IMPACT OF FINANCIAL SECTOR DIVERSIFICATION ON FINANCIAL STABILITY IN NIGERIA

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Abstract

The financial system serves as a core component of the entire economic system as it plays strategic role in facilitating capital accumulation, resource allocation and other financial intermediation roles to easily influence the direction of flow of available resources. The study established the impact of financial sector diversification on financial system stability in Nigeria using aggregate or pooled, time series data. Aggregate financial stability index (AFSI) was developed to represent financial stability. This study used secondary data covering the period 1989 to 2017. The period experienced some financial instability which necessitated several reforms measures to stabilize the system. The data used were captured by 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). Ordinary Least Square (OLS) technique was used to estimate the research model using Econometric Views (EViews 8.0) software. The study found that financial sector diversification (ratio of bank assets to total financial assets) had statistically non-significant impact on financial system stability in Nigeria during the period examined. The study recommended that policy makers should watch the relative composition and diversification of the financial sector as a parameter for assessing the direction of financial stability in Nigeria.

Key words: AFSI, assets, diversification, financial institutions, financial stability.

Introduction

The financial sector plays strategic role in every economy. The financial sector is made up of banking and non-banking financial institutions. The banking institutions in Nigeria include deposit money banks, merchant banks, development or specialized banks, microfinance banks and their regulatory authorities such as the Central Bank of Nigeria (CBN) and the Nigeria Deposit Insurance Corporation (NDIC) while the non-banking financial institutions (NBFIs) include insurance companies, pension funds and the stock and commodity exchanges and their regulatory institutions comprising the National Insurance Commission (NAICOM) and National Pension Commission (PENCOM) the Security and Exchange Commission (SEC), respectively (Ahonkhai, 2019; CBN, 2017).

The financial system plays core roles in developed, emerging and developing economies. According to Obadeyi (2014), "the financial system plays financial intermediation roles in the mobilization of available resources from surplus economic units to satisfy the requirements of deficit units of the economy and this allows and enables it to easily influence the direction of flow of available resources thereby greatly affecting the rate of economic development."

Financial system as a core component of the entire economic system is strategic in facilitating capital accumulation, resource allocation and other financial intermediation roles of the financial system to easily influence the direction of flow of available resources. As alluded to by scholars such as Agiobenebo and Ezirim (2002); Ansah-Adu, Andoh, and Abor (2012) and Obadeyi (2014), the success of the financial system means the success of the economy and its failure means the failure of the economy. The financial system will be unable to perform its functions effectively and efficiently unless it is stable (Borio, 2007; Caprio, 1997; Reinhart & Rogoff, 2009; Stiglitz, 2000).

The Nigerian financial system has undergone several evolutionary stages and reforms ever since before the country's independence in 1960 and these reforms have been copiously documented to include financial deepening; capital market liberalization; financial liberalization; and financial sector diversification (Ali, Ekpe & Aigba, 2016; Cook, 2011; Ikhide, 1996; Moyo, Nandwa, Council, Oduor & Simpasa, 2014; Obadeyi, 2014; Ogujiuba & Obiechina, 2011; Sanusi, 2011; Soludo, 2004).

Additionally, to the best of the researcher's knowledge, it appears that while many studies on financial system stability have been conducted in the developed countries (Al-Awad & Harb 2005; Bhetuwal 2007; Chuah & Thai 2004; Eicher & Hull, 2004; Khan & Senhadji 2000; Kim *et al.,* 2009; King & Levine 1993; Lee & Chien, 2008; Mamoon, 2004; Marotta, 2009; Rajan & Zingales, 2003; Savvides, 1995), the relatively few that have been conducted in Nigeria tend to focus on the banking system rather than emphasizing the entire financial system thus failing to adequately take into consideration the financial system's interconnectedness (Cook, 2011; Fadare 2010; Sere-Ejembi, Udom, Salihu, Atoi & Yaaba 2014; Shittu, 2012; Udom & Doguwa, 2015).

