EFFECT OF BANK-SPECIFIC FACTORS ON COMMERCIAL BANKS STABILITY IN NIGERIA

[1] Kasali, R. K and [2]Oyewale, T. C.

[1]Jaiz Bank Plc, No 11 Unity Road, Ilorin, Kwara State, Nigeria.
[2]Accounting & Finance Department,
Kwara State University, Malete, Kwara State, Nigeria
Corresponding Author: Kasali, R. K.
(+234-8039669399; kayus111@gmail.com)

Abstract

The bank's unique qualities and the effects of the Global Financial Crisis is the major source of bank fragility. The study attempts to determine how bank-specific factors affected the stability of commercial banks in Nigeria. This was accomplished by analyzing how factors such as bank size, competitiveness, net interest margin, and funding structure affected bank financial stability as measured by composite risk index. The study used secondary data from annual reports and accounts from five of Nigeria's largest commercial banks (FUGAZ; First bank, United Bank for Africa, Guaranty Trust Bank, Access Bank, and Zenith Bank) between 1997 and 2019. The study was anchored on prospect theory, adopted ex-post factor research design and used Panel Autoregressive Distributed Lag method of estimation. The study found that bank size and funding structure increase the level of instability in the banking sector while NIM reduces commercial banks instability. The study therefore, recommends that bank should constantly ensure portfolio rebalancing in the area of their funding strategy especially with heavy reliance on core deposit which translates into low cost of fund. Regulators should adopt the "living will" methodology to contain moral hazard problem accentuate by bank size. The study also recommends optimal asset allocation of resources.

Keywords: Bank size, Competition, Funding structure, Net interest margin.

Jel Classification Code: G01, G21

1. Introduction

The 1997–98 Asian financial crisis and the global financial crises of 2007–2009, both of which started in the United States of America, had disastrous repercussions on the whole global financial system. Due to a wave of commodity and oil import dependence, exchange rate volatility, structural and institutional failures that reduced the effectiveness of the bank's risk management strategies, and subsequent banking instability that took more than ten years to recover, the African financial system also suffered from the negative effects of this crisis (Ozili, 2018).

The 2007–2009 global financial crisis resurrected episodes of commercial banks instability in Nigeria such as the sacking of eight banks' Chief Executives Officers (CEOs) and directors by the Nigerian Central Bank and the injection of $4 billion into the banking system, the creation of Asset Management Corporation of Nigeria (AMCON) and the recent collapse of Skye bank plc (Ezeoha, 2011; Makanjuola, 2015).Accordingly, commercial banks were at the epicentre of the 2007–2009 global financial crises, and their distress harmed the actual economy, according to Kiemo *et al.,* (2019).

This, therefore, renewed the efforts of monetary authorities and policymakers to search for more effective frameworks for monitoring banking sector stability/fragility. Kiemo *et al*.,(2019) opined that commercial banks' fragility is a product of factors that are specific to the banks such as uncapped bank size, fierce competition and bank's business models which includes funding structure and heavy reliance on trading income (net interest margin).

Nigeria is enveloped in the fold of the global financial crisis of 2007/09 despite the widespread perception of Sub-Saharan African countries as peripheral players insulated from financial integration and off-balance sheet exposure, Nigeria remains plagued by episodes of instability and slow recovery. About 47 Nigeria banks went distressed between 1996 and 1997(Ibrahim, 2013), 8 Nigerian banks' CEO was sacked by CBN between August 2009 and October2009 and #620 billion Naira was injected in tier-2 capital to stabilize eight wobbly banks (Makanjuola,2015). The pervasive instability suffered by these banks made CBN continually guarantee the interbank market to ensure continued liquidity for all banks(Inimet al.,2019).

Most studies in Nigeria, such as Ozili (2019),Akani and Kingley (2018), Atoi (2018), and other African countries such as Kiemo *et al.,* (2019), Odundo and Orwaru (2018) and Ozili(2019) studied the nature of commercial banks stability. The majority of these studies found that bank size, interest rate, non-performing loans and monetary system of government are a source of bank fragility and also used one-dimensional measures of bank stability. However, these studies failed to consider the funding structure of the banks as a source of bank instability which has been established under BASEL 111 regulatory frameworks as a conduit pipe for most bank instability, particularly in developing economies where banks are required to maintain Liquidity Coverage Ratio (LCR) and Net Stable Funding Ratio (NSFR) from their funding pool as a buffer during the stress period. Given forgoing and the pockets of instability in Nigeria's banking system the current study seek to close the existing gap by incorporating the composite risk index as a measure of bank stability and funding structure as a bank-specific problem related to bank instability.

