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Original Research Article

Financial Deepening and Financial System Stability: Evidence from Nigeria

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Abstract

The nexus between financial deepening and financial system stability in Nigeria was empirically established in this study. Secondary data covering the period of 1989 to 2017 were sourced from the Central Bank of Nigeria (CBN), the National Bureau of Statistics (NBS), the National Insurance Commission (NAICOM), the National Pension Commission (PenCom), the Securities and Exchange Commission (SEC) and the Nigerian Stock Exchange (NSE) for the study. The Research Model was estimated using Ordinary Least Square (OLS) technique through the use of Econometric Views (EViews 8.0) software. The study found that financial deepening positively and significantly impact on financial stability in Nigeria during the period under investigation. Based on the research outcome, it is recommended that government and policymakers should use both fiscal and monetary policies to drive financial stability in Nigeria. Emphasis should be devoted to the use of broad money management to ensure financial stability in Nigeria.

***Keywords*:** Central Bank of Nigeria, financial deepening, financial stability, money supply, real GDP.

JEL Classification Codes: *DO4, G21*

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1. INTRODUCTION

The financial sector of every nation plays a critical role in harnessing resources for productive activity. The financial sector also ensures that resources are efficiently mobilised and allocated in a manner that will enhance the development of the economy. As identified by Ahonkhai

(2018), the financial sector performs critical activities such as the provision of securities markets, fund management, insurance, pension services and risk management.

The financial system serves as the strategic engine of economic growth of developed, emerging and developing economies (Boojihawon & Ngoasong, 2018). In addition to its other functions, the financial system plays financial intermediation roles in mobilising available economic and financial resources from excess economic units to meet the needs of deficit units of the economy, and this gives room for influencing the trend of flow of available resources thereby impacting the rate of economic development (Nzotta & Okereke, 2009; Salami & Oluseyi, 2013).However, if the financial system is to function effectively and efficiently, it needs to be stable always, and so the importance of its stability cannot be overemphasised. Accordingly, it is expected that through reforms, the financial system can be made more efficient, resilient, safe and stable. This is because certain dimensions of financial reform reduce the likelihood of a systemic crisis (Shehzad & De Haan, 2009).

The Nigerian financial system had undergone several evolutionary stages and reforms ever since before the country's independence in 1960 and these reforms have been copiously documented (Ali, Ekpe & Aigba, 2016; Cook, 2011; Ikhide, 1996; Moyo, Nandwa, Council, Oduor & Simpasa, 2014; Obadeyi, 2014; Ogujiuba & Obiechina, 2011; Sanusi, 2011; Soludo, 2004). According to Ito and Sallee (2018:321), "reforms create near-perfect competitive situations which would help to harmonise numerous suppliers and buyers of roughly equal size, contribute to the free flow of information and homogenous products and services." Financial system reformsare undertaken in an economy to ensure the stability and viability of the economy. Another primary reason why financial reforms are undertaken is to assist in the attainment of macroeconomic goals of price stability, full employment, high economic growth and internal and external balances. Therefore, reforms in the financial sector have become perennial actions in developed, emerging and developing economies of the world, including Nigeria. Some of the financial reforms in Nigeria have been directed towards improving financial intermediation, financial stability and confidence in the system (Sanusi, 2011) as a way of enabling it to support the attainment of the above objectives.

Review of previous studies shows that identifying the critical success indicators of the financial system can help in facilitating the design of policies and reforms that may improve the stability and the development of the financial system and the economy in general. It is on this basis that this study examined the impact of financial deepening on the stability of the Nigerian financial system.

2. REVIEW OF EXTANT LITERATURE

This section reviews the various conceptual, empirical and theoretical issues on the nexus between financial deepening and financial stability in Nigeria. Each of these aforementioned aspects is robustly discussed below.