This study contributes to existing literature and to filling the identified gaps by measuring the impact of financial system diversification on financial

stability using the period of 1989 to 2017. This is important because identifying the key 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.

Review of Extant Literature

Financial stability can be described in a broad perspective as encompassing the smooth running of complex relationships among financial markets, infrastructures and institutions operating within a given legal, fiscal and accounting framework (Ilesanmi & Tewari, 2019). Financial stability characterizes smooth flow of funds between lenders and borrowers and returns on investments with time and risk considerations.

According to Magyar Nemzeti Bank (2018), "financial stability is a state in which the financial system, that is, the key financial markets and the financial institutional system is resistant to economic shocks and is fit to smoothly fulfill its basic functions: the intermediation of financial funds, management of risks and the arrangement of payments". Similarly, Schinasi (2004) asserts that "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."

According to Dobravolskas and Seiranov (2011, p.103), "factors violating stability of financial system can be divided into two large groups of external (exogenous) and internal (endogenous) factors. The first group of factors unites various macroeconomic disproportions in production and consumption, saving and investment processes, in which global impacts become more and more important. Factors united in the second group arise from imperfect nature of financial markets." In this study, financial system stability is computed using Aggregate Financial Stability Index (AFSI).

There has been a reasonable amount of efforts at constructing composite or aggregate financial stability index. For instance, Albulescu (2010), developed an aggregate financial stability index (AFSI) as well as sub-indexes for the Romanian financial system. The AFSI is to complement and enhance the set of analysis used for the assessment of financial system stability. The study was also aimed at enabling the forecasting of financial stability levels. The AFSI incorporates indicators of financial system development, vulnerability,

soundness as well as indicators which relate to the international economic climate, representing different financial stability dimensions (sub-indexes). Using quarterly data from Q1, 1996 to Q3, 2008, the study constructs an AFSI and sub-indexes after subjecting the indicators to empirical normalization and equal weighting. The AFSI and its sub-indexes were shown to successfully and effectively track the trend (deterioration or amelioration) of financial stability for the period covered by the study including the Romanian banking crisis in 1998, capital market crunch and Argentina's crisis in 2001 and the sub-prime crisis of 2007. Very importantly, the AFSI also showed continuous improvement following the Romanian banking sector reform in 1999-2000. The study also produced a forecast which showed that financial stability would deteriorate more in 2009 in the context of worsening economic situation, and that this would be followed by an improvement of the stability of the system in 2010.

Diversification of the financial sector is critical in guaranteeing efficient delivery of financial services, quality financial products and high level of financial innovation (Claessens & Laeven, 2004). Scholars have identified the benefits of financial diversification to include: facilitating easy access to financial services by firms and households (Beck, Domirguc-Kunt & Singer, 2013), enhancing smooth running of financial services (Claessens & Laeven, 2005); promoting the stability of the financial system (Boyd, Levine & Smith, 2004); guaranteeing effective financial intermediaries management (Berger & Hannan, 1989); improving monetary policy transmission through the interbank market rates (Van-Leuvensteijn & Levy, 2007); and promoting industrial and economic growth (Allen & Gale, 2004).

From the review of theoretical and empirical literature and to the best of the researcher's knowledge, it is obvious that while many studies on financial reforms and financial system stability have been conducted in developed countries and emerging economies (King & Levine 1993; Savvides 1995; Khan & Semlali 2000; Rajan & Zingales, 2003; Mamoon,2004; Eicher & Hull, 2004; Chuah & Thai 2004; Al-Awad & Harb 2005; Kim *et al.,* 2009; Bhetuwal 2007; Lee & Chien, 2008; Marotta, 2009), only a relatively few have been conducted on Nigeria (Cook, 2011; Fadare 2010; Shittu, 2012; Sere-Ejembi, Udom, Salihu, Atoi & Yaaba 2014; Udom & Doguwa, 2016) and these tend to focus on the banking system rather than emphasize the entire financial system thus failing to adequately take into consideration the financial system's interconnectedness.