Some of these problems of bank instability are related to banks' internal factors such as bank size, competition, funding structure and heavy reliance on trading income(net interest margin). Shortly after the recapitalization of the Nigerian banking sector in the year 2015, most of the emerging banks have grown in size. Thus, the size of these banks contributed to a spike in the instability suffered by the Nigerian banking sector such that they embark on excessive leverage that skyrockets its interest expense because of high

debt capital in the bank capital structure and consequently reducing its profitability (Kpirotich, 2017; Adusei, 2015).According to the same line of reasoning, the conventional competition-fragility view views bank competition as instability since it weakens market power and profit margins, which in turn tempts bank managers to take greater risks.

Furthermore, Mielus *et al.,* (2016) stated that net interest income is considered the key source of profitability in the banking sector and as such, the banks turn in a large amount of lending particularly to a large pool of unscreened borrowers to boost their trading income but this eventually resulted to the non-performing loan which has become endemic in Nigeria banking system and impairing its stability. Conclusively, the choice of funding strategy by Nigerian banks is also a source of its instability. An inappropriate funding strategy could resonate such that the banks use the more volatile interbank fund in their funding portfolio. Consequently, this fund is capable of being dried up quickly and would generate an asset-liability mismatch when used to fund long-term assets.

Makanjuola (2016) stated that most banking crises in Nigeria resonated with instability such that banks drew on CBN's special lending window(expanded discount window) to shore up their liquidity. The difficulties with bank instability in Nigeria noted above served as the impetus for this investigation. Therefore, this study investigates the impact of bank-specific factors on the stability of commercial banks in Nigeria. The study hypothesized thus:

H_0: Bank-specific factors do not significantly affect commercial banks' stability in Nigeria.

2.0 Review of Relevant Literature

This section focuses on a theoretical review and synthesized related empirical studies on the objective of the study. This study is anchored on Prospect theory. The theory postulated that the level of instability in Nigeria's banking system is the direct outcome of managerial decisions which include making risky choices based on a particular reference point defined in terms of meeting a particular target.

2.1 Theoretical Review

This study is based on four theories: Prospect theory, financial crises theory and Asymmetric Information Theory.

2.1.1 Prospect Theory

Daniel Kahneman and Amos Tversky 1979 created the Prospect theory; a descriptive theory of choice, which aims to characterize people's decisions rather than how they should be made. The theory is also called the psychology theory of decision-making under conditions of risk. Prospect theory was an outgrowth of behavioural decision theory that explains the importance of reference points in analyzing risky choices. Prospect theory critique the view of expected utility theory that decision makers are risk

averse and further posit that cognitive psychology guides investors' preference and the way they evaluate risky choices based on some value functions. Succinctly put, individual risk preference is guided by risk aversion when the gain is certain and risk-loving when the loss is certain.

Thus, the theoretical underpinning of this study is that selected Nigerian commercial banks might not be averse to risk as they seem to be but would seek more risk when they perform below expectation and deter risk when they surpass the budget to protect their charter value. The theory is criticized on the ground that no justifications supported why actors have generated frame their use in decision making.

This proposition was empirically tested by Fiegenbaum (1990), Fiegenbaum and Thomas (1988), Jegers (1991), Johnson (1994), Godlewski (2007), Alam and Tung (2012), Mahdi and Abbes (2017). The results confirmed the theoretical underpinning of prospect theory. This conclusion was also supported by the gain and loss paradigm underlining prospect theory where the risk-taking behaviour of banks is divided into two phases with one hand representing the area of gain and the other in the area of loss.

2.1.2 Financial Crises Theory

The theory was pioneered by Minsky (1974), also known as the financial instability hypothesis, and attempted to provide an understanding and explanation of the characteristics of the financial crisis. The theory suggests that, in prosperous times, when corporate cash flow rises beyond what is needed to pay off debt, a speculative euphoria develops, and soon thereafter debts exceed what borrowers can pay off from their incoming revenues, which in turn produces a financial crisis. As a result of such speculative borrowing bubbles, banks and lenders tighten credit availability, even to companies that can afford to pay principal and interest accrued to loans and the economy subsequently contracts. The theory identifies three types of borrowers that contribute to the accumulation of insolvent debt: The hedge borrower can meet all cash payment liabilities (covering interest and principal) with cash receipts. A speculative borrower, however, has difficulty meeting some payment liabilities, usually those coming due in the short term; borrowers regularly roll over, or re-borrow, the principal.