Financial System Stability

As opined by Creel, Hubert, and Labondance (2015), the main function performed by any nation's financial system is to expedite the process of allocating and deploying economic resources. The financial system gives room for exchange of financial resources (funds) among lenders, investors and borrowers. The financial system can be defined at the global, regional or firm-specific level as a set of implemented procedures that track financial activities (Anureev, 2017). On a regional scale, the financial system is the system that enables lenders and borrowers to exchange funds. It covers financial transactions and

the exchange of money between investors, lenders and borrowers. They consist of complex, closely related services, markets, and institutions intended to provide an efficient and regular linkage between investors and depositors (O'Sullivan & Sheffrins, 2003, and Gurusamy, 2008).

The concept of financial stability has been defined differently by scholars. According to Magyar Nemzeti Bank (2018:2), "financial stability is a state in which the financial system, that is, the key financial markets and the institutional financial system is resistant to economic shocks and is fit to smoothly fulfil its basic functions: the intermediation of financial funds, management of risks and the arrangement of payments". Financial stability can be defined from both narrow and broad perspectives. As observed by Ocampo (2018), astable financial system is characterised byless volatility and crises. This narrow definition is relatively simple to formulate but fails to capture the positive contribution of a well-functioning financial system to overall economic performance. According to Schinasi (2004:5), "a financial system is stable if the system is capable of performing three key functions: the inter-temporal allocation of resources from savers to investors and the general allocation of economic resources; the assessment, pricing, and allocation of forward-looking financial risks; and the absorption of financial and real economic shocks."

A broader perspective of financial system stability encompasses the smooth functioning of a complex nexus of relationships among financial markets, infrastructures and institutions operating within a given legal, fiscal and accounting framework. Even if more abstract, definition such as this is more inclusive of the macro-economic dimensions of financial stability and the interactions between the financial and real sectors. From this perspective, financial stability can be defined as a condition in which a financial system comprising financial intermediaries and market infrastructure is capable of withstanding shocks and the unravelling of financial imbalances, thereby mitigating the likelihood of disruptions in the financial intermediation process which are severe enough to significantly impair the allocation of savings to profitable investment opportunities (Gadanecz & Jayaram, 2008).In this study, financial system stability is computed using Aggregate Financial Stability Index (AFSI).

Financial Deepening

As observed by Abur, Chiawa and Torruam (2013), financial deepening paves the way for better economic performance through greater ability to compete efficiently within the limits of the financial markets by indirectly profiting non-financial sectors (areas) of the nation's economy. Financial deepening brings the greater ability of capital to move quickly from one economy to another and greater risk effects. The resultant effect of this is that the supply of risk capital will grow, which will, in turn, cause a rapid increase in economic development. Economic development can be facilitated if firms have easy access to finance at less cost, for financing working capital needs and investments in the latest technology and other recent innovative operations (Acharya & Xu, 2017). In developing countries, imperfections in the financial market can be specifically relevant in the firm's capacity to import. Firms in an environment with credit constraints and financial market imperfections are unable to borrow that which is much more than their present profit (Abo-Zaid & Garín, 2016). The financial depth which means access to finance is the amount of ratio of liquid liabilities to Gross Domestic Product (M2/GDP).

In a study on financial deepening and economic development by Nzotta and Okereke (2009), financial deepening is described as the ability of financial institutions in an economy to mobilize

savings for investment purposes effectively. Financial deepening also refers to liquid money. There are better chances of economic growth when more liquid money is readily available in the economy. Financial deepening forcefully attracts a large amount of savings and funds not in use, and officially gives these funds to the government, firms/industries, households and business entrepreneurs for investments and other plans to make returns which constitute the foundation for economic growth. Financial deepening has not succeeded in attracting foreign investment or putting a stop to capital flight in Nigeria; that is, it has failed to make an impressive performance in the country (Chibuike, 2017). Despite different changes in the Nigerian banking sector, the sector is yet to address the financial pitfalls in the banking system. This is because neither investments nor domestic savings in Nigeria have considerably increased since the introduction of changes in the banking sector as it remains to a greater extent uncompetitive and oligopolistic, as only a small number of the so-called big banks control the more significant parts of the market in terms of total credit, total assets, and total liabilities in the system (Abur *et al.,* 2013).

