MANAGING BANK RISKS IN NIGERIA: ANALYSIS OF PERFORMANCE OF DOMESTIC SYSTEMICALLY IMPORTANT BANKS (D-SIB) USING THE CAMELS MODEL

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Abstract

The risk of distress and failure is inherent in the business of banking. When this risk materialises, it impairs the ability of the banks to carry out their vital intermediation function in the economy. Hence, the study aims to assess the financial health of Nigerian banks based on a purposive sampling of six selected Nigerian banks using the CAMELS model that can enable financial institutions to focus on risk and some importance ratios. Data were obtained from the published audited financial statements of the six banks between the periods 2013 to 2018. A CAMELS analysis based on the published financial statements of the six Domestic-Systemically Important Banks (D-SIBs) was carried out. The study found that there was no major change in the CAMELS composite rating performance of the six banks in the period under consideration. The performance was relatively stable moving within a narrow band. While in terms of individual bank performances, the study found that the six banks could be separated into three different groups of high, steady, and poor performers. With an average CAMELS composite rating of "3", the overall state of health of Nigerian banks for the period under review could be described as average, which does not give cause for serious concern, Therefore, constant supervisory attention especially in various component areas of the bank is required to prevent the risk of distress and failure to carry out their vital intermediation function in the economy.

Keywords: CAMELS, Systemically-Important, Distressed-banks, Financial- ratios, supervision, bank- failure.

Introduction

Every modern economy depends on financial institutions particularly banks as prime facilitators of productive activities. Banking as a business has evolved from the chamber or trading houses in Venice, Genoa, and Barcelona (Hildreth, 1837) to the modern financial conglomerates of today. While many features of banking have

evolved over the centuries, the fundamental functions of financial institution have remained unchanged.
The financial institutions have changed from being mere intermediaries between surplus and deficit households to active enablers of economic development. It promotes the growth and development of economies by facilitating sound payment systems and lending to businesses. It also transmits a belt for monetary policy as they are the primary agents through which the central bank modulates the money supply in the economy (Corrigan 1982). Besides the traditional role of financial intermediation, banks are active in promoting industrial growth and the creation of employment by supporting small and medium scale industries. The institution facilitates the deepening of the capital market to ensure the availability of funds for both domestic and international economic activities (CBN, 2013).

The essential roles that banks play in any economy lead to an interest in their health and consequent regulation. Like all other financial institutions, banks are affected by risks that can adversely or positively impact the achievement of their objectives. Over time, risk management has become an essential activity in the management of all businesses due to the dynamic and volatile environment in which the businesses operate. The role of risk management in any business is to understand the current and future portfolio of risks belonging to the organisation and make a judgment on their treatment (Hull, 2018). Consequently, risk management should lead to the adoption of appropriate actions to identify and manage risk exposures.

Risks associated with the operation of banks should be well-managed to ensure that they contribute positively to national development. A healthy banking industry would lead to a sound financial system and an improved economy. The industry will facilitate a smooth flow of funds between deficit and surplus units to promote economic growth. To achieve financial stability, financial institutions must be stable and engender confidence that can meet their contractual obligations without interruption or external assistance. The institution's key markets should be stable and support transactions at prices that reflect fundamental forces (CBN, 2011). Therefore, banking supervision should be aimed at promoting the safety and soundness of banks and the banking system to prevent and or detect unsafe or excessively risky banking practices (Bank for International Settlements, 2012).

Banking supervision is a key role of central banks all over the world. This function is carried out through the examination of banks' records to ensure compliance and improvement of the banking system (National Deposit Insurance Corporation, 2019). Unethical practices are detrimental to the banking sector, leading to bank crisis, poor risk management, banks negative net worth, and non-performing loans and advances (CBN, 2013). A sound financial system would promote confidence in the banking system.

One of the many ways the Central Bank carries out bank supervision and thereby ensuring the safety of the banking system is a categorisation of banks. In 2014, the Central Bank of Nigeria (CBN) designated some banks as Domestic Systemically Important Banks (D-SIB) in line with the practice adopted by the Basel Committee

on Banking Supervision (BCBS) and the Financial Stability Board (FSB) (CBN, 2014). This is to ensure enhanced supervision and compliance with regulatory requirements. The Financial Stability Board described systemically important banks (or financial institutions) as financial institutions that as a result of their size, complexity, and systemic interconnectedness, would cause significant disruption to the financial system and economic activity if they failed (FSB, 2011).

The global financial crisis that took place between the years 2007 and 2008 highlighted the need for effective risk management by banks as well as more rigorous supervision by regulatory authorities. Despite the reform of supervision and controls by the supervisory body, banks were still able to engage in highly risky and unethical practices, which led to the collapse of some and the bailout of others. The necessity to avoid or minimise the incidence of bank distress is one of the reasons for the regulation and supervision of banks (Sheng, 1990). While part of the other reasons is to enable the central bank to implement monetary policy. Central banks have always had the role of regulating and supervising financial institutions to prevent banking system crises and the consequential effects on the economy (CBN, 2011). The banks (including the Central Bank of Nigeria) periodically monitor the financial health of banks to ensure a healthy and sound financial sector.