A Ponzi borrower has the most difficulties; he must borrow to meet the current interest payments. Thus a Ponzi borrower is continually increasing its outstanding debt. Financial crisis theory underpins this study in that, a hedge borrower would have a normal loan and is paying back both the principal and interest; the speculative borrower would have a watch listed loan; meaning the loans' principal or interest is due and unpaid for 30 to 90 or have been refinanced, or rolled-over into a new loan; and the Ponzi borrower would have a substandard loan, meaning the payments do not cover the interest amount and the principal is increasing. The primary sources of repayment are not sufficient to service the loans. The loan is past due for more than 90 days but less than 180 days. Watch listed loans and substandard loans are non-performing loans which constitute the bane of the global financial crisis. The sub-prime mortgage crisis at the run-up of the GFC is caused by deterioration in risk controls for the extension of credit and lower underwriting standards (Avgouleas, 2009). Kuzucu and Kuzucu (2019)

also corroborated this assertion that the global financial crisis of 2008 resulted in a massive increase in non-performing loans for both emerging and advanced countries. The foregoing informs the applicability of financial crisis theory in this study.

2.1.3 Asymmetric Information Theory

The theory of Informational Asymmetry dates back to the 1960s. It was developed by Gurley and Shaw (1960) and emphasized that intermediaries came about as a result of informational asymmetry leading to high transactional costs. The need to reduce the effects of imperfect markets gave rise to financial intermediaries as they were seen to eliminate or partially reduce some specific forms of transactional costs through the pooling of resources of individual customers leading to scale economies (Alexandru& Marius, 2009).

Asymmetric Information assumes that at least one party to a transaction has relevant information, whereas the other(s) do not. Some asymmetric information models can also be used in situations where at least one party can enforce, or effectively retaliate for breaches of certain parts of an agreement, whereas the other(s) cannot. In adverse selection models, the ignorant party lacks information while negotiating an agreed understanding of a contract to the transaction, whereas, in moral hazard the ignorant party lacks information about the performance of the agreed-upon transaction or cannot retaliate for a breach of the agreement.

The first potential problem and criticism related to the models developed using the asymmetric information theory to assess the markets. Many of these models deal with highly simplified versions of the markets with few possible types of players or states. As is always the case with models, there is a possibility to become too enormous with the model and its mathematical manipulation to see the complexities present in a real-world market. For example, Spence states in his 1976 paper that "in some cases" there will be random variation in signalling costs that prevent the employer from distinguishing perfectly among individuals of varying productive capabilities. Another criticism of the theory is the applications of the theory that the theory only considers asymmetries in one direction. It may, however, be that there are also information differences in the favor of the other party.

2.2 Empirical Review

Some related studies were carried out in international economies on bank stability, and studies such as Adusei (2015), Rokhim and In Min(2018) and Ali and Puah (2019)examined related studies on the link between funding structure(funding risk) and bank stability. These studies employed a fixed effect model and a Generalized Method of Moments Method of analysis. These studies found a positive relationship between positive between funding structure and bank stability while other related studies such as Khan et al. (2016) and Shim (2019) found a negative relationship between funding structure and bank stability. Similarly, Adusei (2015), Ngaira and Miroga (2018) and Kiemo*et al*(2019) found a positive relationship between bank size and bank stability. These studies employed SPSS.18, fixed effect model and GMM as a method of analysis.

On the contrary, Odundo and Orwaru (2018) found a negative relationship between bank size and bank stability. The study supported the too-big-to-fail hypothesis that bigger banks enjoy a government safety net and as such embark on the risky project believing that the national government will provide a bail-out during the crisis period. Furthermore, Akande*et al*., (2018) and Kasman and Kasman (2015) studied the relationship between bank competition and bank stability. These found a positive relationship between bank competition and bank stability. These studies employed GMM as a method of analysis. Conversely, Akande and Kwenda (2017)using Panel Structural Vector Autoregressive Model (P-SVAR) found a negative relationship between competition and bank stability.

