



Determinants of Financial Sustainability of Financial Institutions in Africa: Evidence from Nigerian Deposit Money Banks

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Abstract

The importance of financial sustainability of financial service providers in ensuring the economic development of any nation or continent cannot be over emphasized. Considering the problem of liquidation facing financial institutions in Africa in 21st century, this study is considered necessary. Financial sustainability of financial institutions is crucial for long-term success and development as they provide the opportunity of meeting the needs of the present without compromising the ability of the institutions to continue in foreseeable future – legal entity. Using Nigeria as a case, this study examines the determinants of financial sustainability of Nigerian deposit money banks from 2009-2018. The study adopts ex-post facto research design and the determinants used in the study are leverage, liquidity, firm size and capital adequacy of the banks. The population of the study comprises 14 listed deposit money banks on the Nigerian stock exchange as at 31st December, 2018. The data were collected through secondary method and panel multiple regression was used for the analysis. The study discovers that liquidity and capital adequacy have positive significant effect on financial sustainability of the banks while leverage and firm size have positive but insignificant effect on financial sustainability of deposit money banks in Nigeria. Based on the study findings, the study concludes that increase in liquidity and capital adequacy will significantly increase financial sustainability. Hence, improving liquidity and capital

adequacy of the banks would improve the financial sustainability as this facilitates asset growth. Based on the conclusion, the study recommends that Deposit money banks should maintain a good liquidity level in order to meet with the bank operations. Also, the regulatory bodies should mandate the banks to improve on their capital adequacy level in order to avoid bank liquidation.

Keywords: *Financial sustainability, Determinants of sustainability.*

Introduction

The financial services sector calls a significant share of economic activity in most countries or continents. The sector is known for its involvement in long-term growth and efficiency in channeling resources to all sectors of the economy. Improved provision of financial services enables greater efficiency in other sectors by expanding the range and enhancing the quality of such services, by lowering costs of funds, and encouraging savings and more efficient use of these savings. Nigeria has a diversified financial sector, which is undergoing rapid expansion. The sector consists of deposit money banks, insurance companies, non-banking financial companies, co-operatives, pension funds, mutual funds and other smaller financial entities. In this regard, the financial services sector has been an important

contributor to the economic development.

Financial services are fundamental to the functioning of an economy. Without them, individuals with money to save might have trouble finding those who need to borrow, and vice versa. And without financial services, people would be so intent on saving to cover risk that they might not buy very many goods and services. Moreover, even relatively simple financial goods can be complex, and there are often long lags between the purchase of a service and the date the provider has to deliver the service. The market for services depends a great deal on trust. Customers (both savers and borrowers) must have confidence in the advice and information they are receiving. The importance of financial services to the economy and the need to foster trust among providers and consumers are among reasons

government oversee the provision of many financial services (Bogan, 2007)

In carrying out these functions therefore, the protection of the providers and users of funds, the soundness and sustainability of financial service institutions through a continuous, resilience, and proactive assessment of their financial sustainability cannot be over-emphasized. The financial sustainability of financial service providers is crucial for long-term success as they provide the opportunity of meeting the needs of the present without compromising the ability of the institutions to continue in foreseeable future – legal entity. Financial sustainability is increasingly becoming one of the most relevant issues to financial service firms. This is premised on astronomical increase in operational cost, globalization, revolution in information technology with its attendant risk, competitions, increase in regulation, global environmental changes, financial and economic meltdown, increase in customers' sophistication and demands and other factors that could make financial services providers vulnerable to overnight distress. A financial service firm will therefore, be sustainable if it has ability to continue in business and sustain operations for the foreseeable future without any significant sign of distress or contravention of statutes, laws or regulations capable of bringing it to liquidation.

There are two levels of sustainability - operational self-sufficiency (OSS); and financial self-sufficiency (FSS). While operational self-sufficiency (OSS) focuses on the ability to manage their core businesses profitably (revenues and expenses), financial self-sufficiency (FSS) aims at the ability to earn sufficient income to cover operating expenses and finance costs. A financial service firm (FSF) is operationally sustainable when it achieves 100% in OSS and financially sustainable when it accomplishes 110% performance in OSS (Bogan, 2007). It therefore suffices to say that to be financially sustainable; FSFs need to be able to cover all operating costs from income generated from its operations. In other words, FSF is the ability to keep progressing towards attaining corporate objectives without recourse to external sustenance. This basically denotes smooth operation with necessary profitability and adequate liquidity to overcome any challenges of insolvency. It also underscores the fact that efficient operation as well as long-term financial performance (profitability) is vital to be financially sustainable.