Moreover, there are conflicting views concerning the role that financial reforms can play in financial stability. The main conclusions in both theoretical and empirical studies based on cross-country analysis are sensitive to the countries studied, estimation methods, data frequency, functional form of the relationship and proxy measures chosen in the study (Khan & Senhadji 2000; Chuah & Thai, 2004; Al-Awad & Harb, 2005). Therefore, it is insufficient to rely only on the empirical results of cross-country regressions to draw conclusions regarding the stability of Nigeria's financial system. To mitigate the shortcoming of cross-sectional country case studies, this study relies on pooled and aggregate data of the entire financial system to analyze the impact of financial sector reforms on financial stability in Nigeria.

As observed by Vernon (2012), the pattern of financial reform initiatives has been extremely different from one jurisdiction to another principally because of the long standing variations in institutions, cultures, economic structures and different patterns of impact of crisis. To the best of the researcher's knowledge, no study in Nigeria has investigated the extent to which financial sector diversification impacted on financial system stability. This study contributes to existing literature and fills the identified gaps by measuring the impact of financial sector diversification on financial stability in Nigeria using the period of 1989 to 2017.

Theoretical Framework

This study is based on Minsky's financial instability hypothesis. Minsky (1980) argued that an advanced capitalist economy with developed financial institutions is fundamentally unstable, and liable to fall into a depression in the aftermath of a period of debt-financed "euphoria". Minsky's financial instability hypothesis is built around four basic insights: the tendency of capitalists to incur debt on the basis of euphoric expectations; the importance of long-term debt; the destabilizing impact of income inequality; and the stabilizing effect of government (Minsky, 1982).

Minsky contends that the supply of money is essentially endogenously determined, and that even the controls of a regulated system do not make it strictly exogenous for two reasons: first, if the current regulatory regime limits the supply of finance for investment to less than that desired by the private sector, then intermediation will occur and innovative financial products will be developed, increasing velocity. Second, if a financial institution gets into difficulties, the authorities will normally guarantee its

deposits to prevent a "run"; in this case, either the money base will be expanded or the credit multiplier will be increased. In other words, in times of potential financial crisis, the conventional money equation works backwards, from the supply of money to the base and multiplier. The resulting endogenous increase in the money stock then persists through time. In a deregulated system, where the central bank has influence over only the monetary base and the rediscount rate, expansion of the money supply can occur much more easily (Goodfriend & King, 1988), through both increased willingness of banks to lend which increases the credit multiplier and through financial innovation (Keen, 1995).

Methodology

This study examined the impact of financial sector diversification on financial stability in Nigeria. Longitudinal research design is used for the study based on the fact that the variables under consideration are historical in nature and therefore the study lacks the ability to manipulate the input and output variables due to the fact that they have already occurred.

The population of this study consists of 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 sample of study is co-terminus with the entire formal financial sector.

This study used secondary data covering the period of 1989 to 2017. The period experienced some financial instability which necessitated several reforms measures to stabilize the system. Relevant secondary data were collected from the Annual Reports, Statistical Bulletins, 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 Fact books 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. In order to aggregate the variables into a single index, each indicator is normalized to allow for comparability across variables. This study employed the method of empirical normalization. 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 is composed as follows:

$$\mathrm{AFSI} = \frac{4\overline{\mathrm{D}}_{\mathrm{i}}+\overline{\mathrm{V}}_{\mathrm{i}}+\overline{\mathrm{S}}_{\mathrm{i}}+\overline{\mathrm{W}}_{\mathrm{i}}}{16} \quad \ldots\ldots (1)$$

Where: AFSI = Aggregate Financial Stability Index; $\overline{\mathrm{D}}_{\mathrm{i}}$ = Financial development index; $\overline{\mathrm{V}}_{\mathrm{i}}$= Financial vulnerability index; $\overline{\mathrm{S}}_{\mathrm{i}}$ = Financial soundness index; $\overline{\mathrm{W}}_{\mathrm{i}}$ = 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 (Morris, 2010).