Conclusively, Ozili (2018) found a positive relationship between net interest margin and bank stability while Dwamfour (2017) established the presence of a U-shape relationship between net interest margin and bank stability in Sub-Saharan African countries. These studies use the Z-score as a measure of bank stability.Klomp and de Haan (2012) also posited that Z-score is a one-dimensional measure of bank stability. Most of these studies in international economies established mixed findings concerning the study variables.

In Nigeria, Akan and Kingley (2018), Atoi (2018),Ozili (2019)and Olugbenga and Oluwakemi (2020) examined related studies on bank stability in Nigeria. The studies found a significant relationship between monetary policies, macroeconomics, internal variables, non-performing loan and capital ratio, total assets, operating expense, bank efficiency, greater financial depth, bank concentration and bank stability. The studies employed GMM, fixed effect, random effect and ordinary least square as a method of analysis. The studies further used return on asset (ROA), total deposit, capital adequacy and Z-score as a measure of bank stability. These variables are considered a one-dimensional measure of bank stability and hence might not depict the real state of banking stability in Nigeria. This study, therefore, employed a composite rating index calculated based on the CAMEL parameter to measure bank stability in Nigeria.

Adusei (2015) established that funding structure is a source of vulnerability and instability among Ghanaian's rural banks. No known study has examined the impact of fund risk on bank stability in Nigeria, especially among tier-1 commercial banks. The source of motivation for this study comes from the inconclusive nature of the empirical literature on the effect of bank-specific factors on commercial banks' stability in Nigeria. This study focuses on the effect of bank-specific factors on commercial bank stability in Nigeria considering the composite rating index as a measure of bank stability and funding structure as an idiosyncratic factor capable of impairing bank stability. This however constitutes a variable measurement gap. Based on these mixed empirical findings and scanty studies, this study intends to fill a gap in the literature by assessing the effect of bank-specific factors on commercial bank stability in Nigeria

From the foregoing empirical review, the majority of studies such as Adusei (2015), Rokhim and In Min (2018), Ali and Puah (2019), Khan et al. (2016) and Shim (2019),

Ngaira and Miroga (2018) and Kiemo *et al*(2019),Odundo and Orwaru (2018), Akande et al. (2018) and Kasman and Kasman (2015), Akande and Kwenda (2017), Ozili (2018) and Dwam four (2017) that examined related studies on bank stability used any of (ROA), total deposit, capital adequacy and Z-score as a measure of bank stability. These variables are a one-dimensional measure of bank stability and as such do not depict the thorough stability status of the banks. This study used a composite rating index calculated based on CAMEL parameters as a measure of bank stability in Nigeria.

In Nigeria's context, very few studies such as Akan and Kingley (2018), Atoi (2018), Inim et al. (2019),Ozili (2019)and Olugbenga and Oluwakemi (2020) among others examined related studies on bank stability in Nigeria. According to the researcher's knowledge, no known studies have considered the impact of funding structure on bank stability in Nigeria which has been considered in other developing economies as one of the problems causing instability among commercial banks. Thus, this study attempts to fill the mixed findings gap and variable measurement gap.

3.0 Methodology

The research design adopted in this study is an Ex-post Facto design. The study employed secondary data which were gotten from 5 Tier-1 commercial banks (First Bank, UBA, GTB, Access Bank and Zenith Bank; FUGAZ) annual reports and accounts, CBN Bulletins and NDIC annual reports and accounts from 1997-2019.To examine the effects of bank-specific factors on commercial bank stability in Nigeria the study employed Panel Autoregressive Distributed Lag. The empirical models specifying the effect of bank-specific factors on commercial bank stability in Nigeria in this study adapt the model of Ali and Puah (2018). Their study is important to the current study because it is one of the relatively recent works to be carried out on the subject matter. The bank-specific factors considered in their work include bank size, liquidity risk, credit risk, funding risk and bank profitability. The model specification of Ali and Puah (2018) can be written as follows:

$$BSTAB = \alpha + \beta_1 BSIZE + \beta_2 LRISK + \beta_3 CRISK + \beta_4 FRISK + \beta_4 ROA + FC\ (DUMM) + \mu \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots(1)$$