Thus, financial sustainability aims at ensuring that a financial service firm is able to generate adequate income to enable the institution to discharge its operations efficiently and render financial services without over relying on external sources of funding such as the government. According to Odunga, Nyangweso, Carter and Mwarumba (2013), financial service firms should look into five key determinants in order to ensure financial sustainability, that are adequate capital requirement, firm size, maintain reasonable liquidity, credit risk policies and cost reduction mechanism through operational efficiency. This is aims at paving the way for continuity in operations into foreseeable future, guaranteeing confidence and assurance to investors on safety of their investment and provision of enduring financial services to all sectors of the economy at large. This study therefore, assess the determinants of financial sustainability of financial service firms in Nigeria.

The study looks at Nigeria case by examining the determinants of financial sustainability in Nigeria deposit money banks from 2009 to 2018. The study assessed the determinants of financial sustainability of deposit money banks in Nigeria with the following specific objective:

- i. Examine the effect of leverage on financial sustainability of deposit money banks in Nigeria.
- ii. Investigate the effect of liquidity on financial sustainability of deposit money banks in Nigeria.
- iii. Analyse the effect of firm size on financial sustainability of deposit money banks in Nigeria.
- iv. Determine the effect of capital adequacy on financial sustainability of deposit money banks in Nigeria.

The following hypotheses were tested in the study:

H₀₁: Leverage has no significant effect on financial sustainability of deposit money banks in Nigeria.

H₀₂: Liquidity has no significant effect on financial sustainability of deposit money banks in Nigeria;

H₃: Firm size has no significant effect on financial sustainability of deposit money banks in Nigeria

H₄: Capital adequacy has no significant effect on financial sustainability of deposit money banks in Nigeria

Concept of Financial Sustainability

Emmanuel (2015) defined financial sustainability as the ability of a project, a program or an organization to maintain broader sources of funding in order to provide standard services to its clients over time and can be evaluated through profitability, liquidity, solvency and efficiency. This study tends to agree with the definition of financial sustainability by Emmanuel (2015) because engaged in sourcing of funds through debt and equity in order to maintain sound business operation hence, providing standard services to its clients.

Sa-Dhan Microfinance Resource Centre (2005) defines financial sustainability as the ability of a company to cover all its present costs and the cost incurred in its growth if it expands its operations. These costs include operating expenses, administrative expenses and financing expenses. Some of these costs are inherent and so may not be easily spotted out. However, efficiency ratios help to evaluate how well the manager has been able to manage those costs.

Financial sustainability can also be described as the ability to cover operating costs without constraints. It indicates that the income or revenue generated by an organization is greater than the operational costs (Pollinger, Outhwaite and Cordero-Guzman, 2007). In the context of financial service firm, financial sustainability implies that these institutions generate revenue that is greater than the costs of providing financial services. That is, the income generated by these firms is more than what is require to cater for salaries, wages and allowances of staff in addition to procure assets.

Determinants of Sustainability

Financial Leverage

Abor (2005) defines financial leverage as the amount of debt that an entity uses to buy more assets. Leverage is employed to avoid using too much equity to fund operations. An excessive amount of financial leverage increases the risk of failure, since it becomes more difficult to repay debt. The financial leverage formula is measured as the ratio of total debt to total assets. As the proportion of debt to assets increases, so too does the amount of financial leverage. Financial leverage is favorable when the uses to which debt can be put generate returns greater than the interest expense associated with the debt. Many companies use financial leverage rather than acquiring more equity capital, which could reduce the earnings per share of existing shareholders. Financial leverage is a risky approach in a cyclical business, or one in which there are low

barriers to entry, since sales and profits are more likely to fluctuate considerably from year to year, increasing the risk of bankruptcy over time (Amalendu, 2012).

Liquidity

According to Abdulraheem, Yahaya and Ahu (2011), an important decision that the managers of FSFs take refers to the liquidity management. Liquidity is simply the ease with which assets of banks can be encased in times of need or its fair value (Abdulraheem, Yahaya & Ahu, 2011). It is that quality of an asset that enables a bank and insurance to respond to any financial situation requiring urgent infusion of money. Liquidity is required to meet regular financial obligations of the bank and insurance especially without dipping into its reserves. When FSFs hold high liquidity, they do so at the opportunity cost of some investment which could generate high returns. The trade-offs that generally exist between return and liquidity risk are demonstrated by observing that a shift from short-term securities to long-term securities or loans raises a bank's return but also increases its liquidity risks and the inverse is true. Thus, a high liquidity ratio indicates a less risky and less profitable which in turn affect financial sustainability of firms.