Consequently, the health and soundness of the banking sector are of vital concern, while the possibility of major banks (now designated as D-SIBs by the CBN) failing and unable to meet their obligations is an ongoing challenge for Nigeria monetary authorities. While risk management is essential for the survival of any business, it is more so for banks, as the overall health and soundness of banks impact directly on the nation's economic activities and growth. Since an average individual does not possess the competence or capacity to discern the financial health of a bank, as banks can present a solid facade despite deep and ongoing challenges, therefore, there is a need for monitoring of banks in Nigeria to ensure adequate supervision regulatory controls and safeguard early detection of deterioration in financial health and application of remedial measures. This study, therefore, assessed the financial health and soundness of major Nigerian banks using the CAMELS model. The study assists to ascertain the capital adequacy, assets quality, management efficiency, earnings quality, liquidity position, and sensitivity to market risks of major banks (designated as D-SIBs by the CBN) in Nigeria, and also examine the trend of CAMELS rating of the bank.

The scope of the study is restricted to Domestic Systemically Important Bank (D-SIB) as designated by the Central Bank of Nigeria in its circular of September 04, 2014 (CBN, 2014). Then the D-SIBs were Access Bank PLC, Diamond Bank PLC, Ecobank PLC, First Bank of Nigeria PLC, GT Bank PLC, UBA PLC, Skye Bank PLC, and Zenith Bank PLC. As of March 31, 2019, the number of D-SIBs had dropped from eight to six, with revocation of the banking license of Skye Bank PLC by the CBN (additionally, Skye Bank PLC has not published audited financial statements since 2015 financial year) and the merger of Access Bank PLC and Diamond Bank PLC. The study, therefore, seeks to apply the CAMELS model to the six D-SIBs i.e. First Bank of Nigeria PLC, UBA PLC, GT Bank PLC, Zenith Bank PLC, Access Bank PLC, and Ecobank PLC. The application of the CAMELS rating is based on secondary data extracted from published audited financial statements of

the D-SIBs; no resort has been made to any internal or management information. More also, the study is limited exclusively to publicly available information and no resort to internal or management information.

Systemically Important Banks

The year 2007 witnessed the start of the global financial crisis, which had a profound impact on economies worldwide. The concept of the systemically important bank started from the United States of America with Lehman Brothers, whose failure was one of the first fallouts of the global financial crisis. As the crisis unfolded several banks and financial institutions which were hitherto thought to be "too big to fail", failed or became impaired, causing significant dislocation to the global economy. The United States government was, therefore, forced to intervene to prevent the collapse of several large and globally active banks and financial institutions (Congressional Research Service, 2018). The government justified the use of public resources to rescue these banks on the argument that the banks and financial institutions were "systemically important" or "too big to fail" According to CRS (2018), a firm is perceived to be too big to fail when its disorderly failure would cause widespread disruptions in financial markets that might not be easily managed. The failure of such institutions could seriously damage the stability of the financial system owing to spillover effects to other banks and financial institutions and private and institutional investors (Bruhl, 2017).

In the aftermath of the financial crisis, regulatory authorities were faced with the challenge of dealing with firms that were believed to be too big, too interconnected, or too complex to fail. The financial crisis had shown that this was not the case. Globally, both political and economic policymakers agreed that it was crucial to tackle the risks of financial firms considered too big to fail (Deloitte LLP, 2013). The term Significantly Important Financial Institution (SIFI) was coined to refer to any financial institution from any sector whose disorderly failure could threaten financial stability. The term 'SIFI' includes banks, insurance companies, and other non-bank financial institutions.

The Group of Twenty (G20) is an international grouping of industrialised nations (consisting of 19 countries and the European Union) requested the Financial Stability Board (FSB) to develop a policy framework to reduce the likelihood of a SIFI failing; ensure that a failing SIFI is resolved in an orderly manner with minimum disruption to the financial system; prevent the need for taxpayer bailouts, and ensure that any cost burdens associated with government interventions were paid for by the financial institutions, and increase regulatory focus on macroprudential surveillance, and the development of specific tools to address a build-up of systemic risk in the financial system (Deloitte LLP, 2013).

The Basel Committee on Banking Supervision working together with the Financial Stability Board developed a framework to address the risks posed by Globally Systemic Important Banks G-SIB. The objectives of Basel banking supervision are to reduce the probability of failure of G-SIBs by increasing going-concern loss absorbency; and reduce the extent or impact of the failure of G-SIBs, by improving global recovery and resolution frameworks (BIS, 2011). The Basel Committee consequently developed a framework for the identification of G-SIBs, so that they

can be subjected to additional supervisory requirements (That is internationally-harmonized requirements for additional loss absorbency). The Committee developed an assessment methodology for determining banks which should be categorised as G-SIB. The method focused on an indicator-based measurement approach and qualitative information based on a supervisory judgment framework. The indicators selected by the Basel Committee include the size of a bank; banks interconnectedness; lack of readily available substitutes or financial institution infrastructure of services offered by banks; banks global (cross-jurisdictional) activity; and their complexity.