Financial stability is a function of financial sector diversification. For the purpose of this study, we developed a model which was adopted from the works of Albulescu (2010), Sere-Ejembi *et al* (2016), Udom and Doguwa (2015). The variables of interest in this study include financial sector diversification and financial stability measured by aggregate financial stability index (AFSI). The functional form of the model is stated as:

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

Mathematically, the model is stated as:

$$AFSI_t = \delta_0 + \delta_1 FSD_t + U_t \quad \ldots\ldots (3)$$

Where: AFSI = Aggregate Financial Stability index; FSD = Financial sector diversification; δ_0 = Constant; $\delta_1 - \delta_2$ = Coefficients of the independent variables; *t* = the scope or period of study; U_t = Error term; A priori expectation is stated as: $\delta_1 < 0$.

This study made use of descriptive statistics, correlation and regression analyses. Also, unit root test was conducted to avoid estimating spurious regression. The use of descriptive statistics and correlation analysis is needed to give a general appropriate characterization 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.

Results and Discussion of Findings

This section covers the descriptive statistics, unit root test, correlation analysis, model estimation using regression analysis and discussion of findings.

Descriptive Statistics: Table 1 shows the results of the descriptive statistics of the research variables namely; Aggregate Financial Stability index (AFSI); and Financial Sector Diversification (FSD).

Table 1: Descriptive Statistics

Statistics	**AFSI**	**FSD**
Mean	363.9657	0.395690
Median	204.9470	0.382844
Maximum	971.5071	0.659766
Minimum	123.4714	0.266409
Std. Dev.	332.8473	0.086092
Jarque-Bera	7.115573	5.463247
Probability	0.028502	0.065113
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. Specifically, the maximum and minimum sizes of financial sector diversification (FSD) are 0.659766 and 0.266409 respectively.

Standard deviation, like variance, gives an idea of how spread out, scattered or dispersed that data points of each series are from the mean. The series are reasonably close to the mean or are not too far away from the mean. This is an indication of a high degree of interest rate spread during the period under consideration. With the mean as a measure of central tendency, the mean statistics gives us the average value of various variables of interest over the said period. The average values for AFSI and FSD are 363.9657 and 0.395690 respectively.

Unit Root Test Using Augmented Dickey-Fuller (ADF) test

Unit root test helps to test the stationarity of a series. The rationale for conducting unit root tests was to avoid the estimation of spurious relationship arising from using two or more non-stationary time series to

estimate a long run relationship. The Augmented Dickey-Fuller (ADF) test was used for the test of unit roots. The results are presented in levels and first difference as shown in Table 2 below:

Table 2: Results of Unit Root Test

Variables	Augmented Dickey-Fuller (ADF) Test				Integration	Remark
	Levels	5% ADF Critical Values	First Difference	5% ADF Critical Values		
Aggregate Financial Stability Index (AFSI)	-0.3447	0.9057	-5.000	0.0004	I[1]	Stationary
Financial Sector Diversification (FSD)	-0.9184	0.3647	-6.5946	0.0000	I[0] & I[1]	Stationary

The results indicate that using the Augmented Dickey-Fuller (ADF) test, none of the variables is stationary at level. To avoid running a spurious regression, the test was carried out at first difference. The results revealed that all the variables are stationary at first difference at 1% level of significance. Summarily, it can be stated that each of the variables possesses ADF values that are less than the 5% critical values for the level series and greater than the critical value for the differenced series.

Correlation Results

To examine the nature and strength of the relationship between pairwise observations of the variables of interest, we generate the correlation matrix as shown Table 3 below, which shows the correlation coefficient after each analysis of a given pair.