Capital Adequacy

The concept of capital adequacy is rooted in the rearrangement of the existing capital structure of banks to mitigate wide spread distress. Financial institutions and business establishments, gain more opportunity in an atmosphere of adequate capital. The term 'capital' is related to recapitalization which serves as a means of absorbing losses that accrue in the process of carrying out operational activities and which eventually makes them to have enough capital bases to back up their activities (Odunayo & Olorunfemi, 2016). This increases their services to their customers in form of loans, advances and investments which in return accrue profits to the firms. In the banking and insurance, the concept of recapitalization deals with restructuring the capital base to better positions. It is a measure adopted by the regulatory authorities in Nigerian context. Capital has been a major factor in any business as it indicates how favorable any business will operate in maintaining efficiency and stability.

Empirical Review

A number of studies have been conducted on financial sustainability and financial sector responses across the world. For instance, In Kenya, Opala (2014) examined the effect of financial stability on the performance of deposit taking SACCOs in Nairobi County. The findings show that there were factors that positively influenced the financial sustainability of Deposit taking SACCO in Nairobi County, including liquidity, capital adequacy, size of the SACCO and management quality. This study did not review the strategies adopted by commercial banks to ensure financial sustainability. The SACCO sector though very important, it operates on a different model from that used by commercial banks.

Agbeja, Adelokun and Olufemi (2015) found a positive and significant relationship between capital adequacy and bank's profitability using Nigerian banks from 2010 to 2014. This supports the argument that banks with higher capital enjoy higher profitability, financial soundness and safety. Therefore, a strong capital structure is essential for banks in developing countries with a view to having enough strength to cope with any financial crisis.

Wafula (2016) examined the determinants of financial sustainability of microfinance institutions in Kenya. The study focused on the influence of liquidity level, operational expense, profitability and leverage of the institution on financial sustainability of MFIs. The study established that liquidity, capital adequacy and leverage were significantly correlated with financial sustainability of microfinance institutions in Kenya. He noted that the higher the amount of capital available for investment and spending, the more financially stable MFIs become. Higher debt to equity ratio leads to poor financial sustainability. A higher debt leads to a higher debt to equity ratio which affects the amount of available equity to be used for investment purposes. This negatively affects financial sustainability.

Dinah (2017) find out the determinants of Financial Sustainability of Micro Finance Institutions in Kenya. The study sought to find out the influence of liquidity level, operational expense, Profitability, leverage of the institution, on financial sustainability of MFIs. This study used descriptive survey research design. The population of the study was 44 Microfinance Institutions obtained from the Association of Microfinance Institution formed the sampling frame. Census technique was used because of their small numbers in the population. Linear regression was also carried out to establish into determinants of financial sustainability of microfinance institutions in Kenya. The study found out that

liquidity, capital adequacy and leverage are significantly correlated with financial sustainability while financial performance is not.

Saheed (2018) examines internal factors affecting profitability of Deposit Money Banks (DMBs) in Nigeria for the period of 2008-2016 using panel data of 14 listed banks drawn from the Nigerian Stock Exchange. Secondary data obtained from the listed Deposit Money Banks' financial statements were analyzed. The independent variables were proxied by Capital Adequacy, Credit Risk, and Inflation while profitability was proxied by Return on Assets (ROA). The study adopts correlational research design to investigate the determinants of profitability of the Deposit Money Banks. Panel data techniques (fixed and random effects model) were employed to examine the effect of internal factors on profitability of the sampled listed Deposit Money Banks. Although Hausman specification test suggested that fixed effect model is more appropriate, the study used Feasible Generalized Least Square (FGLS) to underpin the outcome of the Hausman specification. The study found that internal factors had significantly influenced the deposit money banks' profitability over the study period. The Capital Adequacy had a positive and significant relationship with bank profitability while Credit Risk had a negative and significant relationship with bank profitability during the study period. It is therefore suggested among others that the Central Bank of Nigeria (CBN) should maintain a central database called Credit Risk Management System across banks in the country, which would be generating accurate and reliable credit information on bank borrowers as a way of evaluating the repayment capabilities of the customers to be granted credit facilities.