The Committee also developed four principles for supervisory judgment (BIS, 2011). The bar for judgmental adjustment to the scores should be high. Judgment should, however, be by the indicator-based measurement approach in exceptional cases; such cases are expected to be rare. The process should focus on factors such as a bank's global systemic impact, i.e. the impact gave the bank's distress/failure and not the probability of distress/failure (i.e. the riskiness) of the bank; the quality of the policy/resolution framework within a jurisdiction should not play a role in this G-SIB identification process, and the judgmental overlay should comprise well-documented and verifiable quantitative as well as qualitative information. The list of G-SIBs is reviewed annually by the Committee based on its assessment; a bank can be included or removed from the classification or be re-classified at a different level of systemic importance (Deloitte LLP, 2013).

In 2012, the Committee developed additional requirements to be implemented by national monetary authorities in respect of Domestic Systemic Important Banks (D-SIB) (BIS, 2012). These are banks that may not be globally significant but could have a considerable impact on their local economies compared to non-systemic banks. Additionally, some of these banks may have a cross-border impact on other marketplaces, even though this impact may not be global. A Domestic Systemic Important Bank (D-SIB) is, therefore, a bank whose distress or disorderly failure could have a severely detrimental impact on either the financial system or real economy within the country where the bank operates. The Committee, as a complement to the G-SIB framework, therefore required national monetary authorities to review based on the size; interconnectedness; substitutability, and complexity of banks within the local economy; produce a list of domestic systemic important banks and review the list regularly; and publicly disclose the assessment methodologies utilised. Banks designated as D-SIB are required to hold more capital than non-systemic banks. They are also subjected to higher levels of supervisory scrutiny with more data and document requests and more visits and examinations by the monetary authorities.

Review of Literature

Theoretical Framework

Early Warning System Models

The problem of insolvency in financial institution is well recgonised. Banking distress and crisis can be non-systemic (one bank) or systemic (an entire banking system). In predicting non-systemic bank distress and failure, Vilen (2010) divides Early Warning System (EWS) models into two broad categories, that is on-site and

off-site assessments. On-site assessments, as the name connotes, involve bank supervisors visiting the premises of the banks and reviewing book-keeping documentation, business books, and other relevant business and financial records to establish a bank's soundness and compliance with policies, laws, and regulations. Off-site analysis means dependence on publicly available information, especially annual and quarterly returns that banks are required to publish and or provide to regulators. Although an on-site assessment is inclusive and arguably more accurate than an off-site estimate, an off-site assessment requires less supervisory cost, effort, and time; and can, therefore, be conducted more frequently.

According to the available literature, there are various approaches to the analysis of the financial performance of banks as an indicator of the possibility or otherwise of their distress, for example k Nearest Neighbor, Decision Tree (ID3), Neural Network, CAMEL Rating, etc. Some of these approaches have statistical limitations that have not been addressed in applications for banking industry. The CAMEL Rating approach unlike the other approaches are thought to be highly accurate measures of bank condition (at least of current condition), since they reflect supervisory assessments of private information (Wachira, 2010). The model reflects a bank's overall financial conditions and can offer summary measures of the private supervisory information. It data allow the use of a continuous bank soundness measure rather than ordinal measure (Lopez, 1999, Hall, King, Meyer, & Vaughan 2002). With CAMELS studies, banks can focus on risk and some important ratios, and can try to manage and control some possible crisis (Malihe Rostami, 2015). Thus, the CAMEL-S was selected in this study.

Overview of CAMELS

CAMELS – an acronym for Capital adequacy, Assets quality, Management efficiency, Earnings quality, Liquidity, and Sensitivity to market risks was developed by the Uniform Financial Institutions Rating System (UFIRS). It is used internationally to rate financial institutions according to six factors represented by its acronym and was adopted by the Financial Institutions Examination Council (FIEC) in 1979 (Federal Deposit Insurance Corporation, 2014).

CAMELS' ratings are commonly viewed as summary measures of the private supervisory information gathered by examiners regarding banks' overall financial conditions, although they also reflect available public information (Lopez, 1999). It is an Early Warning System (EWS) based on financial ratios that can indicate the principal causes of bank distress or bank failure, and it can be used to apportion banks into various categories for effective supervisory action (Soyibo et al., 2004). Early Warning System, as an internal rating system is used by supervisors for assessing banks regularly and highlighting those banks which require extra supervisory attention to avoid failure (Aspal & Dhawan, 2016), and provides sufficient lead time to allow for necessary action before distress and collapse.