Theoretical Framework

This study is built on concentration-stability and concentration-fragility theory. Boyd and Prescott laid the foundation for the theory in 1986. Scholars such as Beck, Demirgüç-Kunt, and Levine (2006) and Schaeck, Cihak and Wolfe (2006) further promoted the theory by empirically validating the theory. The literature contains contrasting theories concerning the role that concentration or competition plays in financial stability. These theories have gravitated around a bipolar "concentration-stability" and "concentration-fragility" analysis (Moyo, Nandwa, Council, Oduor & Simpasa, 2014). For the advocates of the "*concentration-stabilityview*", when banking market concentration increases, banking systems make more profits. This has the effect of reducing financial fragility through the provision of higher capital buffers that protect the banks against external macroeconomic and liquidity shocks (Boyd, De Nicolo & Smith, 2004). Similarly, Keely (1990) proposes a "charter value hypothesis" which says that a higher charter or franchise value may act as a deterrent to excessive risk-taking by the management of the bank. This is because bank managers or shareholders are unlikely to accept risky investments that could jeopardise their future profits and also because higher franchise value gives rise to higher opportunity costs when bankruptcy occurs (Park & Peristiani, 2007). In addition to their comparative advantages in providing credit monitoring services, there is the assumption that larger banks undertake credit rationing, picking only those few investments that will increase the return on their loan portfolio, thereby fostering financial soundness (Boot & Thakor, 2000). Advocates of the concentration-stability view also suggest that, as a result of higher economies of scale and scope, large banks benefit from both functional diversification effects, as they can diversify loan portfolio risks more efficiently (Boyd & Prescot, 1986), and geographic risk diversification effects as they engage in cross border activities. It has also been suggested that supervision of banks may be more productive and the risk of a system-wide contagion minimised as a market with a few large banks may be easier to monitor (Allen & Gale, 2000).

Proponents of the "*concentration-fragility"* view argue differently. They say that larger banks are more likely to receive public guarantees or subsidies-considered as the "*too-big-to-fail"*-doctrine (Mishkin, 1999). This heightens the severity of the moral hazard problem for the managers of large banks who may be prone to taking on risky investments because of the presence of a government's safety net. Boyd and De Nicholo (2005) argue that the higher loan

interest rates charged by monopolistic banks may induce borrowers to take on risky investments to compensate for higher loan repayments. This may lead to higher loan defaults, thus increasing the chances of bank failures. Also, Cetorelli, Hirtle, Morgan, Peristiani, and Santos (2007) take the view that a higher degree of diversification may be counterproductive in the sense that it may lead to managerial inefficiency, ineffectiveness incorporate internal control and increased operational risks and supervisory failures. Since, also, according to this view, bank size is positively correlated with organisational complexity (Beck, Demirgue-Kunt & Levine, 2006a, 2006b), lower transparency may result from an increasing firm size because the large size allows banks to expand across multiple geographic markets and business lines through the use of sophisticated financial instruments. Lower transparency can result in higher fragility because of the difficulty it creates for prompt risk-tracking and mitigation. It is no surprise therefore that while there is a consensus on the imperative of financial stability, there is no such consensus on the type and character of reforms necessary to ensure such stability.

3. METHODOLOGY

This study examined financial deepening and financial system stability in Nigeria. The study employed a longitudinal research design. The population of this study comprises all firms, that make up the formal financial sector (financial intermediaries), that operate in Nigeria including those that are quoted on the Nigeria Stock Exchange as at December 31, 2017. The implication of this is that the activities of informal financial arrangements such as *Osusu* and rotational contributions are not captured because such activities are unregulated by relevant financial regulators (CBN, NDIC). The sample of the study is co-terminus with the entire formal financial sector. This study used secondary data covering the period of 1989 to 2017. Secondary data were collected from the Annual Reports, Statistical Bulletin, Statistics Database, Banking Supervision Annual Reports and Financial Stability Reports of the Central Bank of Nigeria (CBN) for various years, the National Bureau of Statistics, the National Pension Commission, the National Insurance Commission (NAICOM), the Securities and Exchange Commission (SEC), and the Annual Statistical Bulletin and Factbooks of the Nigerian Stock Exchange (NSE) for various years.

