An Assessment of the Stability and Diversity of the Nigerian Financial Service Sector

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13 November 2019

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ABSTRACT

In recent times, policy makers have considered the financial sector as a vital factor for growth and development in a country. So many research efforts to address the resilience and well-being of the financial system have stressed the importance of diversity in the financial system. This study assesses the stability and diversity of the financial service sector in Nigeria. The study employed the use of data from Nigeria's commercial banks' financial report and the Central Bank of Nigeria (CBN) statistical bulletin for the period of 13years (2005:Q1 – 2017:Q4). The study adopted the Auto Regressive Distributed Lag Estimation technique to determine the long run and short run dynamics of the variable employed and the Hirshman Herfindahl Concentration Index for financial stability and diversity respectively. These analyses provided several findings such as a negative relationship between stability and total bank asset as a result of weak corporate governance among the regulatory bodies, a positive relationship between stability and loan asset, a positive insignificant relationship between stability and Real Gross Domestic Product due to poor level of financial coverage among the entire populace and finally the analysis reveals a fairly diversified financial system.

The study recommends a strict supervisory and monitoring framework from both the Asset Management Company of Nigeria (AMCON) and the Central Bank of Nigeria (CBN) in the acquisition of the asset from the commercial banks. More so, the monetary authority should direct the commercial banks to give out loans with moderate interest rate and also control the inflationary pressures that might be posed as a result of the low interest rate through other instruments and finally in order to improve diversity in the financial system, the financial institutions particularly the commercial bank should fully inculcate the global idea of financial technology to deliver better financial service through technology solutions and also keep itself abreast of the pace of development in foreign countries financial service sector as this will gear them towards delivering better and innovative service to Nigerians.

Keywords: Financial Stability, Financial Diversity, Z Score Total Bank Asset and Loan Asset

1. INTRODUCTION

A country's level of growth and development has been attributed to many factors, one of which is the level of stability and diversity of its financial sector (Beck, et al, 2007; Cihak, 2007; Demirgüç-Kunt, et al 2008). Financial development, for instance, drives the level of economic growth through the channels of financial intermediation, investment and portfolio management, trade and exchange activities. As opined by Levine (2004), financial development involves improving (i) Ex ante information on potential investments, (ii) Investment monitoring and corporate governance implementation, (iii) Mobilization and pooling of savings, (iv) Trading, diversification, and risk management and (v) Exchange of goods and services. Each of these features can affect savings and investment decisions and therefore economic growth.

Financial stability, on the other hand, underscores the resilience of a country's financial sector to stress. This involves how the stability index takes care of external shocks by making the domestic economy immune to external volatilities. A stable financial system can effectively allocate funds, assess funds and manage economic risks, maintain employment rates of the economy and eliminate relative price movements of actual or financial assets affecting monetary stability or employment levels. A financial system is in a range of stability when it dispels financial imbalances that occur endogenously or as a consequence of negative and unforeseen occurrences. The system will absorb the shocks in stability mainly through self-correcting processes, preventing adverse events from disrupting the real economy or other economic structures. (Cihak and Hesse, 2010; Cihak et al, 2010; World Bank, 2012).

Globally, the financial sector is vulnerable to a lot of shocks and the global economy has been moderated or dominated by the G-8 Nations whose financial and economic activities affect the rest of the world. With the recent drives towards currency swaps, whereby international trade and transaction ceases to be denominated in the dollar rather than the currencies of the trading partners, the Breton Woods institutions require a formidable approach to forestall serious global economic crises.

From a regional level, the African Economic Outlook Report (2019) opined that the African economy has the potentials to sustain its growth rate despite country-specific challenges in the region. However, the level of sustainability depends on the financial sector stability and its readiness to drive the economy by financing important economic activities. In addition, this

depends on the strength of the region's financial sector to intermediate financial resources despite various crises dotted across the region.

The financial system in Nigeria is increasing rapidly and being increasingly incorporated into regional and global financial systems. According to CBN (2019), The gross assets of the financial system accounted for 61% of GDP. Banks are at the major players in the system, followed by pension funds. Banks are the primary players in the cash markets; they function as settlement banks on capital markets and account for 36% of complete capitalization on the equity market; While Non-Bank Financial Institutions (NBFIs), besides pension funds, account for 7% of total financial industry assets. In assets, the insurance industry has the equivalent of less than 2% of GDP. This structural stance, therefore, necessitates the need to assess the state of the financial service sector in Nigeria in order to determine its stability and diversity.