Composite and component ratings are assigned using the CAMELS model based on a 1 to 5 numerical scale. A "1" indicates the highest rating, strongest performance and risk management practices, and least degree of supervisory concern, while a "5" indicates the lowest rating, weakest performance, inadequate risk management practices, and, therefore, the highest degree of supervisory concern. A higher number rating will impede a bank's ability to expand through investment, mergers, or adding more branches.

On-site supervision of banks would require a detailed examination of the books and records of the bank, to verify the accuracy of submitted reports and obtain other supervisory information. Where they are utilised, CAMELS ratings are assigned after on-site supervision visits to the banks and are disclosed to senior bank management and relevant officials only.

Empirical Review

Determining banking distress is a global phenomenon. Unlike the developing countries where the do-nothing strategy appears to be adopted approach, much literature is replete with a variety of studies on the use of the CAMEL(S) model in predicting and analysing bank distress/failure in other countries. A more recent study of the use of CAMELS as a means of performance measurement in the Ghanaian banking sector was carried out by Boateng (2019). The study aimed to assess the effects of various CAMELS components on the performance of Ghanaian banks using a sample of ten banks and information provided in published financial statements. The result of the study shows that earnings quality was the most significant factor which affected the performance of banks in Ghana.

Another recent study conducted in the kingdom of Jordan, Al-abedallat (2019) sought to identify the impact of CAMELS components on the performance of Jordanian banks measured by returns on the assets, returns on equity, and net income. Based on a sample of eleven of the largest Jordanian banks and using publicly available information in the audited financial statements, the study concluded that while the Capital Adequacy of most banks was adequate, it observed a low return on assets and equity. The results also revealed that conventional commercial banks performed better than the Islamic banks in Jordan.

Omorodio and Urhoghide (2018) in their study examining financial ratios as predictors of failures in the Nigerian banking sector. From the 22 licensed deposit money banks operating in Nigeria as of the end of 2015, a sample of 10 banks was used with Five years (2011 - 2015) data extracted from financial statements. From the results of the study, it was concluded that 76% of Nigerian banks were financially sound, while the remainder were within a safety zone, implying that as of 2015 no Nigerian bank was unsound.

Lucky and Akani (2017) undertook a study using the CAMELS framework, to examine the soundness of Nigerian quoted commercial banks using the pre and post-bank consolidation exercise which took place in 2005. Sample of 15 quoted commercial banks was examined over the periods of sixteen years but spitted into two periods, i.e. pre-consolidation (1997 to 2004) and post-consolidation (2009 to 2016) using information obtained from the published financial statements of the banks. The study concluded that there was a significant improvement in the

composite and component CAMELS rating of commercial banks after the post-consolidation exercise.

Rahman & Islam (2017) sought to evaluate and compare the performance of the banks in Bangladesh during the period 2010 to 2016. Using CAMELS, it examined the financial performance of 17 conventional private commercial banks based on information provided in their audited financial statements. The results of their study ascertain the bank with the best CAMELS composite ranking.

From an engineering perspective, Bastan, Mazrael, and Ahmadvand (2016) adopted a qualitative system dynamics approach to analyse the performance of Iranian banks using the CAMELS framework, the results of the study concluded that Capital adequacy, quality management, and quality assets were the most critical factors affecting the soundness of Iranian banks.

A post-consolidation analysis of the Nigerian banking industry was undertaken by Oyedele, Emerah and Adegoke (2016). Their study sought to examine the performance of fifteen selected Nigerian Deposit Money Banks in the post-consolidation era. Apart from the use of published audited financial statements from 2005 to 2014, the study also administered structured questionnaires on the banks to assess their opinions about the performance of their competitors. They concluded that the merged banks have come out stronger since the consolidation and were in a better financial condition.

Other studies of banking distress in different countries for example include: Rostami (2015); Adesina (2012); Ferrouhi (2014); Owusu (2012); Ogilo (2012); Babar and Zeb (2011); Oztorul (2011); Wachira (2010); Dash and Das (2009); Nimalathasan (2008); Dzeawuni and Tanko (2008); Ali (2006);

Also, Soyibo, Alashi, & Ahmad (2004) and Olukotun, Ademola, & Olorunfemi, (2013), identify several causes of bank distress. Combining the causative factors from both studies (with overlaps disregarded) and superimposed these factors on the structure provided by Ali (2006), then a comparative view in Table 1 below can be obtained:

Table 1: Comparative Analysis of causes of Bank Distress

S/N.	Causes of Bank Distress according to Ali (2006)	Causes of Bank Distress according to Soyibo et al. (2004) & Olukotun et al. (2013)
A	Macroeconomic policies of the government.	Macroeconomic instability
B	Microeconomic factors specific to a particular bank:	
B1	Internal factors within a bank's control.	Poor Management
		Inadequate capital base
		Fraud
		Inside abuse by members of Board and management
		Poor asset and liability management

		Overly aggressive pursuit of growth
		Excessive risk taking
		Poor risk management procedures
		Ignorance and or non-compliance with rules, laws and regulations
		Technical incompetence
		Weak internal control & operational procedures
		Weak corporate governance
B2	Factor's external to the bank	Political instability and interference
		Poor regulation and supervision
		Unhealthy Competition
		Inadequate legal framework

Source: Olukotun *et al*. (2013), Soyibo *et al*. (2004) and Ali (2006)

Table 1 depicted that most of the observed causes of bank distress could be associated with internal factors which are within the bank's control. Most of the internal highlighted factors often manifest themselves in a broad portfolio of non-performing loans. Imprudent lending practices, insider dealing by top management and board coupled with lending at high rates to the riskiest segment of the market, would often translate to an extensive portfolio of non-performing loans which can lead to distress and failure (Brownbridge, 1998).