Table 3: Correlation Matrix

Variables	AFSI	FSD
Aggregate Financial Stability Index (AFSI)	1.0000	0.3401
Financial Sector Diversification (FSD)	0.3401	1.0000

From Table 3, it can be seen that financial system stability (AFSI) is positively correlated with financial sector diversification (FSD), with a value of 0.3401.

Estimation of Financial System Stability Determinants

In this section, we present and discuss the regression results of AFSI with the independent variable. Table 4 shows the relationship between financial system stability measured by AFSI and it determining factor.

Table 4: Regression Result of AFSI and other variables
Dependent Variable: AFSI

Variables	**Model I**	**Model II**
C	-156.3201	1201.771
	(-0.5521)	(0.4401)
	{0.5854}	{0.6637}
Financial Sector Diversification (FSD)	1314.882	-16.8731
	(1.8792)	(-0.0532)
	{0.0710}	{0.9580}
AR(1)		0.9711
		(11.2321)
		{0.0000}
R-Squared	0.1157	0.8344
Adj. R-Squared	0.0829	0.8212
F-statistic	3.5315	63.0036
Prob (F-statistic)	0.0710	0.0000
Durbin Watson	0.3281	1.9343
Number of Observations	29	29

Explanation of Model I: Table 4 reveals that the independent variable (financial sector diversification) is positively related to financial system stability (AFSI). The relationship is not statistically significant at 0.05 level of significance. The R-squared value is 0.1157. Based on this result, the study establishes that there is no significant relationship between the dependent variable (financial system stability) and the independent variables (FSD) in Nigeria. The study reveals that 11.57 percent of financial system stability is explained by the variable used in the study. Though the model adopted in the study shows that it is a good model in terms of the ability to explain financial system stability in Nigeria with F-statistic value of 63.0036 with a probability of 0.0000 (which is less than 5 percent) in the model, the Durbin-Watson statistic of 0.3281 shows serial correlation in the Model.

Explanation of Model I: As a result of the serial correlation that is present in Model I above as shown by Durbin-Watson statistic of 0.3281, we re-specify

the model by introducing AR(1) to correct the problem and have a better result. The outcome is interpreted as follows:

Table 4 reveals that the independent variable (financial sector diversification) is inversely related to financial system stability (AFSI). The relationship is not statistically significant at 0.05 level of significance. The R-squared value is 0.8212. Based on this result, the study establishes that there is no significant relationship between the dependent variable (financial system stability) and the independent variables (FSD) in Nigeria. The study reveals that 82.12 percent of financial system stability is explained by the variable used in the study while other factors, not included in the regression model, accounted for approximately 18 percent change of the dependent variable. The model adopted in the study shows that it is a good model in terms of the ability to explain financial system stability in Nigeria. The F-statistic, which is a measure of fitness has a value of 63.0036 with a probability of 0.0000 (which is less than 5 percent) in the model. Although this result shows that the relationship between financial sector diversification and financial stability is not statistically significant, it nevertheless validates the direction of the relationship established in Uhde and Heimshoff (2009) which found that national banking concentration has a negative impact on European bank's financial soundness as measured by the Z-score technique.

Conclusion and Recommendations

The study empirically established the impact of financial sector diversification on financial system stability in Nigeria between 1989 and 2017. The study concluded that financial sector diversification does not significantly impact the level of financial stability in Nigeria. The study has added to the emerging body of knowledge by verifying existing results and the hypothesized relationship between the financial sector diversification and financial stability in Nigeria.

Based on the result that a negative relationship exists between diversification of the financial sector and financial stability in Nigeria, the study recommends that:

i. Policy makers should watch the relative composition and diversification of the financial sector as a parameter to measure the direction of financial stability in Nigeria. This is to prevent the evolution of a relatively overly dominant banking sub-sector within the financial system and thus avoid the associated potential of systemic fragility.

ii. In the same vein, we suggest that the model should be used to investigate the impact of financial stability on the performance of Nigeria's corporate sector; a sector which depends on the financial system for funding and other finance related services and which should be encouraged to develop and grow through appropriate policies.

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