Where:
BSTAB is bank stability (measured by Z-score)
BSIZE is bank size (measured by the log of total assets)
LRISK is liquidity risk(measured by the ratio between total assets and cash and due balances held at other depository institutions)
CRISK is credit risk (measured by loans-to-assets ratio)
FRISK is funding risk(measured by deposit to total asset plus equity to total asset divided by the standard deviation of DEP/TA
ROA is the return on asset (measured profit divided by total assets)
FC (DUMM)(financial crisis dummy).
This model was used to examine the internal determinants of bank stability in the banking sector of Pakistan in the study conducted by Ali and Puah (2018). The present study, therefore, adapted this model to suit peculiarities in Nigeria's context by first,

considering four different bank-specific factors vis-à-vis a composite bank risk index representing bank stability measure and second, including variables that are perceived to be important in examining the effect of bank-specific factors on commercial bank stability in Nigeria. These variables include competition and net interest margin. The argument behind the inclusion of net interest margin is that it is revenue that allows testing whether higher incentives to perform traditional banking activities could be a deterrent against bank instability (Caprio *et al*., 2014) while the inclusion of competition is justified in that competition heightens bank incentives to take more risk which in turn threatens the stability of the banking system(Akande&Kwenda,2017).

Thus, the model of this study modifies the model of Ali and Puah (2018) by dropping liquidity risk, credit risk, and profitability as these have been earlier used to compute the composite risk rating index which is a proxy for bank stability. This study also dropped the financial crisis because the focus of the study is on the idiosyncratic factors of commercial bank stability. The model of this study is, therefore, specified following the objectives of this study as follows:

$$STAB_{it} = \beta_0 + \beta_1 BSIZE_{it} + \beta_2 COMPETITION_{it} + \beta_3 NIM_{it} + \beta_4 FUNDRISK_{it} + \mu \text{ ………………………………………………..(2)}$$

Where 'i' indicates the bank(i=1,2,3,4), and 't' period(t=1997,1998,1999…….2019),β is the parameter to be estimated and μ_{it} is the error term. The bank-specific factors include bank size(log of the total asset),competition(measured by learner index),NIM(Interest income minus interest expense divided by total earning asset) and fund risk(measured as deposits to assets ratio plus equity to assets ratio divided by the standard deviation of deposits to assets ratio). Table (1) presents the description of the variables.

Table 1: Description of the Variables

Variables	**Description**	**Notation**	**Expected sign**	**Source**
Dependent variable				
Bank stability	The addition of Z solvency risk, Z liquidity risk, Z credit risk and Z operation risk divided by 4	Bank stability index		Annual report and account
Bank-Specific Factors				
Bank size	Log Total asset	Bsize	+(-)	Annual report and account
Competition	Price minus marginal cost	Lerner	+(-)	Annual report and

	divided by price	index		account
Net interest margin	Interest income minus interest expense divided by total earning asset	NIM	+(-)	Annual report and account
Funding structure	z-score defined as deposits to assets ratio plus equity to assets ratio divided by the standard deviation of deposits to assets ratio	FUNDRISK	+(-)	Annual report and account

Source: Author Conceptualization, 2022.

4.0 Research Finding/Result

Table 2 shows descriptive statistics containing the mean, standard deviation, and minimum and maximum values. The dependent variable is bank stability (bank stability index) while independent variables are bank-specific factors such as bank size, competition, funding risk and net interest margin.

Table 2: Summary Statistics of Variables

Variable	Mean	Std. Dev.	Min	Max
STAB	0.00	0.43	-1.13	0.96
BSIZE	$8.26mn	$7.05mn	$52.8k	$27.4mn
COMPETITION	0.23	0.05	0.11	0.33
NIM	6.36	2.61	2.49	15.09
FUNDRISK	5.45	0.97	1.14	7.52

Source: Author's Computation, 2021

*Note: STAB (ZCOMP) is the composite risk index measure of bank stability; BSIZE is bank size; (*COMPETITION*) LI is the Lerner index of banking industry competition; NIM is net interest margin; FUND RISK is funding risk.*

Table 2 shows that the average bank stability for tier-1 commercial banks in the sample was 0.00 with a standard deviation of about 0.43. The period witnessed minimum bank stability of -1.13 and maximum bank instability of 0.96. Bank size averaged $8.26mn while the maximum value is $27.4mn.The period was seen with the total asset of tier-1 commercial banks running in trillions. The average level of competition measured by the Lerner index for the banks in this sample over the period in concern is about 0.23 per cent, with a standard deviation of about 0.05 per cent, a minimum of 0.11 per cent and a maximum of 0.33 percent.Net interest margin measured by interest income minus interest expense divided by total earning asset averaged 6.36 per cent, with sample spread of about 2.61 per cent, minimum of 2.49 per cent and a maximum of 15.09 per cent. The tier-1 commercial banks in this sample have an average funding risk of 5.45,

with a standard deviation of 0.97. The period has a minimum and maximum funding risk of 1.14 and 7.52 respectively.