This study used the method of equal weighting across indicators to estimate the Aggregate Financial Stability Index. To aggregate the variables into a single index, each indicator is normalised to allow for comparability across variables. This study employed the method of empirical normalisation. Under this method, the indicators' values ranged between 0 and 1, where a value of 0 represents the weakest value of an indicator. The aggregate financial stability index as formulated by Albulescu (2010) is composed as follows:

$$AFSI = \frac{4\bar{D}_i + \bar{V}_i + \bar{S}_i + \bar{W}_i}{16} \quad \ldots\ldots\ldots\ldots\ldots\ldots (1)$$

Where: AFSI = Aggregate Financial Stability Index; $\bar{D}_i$ = Financial development index; $\bar{V}_i$= Financial vulnerability index; $\bar{S}_i$ = Financial soundness index; $\bar{W}_i$ = World economic climate index.

In constructing the AFSI, equal weight was applied across the indicators while the sub-indexes were unevenly weighted. The vulnerability index was the most heavily weighted with the world indicator, the development and soundness sub-indexes receiving equal weights. The vulnerability index received majority weights because it captures a wider range of risks, in particular, macro-economic risks and bank-specific factors.

For the purpose of this study, we developed a model which was adopted from the work of Albulescu (2010), Sere-Ejembi *et*

al(2016), and Udom and Doguwa (2015). The independent variable of interest in this study is financial deepening. The functional form of the model is stated as:

$$AFSI = f(FDEP) \quad \ldots\ldots\ldots\ldots\ldots\ldots (2)$$

Mathematically, the model is stated as:

$$AFSI_t = \partial_0 + \partial_1 FDEP_t + U_t \ldots\ldots (3)$$

Where:
AFSI = Aggregate Financial Stability index
FDEP = Financial deepening (ratio of broad money supply [M1, M2] to Real GDP)
∂_0 = Constant; ∂_1 = Coefficient of the independent variable
t = the scope or period of study
U_t= Error term

A priori expectation is stated as:∂_1 >0 which means an increase in financial deepening will increase ~~in~~ financial stability in Nigeria.

This study made use of descriptive statistics, correlation and regression analyses. The use of descriptive statistics and correlation analysis is needed to give an appropriate general characterisation and explain the relationship among the variables in the model. Regression analysis was used as a statistical technique for determining the relationship among the research variables. Econometric Views 8.0 software was used in carrying out the different analyses and hypotheses were at 5% level of significance.

4. ESTIMATION RESULTS AND DISCUSSION OF FINDINGS

In this section, the results of descriptive statistics and model estimation using regression analysis are presented and interpreted.

Descriptive Statistics: Table 1 shows the results of the descriptive statistics of the research variables, namely; aggregate financial stability index (AFSI) and financial deepening (FDEP).

Table 1: Descriptive Statistics

Statistics	**AFSI**	**FDEP**
Mean	363.9657	0.1713
Median	204.947	0.0972
Maximum	971.5071	0.5132
Minimum	123.4714	0.0027
Std. Dev.	332.8473	0.1694
Skewness	1.183538	0.6759
Kurtosis	2.465486	1.9926
Observations	29	29

Table 1 shows that on the average, between the periods of 1989 and 2017, the maximum and minimum sizes of AFSI are 971.5071 and 123.4714 while the maximum and minimum sizes of financial deepening (FDEP) are 0.5132and 0.0027respectively. With the mean as a measure of central tendency, the mean statistics gives an average value of various variables of interest over the periods of 1989 to 2017 period. The average values for AFSI and FDEP are 363.9657 and 0.1713,respectively. The skewness values range between 0.6759 and 1.1835 which shows that the data is moderately skewed. Kurtosis is a shape parameter which gives a measure of the weight of tails of a distribution of data. AFSI and FDEP have kurtosis lower than 3, thus implying that the tails of the distributions are not heavy and therefore not leptokurtic.