Methodology

Data Collection and Key Ratio Selection

The data for the study were extracted from the published audited financial statements, Central Bank of Nigeria, NDIC, and the Annual Statistical Reports of the D-SIBs of the selected deposit money banks (or commercial banks) in Nigeria between the period of 2013 and 2018. Using purposive sampling technique, banks designated as Domestic Systemically Important Banks (D-SIB) by the Central Bank of Nigeria are selected as population samples for the study. The D-SIBs are made up of the 21 deposit money banks licensed by the Central Bank of Nigeria as of May 31, 2019 (CBN, 2019). Even though the list consists of 21 commercial banks, only 20 banks are operating in the country, as Access Bank plc and Diamond Bank plc have since merged and become Access Bank plc.

According to the CBN (2014), the initial eight D-SIBs accounted for 70% of total bank assets in Nigeria as at 2014. Apart from asset size, other "indicator-based measurements' utilised by the CBN included interconnectedness, substitutability, and complexity of operations. These factors were complemented by the supervisory judgment of the Central Bank of Nigeria. Hence, using the Financial Stability Report as of June 2017 (which was the latest report available at the time of this study), there were seven D-SIBs, which accounted for N20.07 trillion (65.02%) of the total industry asset of N30.78 trillion. They also accounted for N11.63 trillion (64.53%) of total industry deposit of N18.03 trillion and N10.19 trillion (64.04%) of the aggregate industry loans of N15.91 trillion (CBN, 2017). The health of these banks is therefore sufficiently indicative of the health of the Nigerian banking sector.

Hence, the population sample consists of Access Bank plc, Eco Bank plc, Diamond Bank plc, First Bank of Nigeria plc, GT Bank plc, UBA plc, Skye Bank plc and. Zenith Bank plc. As of March 31, 2019, the number of D-SIBs had dropped from eight to six, with the revocation of the banking license of Skye Bank by the CBN and the merger of Access Bank plc and Diamond Bank plc. Additionally, Skye Bank (now Polaris Bank) had not published audited final accounts since the 2015 financial year. Therefore, the sample consist of six D-SIBs, that is, Access bank Plc, Ecobank Plc, First Bank of Nigeria Plc, GT Bank Plc, UBA Plc, and Zenith Bank Plc. It should be noted, First Bank PLC is the banking arm of First Bank of Nigeria Holdings (FBN HoldCo or FBNH) but because the banking firm is not listed separately, data of the HoldCo was used.

The period of the study covered the period year 2013 – 2018 to provide a relatively current overview of the state of soundness and financial health of the banks. The selected period of the years provides a sufficient duration to draw some trends and come to conclusions about the state of the banks concerned.

Model Selection

The CAMELS components and composite ratings were computed for the six D-SIBs over the six years of study. The procedure utilised by the CBN/NDIC to calculate its CAMEL rating (NDIC, 2014) was adopted, as it is an internationally standardized rating that provides flexibility between on-site and off-site examination (Dang, 2011). While adopting the procedure, thresholds that are related to international standards or Nigerian conditions are used to ascertain a bank's soundness. A composite rating, derived from a weighted average of all the component scores, was then assigned to each bank as an indication of their soundness (Soyibo et al., 2004). This procedure was used for previous studies, including those researches carried out by Kaya (2001), Oztorul (2011), Karapinar and Dogan (2015), and Ghazavi and Bayraktar (2018).

In utilising the CAMELS calculation procedure of the CBN/NDIC, some modifications and changes were introduced. The weights adopted by the CBN/NDIC are not the outcome of rigorous scientific analysis, but more of subjective supervisory judgment (Soyibo et al., 2004), more important the CBN/NDIC weights are based on CAMEL as it does not make provision for Sensitivity to Risk (See Table 2). Hence, the weighting shown in Table 2 was adjusted to accommodate the additional CAMELS component for the study.