1.2 Research Issue

In recent years, the Nigerian economy has encountered domestic and external shocks. The economy has continued to grow to roughly 6.7 percent annual estimate since 2009. Efficiency in financial institutions has continued to improve, although there are still some anti-crisis emergency measures that need to be in place. The need for sustaining financial stability in spite of the crisis and in the face of significant internal and external threats are drivers of the Central Bank (CBN)'s crucial and broad-based policy response.

The CBN has taken an extensive range of remedial measures after the crisis. Substantial liquidity has been injected, a full guarantee has been given to depositors as well as to banks interbank and foreign loan lines. The Asset Management Company of Nigeria (AMCON) was set up to buy banks' Non-Performing Loans (NPLs) in return for zero-coupon bonds and injection funds to take assets to zero. Other measures taken were the strengthening of financial laws, regulations to enhance corporate governance and other oversight functions while also abandoning the Universal Banking Model and also instructing banks to set up holding companies (Kaminsky and Carmen, 1999; Laeven and Levine, 2009).

In spite of the procedure towards a favourable macroeconomic outlook, a significant risk in the financial system persists**.** There have been bank and other financial service failures such as a substantial decline in the value of asset prices, liquidity shortages, the inability of these institutions to meet their financial obligations and finally stock market crashes. These kinds of financial crises

are often coupled with panic or bank run in which investors sell off their assets or withdraw funds entirely from savings accounts because they fear that if it stays in the financial institution, the value of those assets will fall. Beyond these concerns, the issue of financial stability is very crucial because as the complexities and diversities of the financial system have increased in past few years, the potential impact of financial instability on the economy has also increased.

With oil receipts generating over 85 percent of the government's total revenue, a significant drop in the petroleum price could undermine fiscal consolidation and induce the accumulation of public debt. The resultant increased loan risk has placed a heavy burden on monetary policy. Meanwhile, insurgent activity in Northern Nigeria remains, adversely affecting economic activity especially in agriculture and trade. Against a background of an already high-cost setting, further decline in security would increase commercial expenses and bring down confidence and reliability thus harming growth and further development of the financial system.

Fiscal dominance is a key contributor to the unfavourable trade-off between inflation and growth, in which monetary policy must be held tight despite the sputtering growth of personal credit. However, stress testing which is an analysis conducted under unfavourable economic conditions shows that banks are resilient to a variety of shocks (Basarir and Toraman, 2014). Also, the financial system is still suffering from weak governance, including non-transparent ownership structures, financial reporting inadequacies, and rampant perceptions of corruption. These weaknesses and shortcomings have been as a result of several banks undercapitalization, leading to the consolidation of the banking sector from 89 banks in 2004 to 24 in 2017.

Also, an overview of the non-banking financial institutions in the country shows the need for additional regulations. For instance, the insurance sector requires the better implementation of compulsory insurance; improvements in requirements of product disclosure; and the resolution of unviable businesses.

Given the different regulatory frameworks instituted to forestall crises in the financial sector in Nigeria such as the CBN's emergency liquidity assistance (ELA), the Nigeria Deposit Insurance Corporation (NDIC) and AMCON' indemnity of banks' nonperforming loans (NPLs); in addition to current security situation and legal and political laxities, the questions remain: how stable is the financial sector in Nigeria? How diverse is the financial sector in Nigeria? What is the effect of the financial sector on economic growth in Nigeria? This study, therefore, examines the stability and diversity of the Nigerian financial sector.

1.3 Objectives

The main objective of this study is to assess the stability and diversity of the Nigerian Financial sector. The specific objectives include to empirically:

i. Examine the stability of the financial sector in Nigeria.
ii. Analyse the level of diversity in the Nigerian financial sector using their concentration index.
iii. Investigate the effect of the financial sector on economic growth in Nigeria.

1.4 Gaps in the Literature

The issue of financial sector stability and diversity is a continuous interest to many stakeholders. This interest has been driven by academic and policy makers. Thus, the debate on the relevance of the financial sector variable in explaining the level of growth and development of a country had been contributed to by researchers and Breton Woods institutions. Thus, many studies have carried out an empirical analysis of the importance of the stability of the financial sector on country specific, regional or global financial economy (Kaminsky and Carmen, 1999; Laeven and Levine, 2009 Beck, et al, 2007; Cihak, 2007; Demirgüç-Kunt, et al 2008; Viñals and Sayeh, 2013).

For instance, in terms of measuring financial development, Adu et al (2013) explored financial development and economic growth in Ghana. Kargbo and Adamu (2009) looked at the connection between financial development and economic growth in Sierra-Leone. Their findings substantiate Sierra Leone's financial-led growth hypothesis with a substantial beneficial growth impact on financial development.