Theoretical Framework

Efficiency Theory

The efficiency theory was formulated by Demsetz (1973). The efficiency theory presupposes that better management and scale efficiency results to higher concentration thus greater and higher profits. Accordingly, the theory posits that management efficiency not only increases profits, but also results to larger market share gains and improved market concentration (Athanasoglou, Brissimis & Delis, 2005). The efficiency theory also states that a positive concentration financial sustainability relation may be a sign of a positive connection relating to efficiency and size. The theory postulates that positive association between the concentration and profit arise from a lower cost which

is mainly achieved through production efficient practices and increased managerial process (Birhanu, 2012).

The efficiency theory supports that the most favorable production can be attained through economies of scale. Thus, maximum operational efficiency in the short run is achieved at a level of output where all economies of scale available are being employed in an efficient manner (Odunga et al., 2013). Additionally, the efficiency theory explains that attaining higher profit margins arises from efficiency which allows banks to obtain both financial sustainability and market shares (Mirzaei, 2012). According to Fisseha (2015), the efficiency theory presupposes that profitability and high concentration results from efficient cost reduction practices and better management strategies across the organization. Thus, efficient firms in the market lead to an increase in their market share and the size of their firm because of aggressive production and management techniques (Birhanu, 2012).

In the banking industry, the efficient theory advocates that large commercial banks which have better and experienced management and up to date production technologies are able to reduce their operational costs, therefore earned higher returns on investment and become financially sustainable in comparison to smaller banks (Soana, 2011). Basically, the theory is based on the premise that banks attain financial sustainability if they operate efficient than their competitors which lowers operating costs leading to good profits (Onuonga, 2014). The efficiency theory also assumes that internal efficiencies influence sustainability of commercial banks (Obumuyi, 2013). Further, the theory explains that banks which operates efficiently in comparison to their competitors increase their chance of financial sustainability due to low operating costs. The efficiency hypothesis prevails when a positive significant correlation between profitability and the market share is signaled (Mensi & Zouari, 2010).

Methodology

The study adopts ex-post facto research design to examined the determinants of financial sustainability of Deposit money banks in Nigeria. The population of the study comprises of 14 listed deposit money banks on the Nigerian stock exchange as at 31st December, 2018. The data was collected through secondary method and panel multiple regression was used for the analysis after which diagnostic test of correlation matrix, variance inflation factor,

heteroskedasticity test, normality and descriptive statistics of the variables were conducted.

$$ROA_{it} = \beta_0 + \beta_1 LEV_{it} + \beta_2 LIQ_{it} + \beta_3 FS_{it} + \beta_4 CA_{it} + e$$

Where;

ROA_{it} = Return on asset of bank I at time t

LEV_{it} = Leverage of bank I at time t

LIQ_{it} = Liquidity of bank I at time t

FS_{it} = firm size of bank I at time t

CA_{it} = Capital adequacy of bank I at time t

β₀ = constant and

β₁- β₄ = coefficients of estimates

E= error term

Variable Measurement

S/N	VARIABLE NAME	SYMBOL	VARIABLE TYPE	VARIABLE MEASUREMENT
1	Return on asset	ROA	Dependent	Net income/total asset
2	Leverage	LEV	Independent	Total debt/ total equity
3	Liquidity	LIQ	Independent	Current asset/current liability
4	Firm size	FS	Independent	Log of total asset
5	Capital adequacy	CA	Independent	<u>Total equity</u> Total debt

Source: Compiled by the Researcher

Results and Discussion

Table 1: Descriptive Statistics

	ROA	LEV	LIQ	FS	CA
Mean	1.843053	0.692440	0.791500	8.937273	1.710224
Median	1.699265	0.489510	0.900000	9.003770	1.885419
Maximum	5.594822	3.954800	1.340000	9.719044	4.821239
Minimum	0.041578	0.001518	0.150000	8.028059	0.165238
Std. Dev.	1.211591	0.761602	0.332968	0.392475	1.328986
Skewness	0.740242	2.328526	-0.278710	-0.342538	0.913976
Kurtosis	3.145050	9.182815	1.653350	2.630021	3.495649
Jarque-Bera	12.90842	349.5061	12.39107	3.536240	20.92460
Probability	0.001574	0.000000	0.002039	0.170653	0.000029
Observations	140	140	140	140	140

Source: Generated from Eview, 2019

The result shows that the average mean of return on asset of deposit money banks in Nigeria is 1.843053 while the median is 1.699265. Also, the maximum return on asset is 5.594822 with a minimum of 0.041578. It therefore means deposit money banks in Nigeria has a positive increase within 0.041578 and 5.594822 respectively. Leverage of the banks has a maximum and minimum value of 3.954800 and 0.001518 accordingly while the mean and median of leverage is 0.692440 and 0.489510. In the same way, the result shows a skewness and kurtosis 2.328526 and 9.182815.