Table 3.1: Weight of CAMEL factors in use in Nigeria

	Factor	Component	Component Weight (%)	Factor Weight (%)
1	Capital	Capital to the Risk Asset Ratio	15	
		Adjusted Capital Ratio	5	
		Capital Growth Ratio	5	
				25
2	Asset Quality	No-performing Risk Assets to Total Assets	15	
		Reserve for Losses to No-performing Risk Assets	5	
		No-performing Risk Assets to Capital &	5	

		Reserves		
				25
3	Management	CAMEL/85	5	
		Compliance with Laws & Regulations	10	
				15
4	Earnings	Profit Sector to Total Assets	5	
		Total expenses to Total Income	5	
		Net Interest Income to Total Earning Assets	5	
		Interest Expenses to Total Earning Assets	5	
				20
5	Liquidity	Liquidity Ratio	5	
		Net Loans & Advances to Total Deposits	5	
		Volatile Dependence Ratio	5	15
				100

Source: Positive and Normative Analysis of Bank Supervision in Nigeria (Soyibo et al., 2004).

Table 3.2: Ratios used in CAMELS analysis for this research

	CAMELS Components	Weight	Relationship
1	**Capital**	**0.25**	
	Tier I + Tier II Capital to Risk Weighted Assists	0.10	+
	Shareholder's Funds to Total assets	0.05	+
	Equity to Total Liabilities	0.05	+
	Equity to Net Loans and Advances	0.05	+
2	**Asset**	**0.02**	
	Non-performing Loan to Total Loans & Advances	0.10	-
	Total Loans & Advances to Total Assets	0.04	+
	Provision for Non-performing Loans to NPL	0.04	+
	Fixed Asset to Total Assets	0.02	-
3	**Management**	**0.10**	
	Total Loans & advances to Total Deposits	0.03	+
	Net Income Per Employee	0.03	+
	Operating Expenses to total Assets	0.02	-
	Interest Expenses to Total Deposits	0.02	-
4	**Earnings**	**0.15**	
	Net Profit to Total assets	0.05	+
	Net profit to Equity	0.05	+
	Net Interest Margin Total Assets	0.5	+
5	**Liquidity**	**0.20**	
	Liquidity Asset to Total Assets	0.10	+
	Net Loan & Advances tp Total Deposits	0.05	+
	Liquid Asset to Total Deposits	0.05	+
6	**Sensitivity**	**0.10**	
	Securities portfolio to Total assets	0.05	-
	Net Interest Income to Total Assets	0.05	+
	Total Weight	**1.00**	

Source: Adapted from Performance Evaluation of Banks and Banking Groups (Oztorul, 2011)

Data analysis

To know the performance of the six Domestic Systematically Important Banks between the periods 2013 to 2018, ratio analysis was used as the primary tool to arrive at the CAMELS ratios of the banks. Data obtained from the published financial statements of the six banks were utilised to calculate the 20 selected ratios for the banks for each of the years under consideration. For instance, an average Capital

Adequacy Ratio was calculated against the regulatory minimum of 15% to determine the banks that met the minimum requirement given by the bank supervisory body. In addition to these ratios, the average ratio of Non-Performing Loans & Advances (NPLA) to Total Loans and Advances for each year for all the six banks, as well as the average Net Income per employee, was obtained to measure the management effectiveness of the banks.

After obtaining ratios of all the selected banks, the CAMELS component ratings were obtained by multiplying ratios with the assigned weights as well as the index based on the relationship between the ratio and CAMELS. Therefore, to calculate the CAMELS component and composite rating for each bank, the following steps used by (Oztorul, 2011) were adopted.

i. Twenty (20) ratios grouped into the six CAMELS components were used. The reference value for each ratio, which was derived by calculating the average score for all the banks, was obtained for each ratio and each year. (Reference value of a ratio = Average of the calculated ratios for all the banks).
ii. The index value for each ratio for the bank, and each year was obtained (That is: Index value of a bank's ratio = (Bank ratio/Reference value of the ratio) *100.
iii. The impact of the calculated ratio on the CAMELS component was determined. Each ratio can either increase (+) or decrease (-) the CAMELS component rating based on its effect on the general rating of the bank. Note, the Capital Adequacy ratio has a positive relationship (+) on a bank's CAMELS rating, because as the ratio increases it indicates an increase in capital adequacy, while the Non-performing Loan ratio has an inverse relationship (-) to Asset quality because, as the non-performing loans increase, asset quality decreases.
iv. The CAMELS Component score based on the relationship (positive/negative) was obtained. Note: (a) If the relationship is positive (+), Component score = Index value – 100. (b) If the relationship is negative (-), Component score = 100 - Index value
v. The resultant score obtained for each ratio is multiplied by the assigned weight to obtain the component score.
vi. The component score is converted into a CAMELS component rating. Note: The CAMELS component rating of 1 to 5 is assigned based on the range that a component score falls into. The ranges are $x < -30, -30/-10, -10/+10, +10/+30, x > +30$. Value of one (1) is assigned to the best performance and value five (5) to the worst performance.
vii. The CAMELS composite rating is obtained by adding up the average of each CAMELS component rating.