Correlation Matrix of the Selected Variables

Given the information presented above about the summaries of the variables included in this study, it is also important to examine the relationship that exists among the variables, particularly, to identify those variables with a high correlation which might lead to severe multicollinearity in the model of the study. A quick check on the variables of this study as to the relationship that exists among them through a correlation analysis presented in Table 2 which shows that the majority of the relationships have low correlation coefficients, specifically, with values below 0.6

Table 3: Results of Correlation Analysis

	(1)	(2)	(3)	(4)	(5)
	ZCOMP	BSIZE	LI	NIM	FUNDRISK
ZCOMP	1				
BSIZE	0.0619	1			
	(0.305)				
LI	0.0035	-0.3395	1		
	(0.953)	(0.000)			
NIM	-0.2196	-0.5487	0.4209	1	
	(0.000)	(0.000)	(0.000)		
FUNDRISK	-0.2626	-0.2053	0.2379	0.1310	1
	(0.000)	(0.000)	(0.000)	(0.029)	

Source: Author's Computation, 2021.

In column (1), composite risk has a statistically significant negative correlation coefficient with net interest margin (-0.2196 with a p-value of 0.000) and funding risk (-0.2626 with a p-value of 0.000). However, bank stability (composite risk index) has no statistically significant correlation coefficient with bank size, Learner index (competition) but the relationship between net interest margin and funding structure is statistically significant. In column (2), bank size has a statistically significant negative correlation coefficient with Lerner competition index (-0.3395 with a p-value of 0.000), net interest margin (-0.5487 with a p-value of 0.000) and funding risk (-0.2053 with a p-value of 0.000). This implies that bank size has a significant negative relationship with industry competition, net interest margin and funding risk. In column (3), the Lerner index has statistically significant positive correlation coefficients with net interest margin (0.4209 with a p-value of 0.000) and funding risk (0.2379 with a p-value of 0.000.This implies that industry competition has a significant positive relationship with net interest margin and funding risk. In column (4), NIM (net interest margin) has

statistically significant positive correlation coefficients with funding risk (0.1310 with a p-value of 0.029).

Panel Autoregressive Distributive Lags(PARDL) Estimation of the Effects of Bank-Specific factors on Commercial Bank Stability in Nigeria.

Table 4 present the PARDL result to examine the effect of bank-specific factors on commercial banks' stability in Nigeria. The considered bank-specific factors include bank size, competition, net interest margin and funding structure while bank stability is measured by composite risk.

Table 4: Results of P ARDL for the effects of Bank-Specific factors on commercial bank stability in Nigeria

		Composite Risk		
	Variable	**Coef.**	**Z**	**p-value**
Long Run	BSIZE	0.122	4.63	0.000
	LI	1.389	1.41	0.159
	NIM	0.023	1.08	0.281
	FUNDRISK	-0.302	-5.16	0.000
Short Run	ECT	-0.604	-3.25	0.001
	BSIZE	-0.179	-1.18	0.236
	LI	-0.240	-0.33	0.738
	NIM	-0.091	-5	0.000
	FUNDRISK	0.109	1.75	0.081
	Constant	-0.447	-3.16	0.002
Hausman (against MG)		2.16		0.705
Hausman (against DFE)		6.53		0.162

Source: Author's Computation, 2021.

The Hausman test result supports the evidence that the pooled mean group (PMG) estimator is preferable to its mean group (MG) and dynamic fixed effects (DFE) counterparts. This was indicated by its low statistic values and very high p-values across board. The error correction term was seen to have significant negative coefficients in all models, suggesting that there is the convergence of the model to stability, and hence, there is error correction.