Also, liquidity has a probability less than 5% level of confidence which signifies that it is not normally distributed while the mean of the industry is 0.791500 with a median of 0.9. However, the result shows that the banks have a maximum liquidity of 1.34 hence, it signifies that the banks current asst is greater than current liability while the minimum value is 0.150000. Firm size has a maximum asset of 9.719044 while the minimum value is 8.028059. it therefore means that have high asset base and the mean as well the median is 8.937273 and 9.003770. The probability of firm size is greater than 5% level of confidence thus, firm size is normally distributed. The capital adequacy of the banks has a mean and median of 1.710224 and 1.885419 respectively while the maximum and minimum capital adequacy is 4.821239 and 0.165238.

Table 2: Correlation Matrix

	ROA	LEV	LIQ	FS	CAR
ROA	1.000000				
LEV	0.022917	1.000000			
LIQ	-0.045001	0.114493	1.000000		
FS	-0.035940	-0.018497	0.224215	1.000000	
CA	0.214247	-0.108493	0.010457	-0.002944	1.000000

Source: Generated from Eview, 2019

The correlation result shows that leverage and capital adequacy as determinants has positive correlation with financial sustainability and liquidity and firm size has negative correlation with financial sustainability variable.

Table 3: Variance Inflation Factor

Variance Inflation Factors

Date: 12/03/19 Time: 20:53

Sample: 1 140

Included observations: 140

	Coefficient	Uncentered	Centered
Variable	Variance	VIF	VIF
LEV	0.018281	1.883908	1.028014
LIQ	0.099499	7.155968	1.069445
FS	0.070663	552.1847	1.055247
CA	0.005914	2.701459	1.012567
C	5.494903	536.5493	NA

Source: Generated from Eview, 2019

The multicollinearity between the independent variables is checked with the aid of variance inflation factor. From the result, it was discovered that the independent variables have no multicollinearity problem because their centered VIF value is below 10.

Table 4: Heteroskedasticity Test

Heteroskedasticity Test: Breusch-Pagan-Godfrey

Null hypothesis: Homoskedasticity

F-statistic	1.072606	Prob. F(4,135)	0.3726
Obs*R-squared	4.312280	Prob. Chi-Square(4)	0.3654
Scaled explained SS	4.942685	Prob. Chi-Square(4)	0.2932

Source: Generated from Eview, 2019

The result of Breusch-Pagan-Godfrey test for heteroskedasticity test for the study shows that the Obs. R-square value is 4.312280 and the p-value is 0.3726 indicating that there is absence of heteroskedasticity and that of the homogeneity of data.

Table 5: Regression Result

Variables	Coefficient	T-statistics	P-value
LEV	0.211979	1.648330	0.1019
LIQ	1.243732	2.268725	0.0250
FS	0.224432	0.841905	0.4015
CA	0.205438	3.294240	0.0013
C	-1.645295	-0.707219	0.4808
R-Square	0.438430		
F-statistic	5.602822		
Prob(F-statistic)	0.000000		

Source: Generated from Eview, 2019

Fixed effect model was used for the study because the Hausman p-value is less than 5% level of confidence while coefficient of determination shows that the determinants of financial sustainability cause changes on return on asset to the extent of 43.8% while the remaining variation is explained by other determinants not included in the model.

From the individual determinants, the result shows that leverage has positive but insignificant effect on financial sustainability of deposit money banks in Nigeria with p-value greater than 5% level of confidence while liquidity has positive significant effect on financial sustainability of deposit money banks in Nigeria. Therefore, any increase in banks liquidity by a unit, it will increase return on asset of the banks by 1.243732 coefficient

Furthermore, the result shows that firm size has positive but insignificant effect on financial sustainability of deposit money banks in Nigeria with p-value greater than 5% level of confidence while capital adequacy has positive significant effect on financial sustainability of deposit money banks in Nigeria within the period of this study. Thus, a unit increase in capital adequacy will increase financial sustainability of the banks by 0.205438 coefficient.

Conclusion and Recommendations

Based on the study findings, the study concluded that liquidity and capital adequacy is positively and significantly associated with financial sustainability while leverage and firm size has positive but insignificant effect on financial sustainability. Hence, improving liquidity and capital adequacy of the banks would improve the financial sustainability as this facilitates asset growth. Based on the conclusion, the study recommends that Deposit money banks should maintain a good liquidity level in order to meet with the bank operations. Also, the regulatory bodies should mandate the banks to improve on the capital adequacy level in order to avoid bank liquidation

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