Table 3: Conversion of the component score into a CAMELS component rating for each year

	2013- Components	Access	Ecobank	First Bank	GT Bank	UBA	Zenith
1	Capital	3	5	5	1	3	1

2	Asset	4	5	1	5	1	1
3	Management	3	5	2	1	4	3
4	Earnings	5	5	3	1	4	2
5	Liquidity	3	4	5	5	2	1
6	Sensitivity	4	3	4	1	5	5
	Composite Average	4	5	3	2	3	2

	2014- Components	**Access**	**Ecobank**	**First Bank**	**GT Bank**	**UBA**	**Zenith**
1	Capital	3	5	5	1	3	2
2	Asset	3	5	5	4	1	1
3	Management	3	4	4	1	4	3
4	Earnings	3	3	1	5	4	1
5	Liquidity	3	3	3	3	1	1
6	Sensitivity	4	3	4	1	1	1
	Composite Average	3	4	4	3	2	2

	2015- Components	**Access**	**Ecobank**	**First Bank**	**GT Bank**	**UBA**	**Zenith**
1	Capital	3	4	4	2	2	2
2	Asset	4	4	5	1	1	1
3	Management	2	5	5	1	4	2
4	Earnings	3	5	4	3	4	1
5	Liquidity	3	4	3	5	2	1
6	Sensitivity	3	3	4	4	5	1
	Composite Average	3	4	4	3	3	1

	2016- Components	**Access**	**Ecobank**	**First Bank**	**GT Bank**	**UBA**	**Zenith**
1	Capital	4	5	4	1	2	3
2	Asset	2	5	4	2	1	1
3	Management	2	5	4	1	4	3
4	Earnings	4	5	4	3	4	2
5	Liquidity	3	4	4	5	1	1
6	Sensitivity	3	3	3	3	5	1
	Composite Average	3	5	4	3	3	2

	2017- Components	**Access**	**Ecobank**	**First Bank**	**GT Bank**	**UBA**	**Zenith**
1	Capital	5	4	3	1	4	2
2	Asset	1	4	4	2	1	1
3	Management	3	4	3	1	4	3
4	Earnings	5	5	4	3	5	2
5	Liquidity	5	3	5	5	1	2
6	Sensitivity	2	3	3	2	5	2
	Composite Average	4	4	4	2	3	2

	2018- Components	**Access**	**Ecobank**	**First Bank**	**GT Bank**	**UBA**	**Zenith**
1	Capital	5	5	5	1	3	1
2	Asset	1	4	4	2	1	1
3	Management	3	4	3	1	4	3
4	Earnings	5	5	4	3	5	2

5	Liquidity	5	3	5	5	1	2
6	Sensitivity	2	3	3	2	5	2
	Composite Average	4	4	4	2	3	2

Source: Researchers Computations

Table 4: Addition of the average of each CAMELS Component Rating.

	CAMELS Components	**2013**	**2104**	**2015**	**2016**	**2017**	**2018**	**Averag**
1	Capital	4	3	3	3	3	3	3
2	Asset	4	4	4	4	4	4	4
3	Management	3	4	4	4	4	4	4
4	Earnings	2	2	3	2	2	3	2
5	Liquidity	3	2	3	3	3	3	3
6	Sensitivity	2	1	1	2	2	2	2

Source: Researchers Computations

Result of the Analysis

Summary of the Analysis of the Result of the CAMELS Computation for the D-SIBs

The aggregation of all the components gives a composite score that provides a standardised framework from which the overall safety and soundness of a bank can be identified, measured, and analysed. Based on the standard measurement of health financial institution according to the United State Federal Reserve System, Partnership for Progress (2013), a review of the composite CAMELS ratings of the six D-SIBs reveals three broad groups made of up to two banks each. Ecobank and First Bank make up the first group, they both have an average composite rating of "4", which means that they generally exhibit unsafe and unsound practices or conditions as indicated in the table and figure below.

Table 5: CAMELS composite ratings for the Six D-SIBs

	CAMELS Components	2013	2104	2015	2016	2017	2018	Averag
1	Capital	4	3	3	3	3	3	3
2	Asset	4	4	4	4	4	4	4
3	Management	3	4	4	4	4	4	4
4	Earnings	2	2	3	2	2	3	2
5	Liquidity	3	2	3	3	3	3	3
6	Sensitivity	2	1	1	2	2	2	2
	Average	3	3	3	3	3	3	