Odhiambo (2009) investigated the diverse connection between interest rate reforms, financial development, and economic growth in South Africa. The writer concludes that there is a causal relationship between financial depth and economic development.

Also, Čihák and Hesse (2008), investigated the relative financial strength of Islamic banks and argued that (i) large commercial banks tend to be financially stronger than large Islamic banks;
(ii) small Islamic banks tend to be financially stronger than small commercial banks and (iii) small Islamic banks tend to be financially stronger than large Islamic banks, which may reflect challenges of credit risk management in large Islamic banks.

However, surprising that such studies that empirically investigate the stability and diversity of the financial sector using the Nigerian data are non-existent. This is surprising given the state of the

financial sector in Nigerian which is susceptible to volatile business environments such as insurgency, terrorism, kidnapping, political permutations, etc. This position makes the country's financial sector vulnerable to different shocks. Moreover, the banking industry accounts for over 72% of the financial sector which makes it highly significant in determining how stable and diverse the financial service sector is. Thus, this study fills this gap.

In terms of methodology, various methods are available in the literature for empirical analysis. Adopting any of these methodologies however, depends on a lot of country specific characteristics that may have various effects on the estimates generated. Three very important aspects to be considered under methodology include the variable measurement, estimation techniques and scope. However, some of these methods suffered from estimation bias most especially when subjected to empirical data. Hence, to overcome these methodological issues, this study examines the stability and diversity of the Nigerian Financial sector using relevant econometric analysis that captures the behaviours of the variables of interest.

It is expected that the findings of this study would provide a fresh understanding of the stability and diversity of the financial sector in Nigeria and offer a threshold into formulating unique policy in the gas industry that would enhance the performance of the sector in the country.

2. AN OVERVIEW OF NIGERIA'S FINANCIAL SECTOR

In Nigeria, the financial service sector comprises of financial institutions, financial markets, specialized development finance institutions and other various institutions. Under the financial institutions, we have both bank and non-bank institutions. Bank involves commercial banks, mortgage banks, merchant banks, etc., while non-bank involves insurance companies, pension firms, finance firms, and exchange offices. The financial markets are both the money and capital markets where loans are secured for various reasons. The specialized development finance institutions are set up to support economic development particularly in developing countries such as the Bank of Industry (BOI) and Nigerian Export Import Bank (NEXIM)

The Nigeria financial service sector also includes the supervisory authorities charged with the responsibility of regulations. They are the Central Bank of Nigeria (CBN), Nigerian Deposit Insurance Corporation (NDIC), Securities and Exchange Commission (SEC), National Insurance Commission (NAICOM), Nigerian Stock Exchange (NSE) and the Federal Ministry of Finance (FMF). The financial sector in Nigeria has experienced several reforms to improve its efficacy. The period from 1959 to 1970 was considered in Nigeria to be the era of banking regulation, this period started with the enactment of the 1959 Nigerian Central Bank Act, which gave legal support to the establishment of the Nigerian Central Bank (CBN). This act regulates the setting up of new banks and the operating existing banks. The legislation of the 1959 CBN act strengthened the Central Bank's grip on the commercial banks and other finance houses.

The 1970 indigenization era was a notable phase in the Nigerian financial sector when the government implemented numerous control measures such as the nationalization of foreign banks and also the entry limitations and the interest rate ceiling. The main feature of this era included the socialization of the financial sector in Nigeria, which saw the Federal Government's ownership of 60 percent of bank shareholdings in line with the 1972 Indigenous Enterprise Promotion Act as amended in 1977. The Federal Government set up banks to promote economic development in areas such as agriculture, industry, housing & mortgage acquisition, small and medium-sized enterprise, etc. The indigenization era brought forth the existence of the Federal Mortgage Bank, Nigerian Agricultural and Cooperative Bank and Nigerian Bank of Industry.

The 1986 era was considered to be an expansive banking period because, during this era, the number of newcomers in the banking industry increased greatly such that by 1993 the number of banks increased by 200 percent from its estimate of 1985 (Ndako, 2010). Massive increment came

as a result of the Structural Adjustment Programme, (SAP) aimed at liberalizing the financial system to make it function on the grounds of market system as well as encouraging competition in the system to attract both foreign and local investors. It is assumed that if the financial sector is liberalized, it will be able to mobilize funds for development and also allow the most efficient use of funds.