In the result for the composite risk model (bank stability), the long-run coefficient of bank size is 0.122 with a probability value of 0.000 indicating that the variable has a

positive significant effect on composite risk. This implies that a percentage point increase in banks' size will cause a long-run rise in Banks' instability in Nigeria by 0.122 per cent points. The long-run coefficient of the learner index is 1.389 with a probability value of 0.159 indicating that the variable is not statistically significant in affecting composite risk in the long run in Nigeria. The long-run coefficient of net interest margin is 0.023 with a probability value of 0.281 indicating that the variable is not statistically significant in affecting composite risk in the long run in Nigeria. The long-run coefficient of fund risk is -0.302 with a p-value of 0.000 indicating that the variable has a negatively significant effect on composite risk (bank stability). This implies that a percentage point increase in fund risk will cause a long-run fall in Banks' stability in Nigeria by 0.302 per cent points.

In the short-run coefficient of the bank, size is -0.179 with a probability value of 0.236 indicating that the variable is not statistically significant in affecting composite risk in the short-run in Nigeria. The short-run coefficient of the learner index is -0.240 with a probability value of 0.738 indicating that the variable is not statistically significant in affecting composite risk in the short-run in Nigeria. The short-run coefficient of the net interest margin is -0.091 with a probability value of 0.000 indicating that the variable has a negative significant effect on composite risk (bank stability). This implies that a percentage point increase in net interest margin will cause a short-run fall in Banks' composite risk-taking (bank stability) in Nigeria by 0.091 per cent points. The short-run coefficient of fund risk is 0.109 with a p-value of 0.081 indicating that the variable is statistically significant in affecting composite risk in the short run in Nigeria. This implies that a percentage point increase in fund risk will cause a short-run rise in banks' instability in Nigeria by 0.109 per cent points.

5.0 Discussion of Results and Implication of Findings

The funding structure (FUNDRISK) and bank size (BSIZE) of the banks are robust and positively affect composite risk thereby reducing bank stability. Fund risk decreases bank stability because of banks' heavy reliance on wholesale funding. Wholesale deposits are regularly repriced, rate sensitive and dry up quickly, especially where there is a problem with the financial health of the counterparty. Most of the commercial banks' funds in Nigeria have a higher proportion of their deposit in tenor instruments than core deposits which attract high-interest expenses and raise bank cost of funds. High funding cost negatively affect bank stability (Aymanns, Caceres, Daniel & Schumacher, 2016). The result of this study contradicts Adusei (2015) and Ali and Puah (2018) that funding structure reduces bank insolvency. Similarly, bank size increases the composite risk index thereby reducing bank stability. The increasing impact of bank size on bank instability aligns with the notion that "too-big-to-fail" policies distort the risk incentives of banks.

Finally, net interest margin reduces bank instability in the short run. This position is justified on the ground that as banks made money (NIM) more funds are available for provisioning which the bank can draw during the stress period which will ultimately assist in reducing the level of instability in the banking system.

6.0 Conclusion and Recommendation

Based on the above findings, the study has been able to establish that funding structure, bank size and net interest margin are endogenous factors that influence banking stability in Nigeria. Consequently, the study concluded that funding structure and bank size significantly and positively affect bank stability in Nigeria while net interest margin increases bank stability in Nigeria.

The study recommends that banks should constantly ensure portfolio rebalancing in the area of their funding strategy, especially with heavy reliance on core deposits. The bank regulators rather than restricting the size of systematically important banks to contain moral hazard accentuated by too-big-to-fail syndrome should institute "living wills" by making megabanks set out paths of resolutions which will be deployed whenever they are in distress situations without public bail-out and with minimal disruption to the respective national financial system.

The bank executives should make the best use of shareholders' money when it comes to supporting various types of asset acquisition as this will increase the bottom line and generate an adequate return for providers of equity capital in Nigeria.

REFERENCES

Adusei, M. (2015).The impacts of bank size and funding risk on bank stability. *Cogent Economic and Finance, 1,* 1-19.

Akande, O.J., & Kwenda, F. (2017a).Competition and stability of Sub-Saharan African Commercial banks; a GMM Analysis. *Acta Universita Danubius*, *13*(2), 122-138.

Akani, W.H., & Kingsley, C.U. (2018). Distress in Nigeria commercial banks: A multi-dimensional study. *International Journal of Innovative Finance and Economics Research, 6*(4), 67-87.

Ali, M., &Puah, C. (2019). Does bank size and funding risk affect banks' stability? A lesson from Pakistan,*Global Business Review, 19*(5), 1166-1186.