Source: Researchers Computations

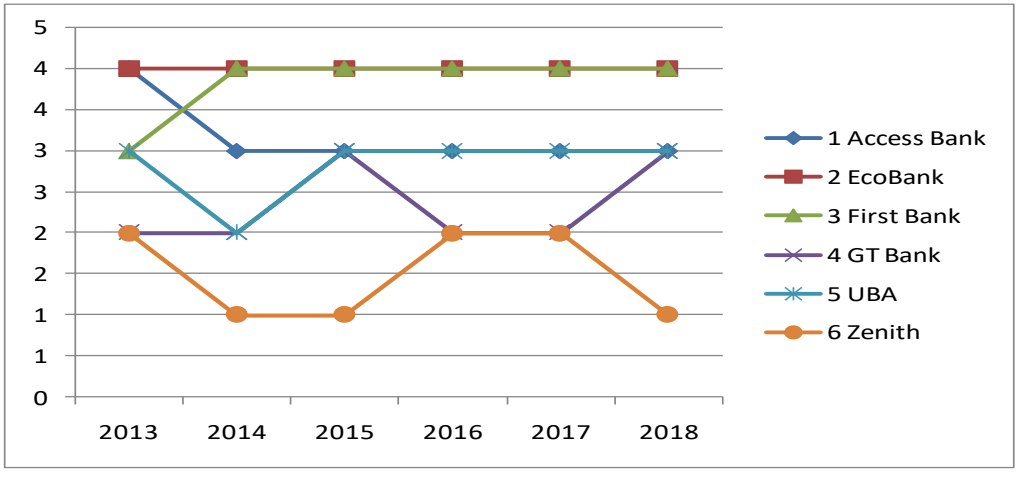

Figure 4.7: Graphical Representation of the CAMELS Composite ratings of D-SIBs for 2013 to 2018

Since 2014, the two banks have returned a composite rating of "4", and there will be a need to have a significant positive turnaround in some of the vital component ratings for this to change. The second group of banks comprises Access bank and UBA, both of whom have an average composite rating of "3". This means that they

exhibit some degree of supervisory concern in one or more of the component areas. Since 2015, they have both returned an average rating of "3", and improvements would be necessary for various component areas. The final group is made up of GT Bank, and Zenith bank both of whom have an average component rating of "2". While GT Bank has had fluctuating ratings between "3" and "2" over the period, Zenith bank has oscillated between "2" and "1". This implies that Zenith bank can be considered as the safest and soundest bank in the country in 2018.

Hence, the results of the analysis in the table above reviewing the outcome of the CAMELS computation for the six D-SIBs for the period under consideration, indicate that, for the six years, 2013 to 2018, the average CAMELS composite rating for the six banks was a "3" rating. This remained unchanged from 2013 to 2018. Hence, there was no significant improvement in the overall CAMELS composite ratings of the D-SIBs over the six years.

Summary of the study

As engines of growth, banks ensure that through the process of intermediation, economic activities proceed unhindered. As a result of the key role, banks occupy in economic activity, any disruption to the effectiveness of banks rebounds negatively to the rest of the economy. Therefore, monetary authorities have expressed strong interest in various early warning systems which indicate the financial health of banks. Early awareness of difficulties would allow the monetary authorities to take preventive measures to avoid a bank failure. Experience has shown that preventive measures which can range from a change in bank management to injection of additional capital are often cheaper to the government and the entire economy as a whole than the cost of bank failure. The importance of an early warning system that accurately predicts bank distress and failure at a reasonable cost has led to the development of various models and frameworks. CAMELS model, when combined with details from internal business records and interviews with bank management, has proved very useful in indicating the financial health of a bank and therefore giving the authorities sufficient time to take necessary preventive action. Given the history of bank failure and distress in Nigeria, CAMELS is a very important tool and had been deployed by both the CBN and NDIC to assess the health and financial soundness of Nigerian banks.

Conclusion and Recommendation

Considering the state of health of the six D-SIBs as an indicator, the Nigerian banking system can be said to be in "fair" or "average" condition of health as of the end of the 2018 financial year. The CAMELS composite performance of the six banks did not experience dramatic movements during the six years of the study. The CAMELS composite rating of each bank moved within a narrow band of value (1) throughout the six years, e.g. between "4" and "3" for Access Bank, Ecobank, and First Bank, while it is between "3" and "2" for GT bank and UBA and between "2" and "1" for Zenith Bank. This can be taken as an indication of firm management of the various banks as their indices are not all over the place. This implies that on average, the mean CAMELS composite rating for the six banks for each of the six years was "3" as shown in table 4.3 above, which implies that while they are not

likely to collapse anytime soon, they exhibit some degree of supervisory concern in one or more component areas and require active supervision.

Hence, to avoid risky lending, reduces systematic risk, and ensures that banks are operated prudently in Nigeria, activities of banks must be regulated by given strict operational guidelines and provide with capital requirements to comply with (Apostolik et al., 2009; Sheng, 1990). Also, on-site and off-site examination of bank records should be regularly checked by regulators to identify or predict non-systemic risks in individual banks. A review of banks' records, with adequate control measures, would also ensure that adverse spiral effects of bank failure do not impact the entire banking system. Also, implementation of system-wide support mechanisms which reduce the impact of a bank run should it occur should be made. These mechanisms include deposit insurance, reserve requirements, and access to various liquidity support systems. However, the approach adopted by Apostolik et al. (2009) excluded consideration of the three other factors (i.e., monetary policy, credit allocation, and competition and innovation) which drive banks regulation according to Sheng (1990). It is therefore expected that the CBN and NDIC would continue to exercise active supervisory oversight over the banks as is expected with the Domestic Systemically Important Bank designation.

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