Model Estimation for financial deepening and financial system stability

This section presents the regression results of the relationship between financial deepening and financial system stability. The results are shown in Table 2 as follows:

Table 2: Nexus between financial deepening and financial system stability

Dependent Variable: AFSI
Method: Least Squares
Sample: 1989 – 2017
Included observations: 29

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	80.67478	48.72715	1.655643	0.1094
FDEP	1653.917	203.9930	8.107718	0.0000
R-squared	0.7088	F-statistic		65.7351
Adjusted R-squared	0.6981	Prob(F-statistic)		0.0000

Table 2 shows that financial deepening is positively and significantly related to financial system stability (AFSI) at $p<0.05$. The R-squared value is 0.7088. Based on this result, the study establishes that there is a significant relationship between the dependent variable (financial system stability) and financial deepening in Nigeria. The study reveals that approximately 70 percent of financial system stability is explained by financial deepening. The model adopted in the study as shown by the F-statistic revealed that it is a suitable model in terms of the ability to interpret financial system stability in Nigeria. The F-statistic, which is a measure of fitness has a value of 65.7351with a probability of 0.0000 (which is less than 5 percent) in the model, is significant at one percent (1%) level of significance. This means that there exists a statistically significant linear relationship in the model.

Discussion of Findings

The result in Table 2 shows that financial deepening positively and significantly impacted on financial system stability in Nigeria. The coefficient of financial deepening measured using the ratio of broad money supply [M1, M2] to Real GDP is positively related to financial stability. This implies that, as more financial deepening is achieved, the degree of financial stability also improves in Nigeria. This finding isconsistent with the a priori expectation. The result is in agreement with the findings of Calderon and Liu(2003), which found that financial deepening has in many countries yielded the desired result - a more prosperous economy, which itself enhances financial stability; evidence of bi-directional causality. The positive relationship between financial deepening and financial stability established by this study validates the results obtained in earlier studies by Demetriades and Luintel (1997), who found that financial repression had large negative effects on financial development, over and above the retarding influence of low real rates of interest and Bekaert, Harvey and Lundblad (2005) who found that trade openness is highly significant and positive suggesting thatopen countries have higher growth, and consistent with the findings Calderon and Liu (2003), higher growth enhances financial stability.

Accordingly, we reject the null hypothesis that there is no significant relationship between financial deepening and financial stability in Nigeria. It is therefore concluded that financial deepening does significantly impact financial stability in Nigeria. This result confirms the empirical results of an earlier study by Kaminsky and Reinhart (1999).

5. CONCLUSION

This study provides empirical evidence on the relationship between financial deepening

and financial stability in Nigeria. The study evaluated the extent to which financial deepening impacts financial stability in Nigeria between 1989 and 2017. The study revealed that financial deepening is a potent tool for fiscal reforms in Nigeria because it drives financial stability. Therefore, financial deepening should serve as one of the determining factors to be considered in formulating financial in Nigeria. The study concluded that financial deepening positively and significantly impacts the level of financial stability in Nigeria.

Every country would want to ensure the stability of its financial system so as to engender economic growth and development. To ensure this, both financial and fiscal policies are required. Based on the outcome of the study, that financial deepening has a significant impact on financial stability, this study recommends that government and policymakers should use both financial and monetary policies to drive financial stability in Nigeria. Emphasis should be devoted to the use of broad money management to ensure financial stability in Nigeria.

It is a well-established fact that the public or government sector which is the dominant player in the Nigerian economy derives the bulk of its revenue and foreign exchange from the activities that are either directly or indirectly connected to the oil and gas sector. This implies that volatility in the oil and gas sector is likely to be transmitted to the financial system particularly as government activities resonate throughout all sectors of the economy including the financial system. That being the case, this study suggests that, using the model in this study, an empirical investigation should be undertaken into the relationship between financial stability and the performance of the oil and gas sector in Nigeria.

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