Alexandru, C., & Marius, M. L. (2009).The assessment of banking performances-indicators of performance in bank area. *MPRA Paper No. 11600*.

Caprio, G., D' Apice, V., Ferri, G., & Puopolo, W.G. (2014). Macro financial determinants of the great financial crisis: Implications for financial regulation. Retrieved from http://dx.doi.org/10.21139/ssrn.1788063.

Dwamfour, A.R. (2017). Explaining banking stability in Sub-Saharan Africa. *Research in International Business and Finance, 1*, 1-38.

Ezeoha, E.A. (2011). Banking consolidation, credit crisis and asset quality in a fragile banking system: Some evidence from Nigeria. *Journal of Financial Regulation and Compliance, 19*(1), 33-44.

Gup, E.B., & Kolari, W.J. (2010).*Commercial banking: The Management of risk* (3rd ed). New Delhi: John Wiley & Sons Pte Ltd.

Islam,M.F.(2015).Asian financial crisis, structural and international dimensions. *International Financial Review*,*1,*123-146.

Kahneman, D.,& Tversky, M.(1979). Prospect theory: An analysis of decision making under risk.*Econometrica*.*47* (2),263-292.

Karanovic,G., & Karanovic, B. (2015).Developing an aggregate index for measuring financial stability in the Balkans*. Procedia Economics and Finance*, *33,* 3-17.

Khan, S.M., Scheule.H., & Wu, E.(2016). Funding liquidity and bank risk-taking. *Journal of Banking and Finance 16,* 1-40.

Kiemo, M.S., Olweny, O.T., Muturi, M.W., &Mwangi, W.L. (2019).Bank-specific determinants of commercial banks' financial stability in Kenya. *Journal of Applied Finance and Banking, 9*(1), 119-145.

Klomp, J., & De Haan, J.(2012). Bank regulation, the quality of institutions, and banking risk in emerging and developing countries: An empirical analysis. *Emerging Analysis Finance and Trade, 50(6),* 19-40.

Makanjuola, T. (2015).*Banking reform in Nigeria: The aftermath of the 2009 financial crisis.* New York*,* USA*:* Palgrave Macmillan*.*

Mishi, S., & Khumalo, A.S. (2019). Bank stability in South Africa: What Matters? *Banks and Bank Systems, 14*(1), 122-136.

Mielus,P., Mironczuk., & Zamojska, A. (2016). Basis risk and net interest income of banks. *Folia OeconomicaStetinensia*,*1(1),41-58.*

Nairametrics.(2020).FUGAZ Banks revenue hits N1.57 trillion in H1, 2020.

Ngaira, A.P., &Miroga, J.(2018).Determinants of financial stability of listed commercial banks in Kenya.*The Strategic Journal of Business and Change Management, 5(4),* 1074-1097.

Odundo, G. O., & Orwaru, J.M. (2018). Bank size and financial stability of commercial banks in Kenya: Empirical evidence*. Journal of Emerging Issues in Economics, Finance and Banking, 7*(1), 2667-2680.

Olugbenga, A. A., &Oluwakemi, A.A.(2020).Determinants of financial stability of deposit money banks in Nigeria. *International Journal of Innovative Research and Development, 9*(4), 255-262.

Onyeiwu ,C., Ajayi, G., & Muoneke, O.(2020).The impact of credit risk on bank profitability in Nigeria. *Journal of Banking and Financial Economics, 1(13),5-22*

Ozili, K.P. (2019). Banking stability determinants in Africa. *International Journal of Managerial Finance, 1*, 1-21.

Ramlall, I. (2018). Banking sector and financial stability. *The Banking Sector Under Financial Stability, 1*, 13-27.

Rokhim, R., & Min, I. (2018).Funding liquidity and risk-taking behaviour in Southeast Asian banks. *Emerging Markets Finance and Trade, 56(2)*, 1-9.

Yeyati,L.E., & Micco, A.(2007).Concentration and foreign penetration in Latin American banking sectors: Impact on competition and risk. *Journal of Banking & Finance*, 31, 1633-1647.

Zaghdoudi, K., Hamdi, H., Dkhili ,H., & Hakimi, A.(2016). Bank competition and risk appetite: Evidence from Tunisia. *The International Journal of Business and Finance Research, 10(1),* 85-93.