555	1.0000			
depte	0.3044	0.7309	0.0822	1.0000		
depta	0.4553	0.0328	-0.0837	0.5459	1.0000	
eta	-0.2602	-0.7389	0.0191	-0.8080	-0.3288	1.0000

Source: Researcher's computation using STATA V, 12

The correlation result indicates that financial leverage proxied by (debt to equity and debt to asset) and capital adequacy proxied by equity to asset shows negative influence on financial sustainability. On the other hand, customer deposit proxied by (deposit to equity and deposit to asset) has positive influence on financial sustainability of Nigerian microfinance banks. The cases above respectively indicate the significance of the relationship given by 1.0000.

b) Regression Analysis

Table B3: Regression Result

OSS	OLS				Fixed Effect			
Ind. Var.	Coefficient	Std Error	T	p>/t/	Coefficient	Std Error	T	p>/t/
Constant	6.904373	3.537486	1.95	0.059	-.3683785	2.045234	-0.18	0.858
dte	-1.492543	.48586	-3.07	0.004	-.0156521	.2926424	-0.05	0.958
dta	-.0048151	.6910097	-0.01	0.994	-.7080228	.3427265	-2.07	0.047
depte	1.205631	.7554593	1.60	0.119	.4268149	.3841182	1.11	0.275
depta	.9963808	3.69199	0.27	0.789	-2.198556	1.651289	-1.33	0.193
eta	-10.57821	6.339823	-1.67	0.104	10.5363	4.131216	2.55	0.016
F	4.51							
P. Value	0.0027							
R-Squared	0.3852							
Wald Chi2 P- Value				0.1006				
R- Squared: Within				0.2474				
Between				0.2510				
Overall				0.0916				

Source: Researcher's computation using STATA V, 12

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Table B3 depicts the result of both the OLS and fixed effect regression. The OLS shows the F-value of 4.51 and its P-value is 0.0027. Both the OLS and the random effect show the value of R^2 as 0.3852 which is the multiple coefficient of determination that gives the proportion or percentages of the total variation in the dependent variable jointly explained by the explanatory variables. Hence, it signifies that approximately only 39% of total variation in operational sustainability (OSS) of selected MFBs in Nigeria is caused by financial leverage, customer deposit and capital adequacy (dte, dta depte, depta & eta).

The regression result as shown in table B3 indicates that financial leverage (dte) significantly negatively influences operational sustainability in the OLS regression and in fixed effect regression; (dte) insignificantly negatively influences operational sustainability. Financial leverage measured by dta insignificantly negatively influences operational sustainability in OLS and significantly negatively influences operational sustainability in fixed effect regression. This implies that as the financial leverage increases the operational sustainability decreases. This finding corroborate with the findings of Tausef et al (2015) and olusuyi and Felix (2017) but disagree with the finding of Abor (2005) Ganka (2010), kipkoech and Muturi (2014), Waweru and Wanyoike (2016). In addition, customer deposit in both proxies in OLS regression significantly positively influences operational sustainability and in fixed effect regression, deposit to asset insignificantly negatively influences operational sustainability which implies that increase in customer deposit leads to improvement positively in operational sustainability. This finding corroborate with the finding of Tuyishime et al (2015) and Okun (2012). Capital adequacy have insignificantly negatively influence in OLS regression while in fixed effect regression capital adequacy have significantly positive influence on operational sustainability. Hausman Specification test was carried out to decide between fixed or random effect models. The result of the hausman test for the model revealed that it is not correlated because of the chi-square probability of 0.0001 which is significant and hence fixed effect was chosen for the interpretation. Therefore fixed effect regression line oss = -.3683785 -.0156521dte -.7080228dta + .4268149depte -2 .198556depta + 10.5363eta indicates that the operational sustainability decreases as financial leverage increases and increases as customer deposit and capital adequacy increases but there is no statistical evidence to suggest that the effect is significant since their p-values are greater than the significant level of 0.05. These findings are consistent with the findings of Olusuyi and Felix (2017) and Tausef et al (2015 and others but contradict the findings of Kipkoech and Muturi (2014) and others.

c) Post Residual Diagnostic Test

i. *Multicolonearity Test*

Table B4: Variance Inflation Factor (vif)

Variables	VIF	I/VIF
depte	6.63	0.150850
dte	4.03	0.248352
eta	3.42	0.292633
depta	2.52	0.396396
dta	1.08	0.928171
Mean VIF	3.53	

Source: Researcher's Computation using STATA V. 12

The vif for depte, dte, eta, depta and dta are 6.63, 4.03, 3.42, 2.52 and 1.08 respectively. This indicates that all vifs are less than 10 respectively. This gives this study a conclusion that there is no problem of multicolonearity as multicolonearity exist only when the vif is greater than 10.

ii. *Heteroskedasticity Test*

Table B5: Heteroskedasticity

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity

Ho: Constant variance

Variables: fitted values of Oss

$chi^2(1)$ = 0.69

Prob > chi^2 = 0.4052

The Breusch – Pagan/Cook- Weisberg test for heteroskedasticity on depte, dte, eta, depta and dta given the chi^2 prob. Of 0.4052 indicating that the data are homoskedasticity. Thus the p-value of 0.4052 which is greater than 0.05 significant levels makes the study to accept the hypothesis that the residuals are not heteroskedasticity but homoskedasticity and is desirable.

VIII. Conclusion and Recommendation

This study has examined the influence of financial leverage, customer deposit and capital adequacy on the financial and operational sustainability of some selected microfinance banks in Nigeria. This study has provided empirical evidence that there is no statistical evidence to suggest that financial leverage, customer deposit and capital adequacy has significant influence on the financial and operational sustainability of the selected microfinance banks in Nigeria.

Based on the findings of the study where the study observed that financial leverage, customer deposit and capital adequacy have insignificantly positive influence on financial and operational sustainability. It is therefore recommended that Nigerian microfinance Banks can source funds from financial leverage taking cognizance of the cost of debt, mobilize customer deposits for fear of eminent collapse and optimize

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equity capital in order to attain financial and operational sustainability.

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