This resulted in most federal government banks being privatized. During this era, several banks and financial institutions were established as the policy rendered owning and running a financial institution profitable. A total of 38 new banks were granted operating licenses between 1986 and 1989 (Soyibo and Adekanye, 1992). Between 1987 and 1991, the licensing processes for banks were loosened, enabling those with political influence to acquire permits and run banks despite having no technical skill or appropriate experience. The number of commercial banks and other financial institutions increased drastically during this era. This however came with other strategic changes in the financial sector, among which is the establishment of the Nigerian Deposit Insurance Corporation (NDIC) by Decree No. 22 of 15th June, 1988.

The NDIC was set up to insure bank deposits, ensure a secure banking procedure through efficient oversight functions and also to support the CBN in formulating banking strategies to ensure stability in the financial system. In 1989, the minimum capital requirement for commercial banks was increased from N10 million to N20 million for commercial banks in order to strengthen bank operations. In 1991, commercial banks minimum capital requirement increased to N50 million, while merchant banks increased to N40 million. However, the banks were characterized by low capital base, insolvency and poor asset quality despite the regulations of their activities which led to the consolidation process in 2004.

In 2004, the Central Bank of Nigeria introduced the new capital requirement of Nigerian banks with an intention to increase their sizes through mergers and acquisition. Professor Charles Soludo, the then Governor of CBN, addressed the Bankers Committee on July 6, 2004 that the consolidation exercises were based on solid evidence suggesting that the financial sector in Nigeria experienced lots of financial deficiencies such as low capital base, insolvency and illiquidity. The banks at that time found it difficult to sustain and support the real sector and other businesses with domestic credit. Instead of carrying out their crucial financial intermediary roles, a large number of those banks were not interested in intermediating funds, but rather quickly made profits from interest mediation and other rent-seeking activities. Thus, the need to create a banking

system that can support and foster economic growth and development stands out prominent as the justification of the consolidation exercise.

Many banks that were not able to meet the new capital requirements or find the right partner to merge with were therefore compelled into liquidation. There was a significant reduction in the number of local banks but amazingly, foreign banks survived the recapitalization, as they relied on their parent companies through capital injections to meet the capital requirements. After the consolidation, the total number of banks dropped from 85 to 24.

Table 2.1: Nigeria's Financial Sector Performance Trend (Pre-Consolidation Era)

Year	Money Supply (M2) (N' Billion)	Credit to Private Sector (CPS) (N' Billion)	GDP at Current Basic Prices (N' Billion)
1981	14.47	8.57	144.83
1982	15.79	10.67	154.98
1983	17.69	11.67	163
1984	20.11	12.46	170.38
1985	22.3	13.07	192.27
1986	23.81	15.25	202.44
1987	27.57	21.08	249.44
1988	38.36	27.33	320.33
1989	45.9	30.4	419.2
1990	47.42	33.55	499.68
1991	75.4	41.35	596.04
1992	111.11	58.12	909.8
1993	165.34	127.12	1,259.07
1994	230.29	143.42	1,762.81
1995	289.09	180	2,895.20
1996	345.85	238.6	3,779.13
1997	413.28	316.21	4,111.64
1998	488.15	351.96	4,588.99
1999	628.95	431.17	5,307.36
2000	878.46	530.37	6,897.48
2001	1,269.32	764.96	8,134.14
2002	1,505.96	930.49	11,332.25
2003	1,952.92	1,096.54	13,301.56
2004	2,131.82	1,421.66	17,321.30

Source: Author's Computation from CBN statistical Bulletin 2018

This table shows the era of financial deepenings before the consolidation between the periods 1981 to 2004. The performance of the economy was accompanied by increases in money supply and credit to the private sector as a result of an increase in GDP. However, the increase in the three variables was proportional until 1986 when GDP skyrocketed as a result of the expansionary banking policy that enabled new entrants into the banking industry and also the Structural Adjustment Programme which liberalized the financial system and gave room for more competition

Table 2.2: Nigeria's Financial Sector Performance Trend (Post-Consolidation Era)

Year	Money Supply (M_2) (N' Billion)	Credit to Private Sector (CPS) (N' Billion)	GDP at Current Basic Prices (N' Billion)
2005	2,637.91	1,838.39	22,269.98
2006	3,797.91	2,290.62	28,662.47
2007	5,127.40	3,668.66	32,995.38
2008	8,008.20	6,920.50	39,157.88
2009	9,411.11	9,102.05	44,285.56
2010	11,034.94	10,157.02	54,612.26
2011	12,172.49	10,660.07	62,980.40
2012	13,893.22	14,649.28	71,713.94
2013	15,154.64	15,751.84	80,092.56
2014	16,238.52	17,131.45	89,043.62
2015	18,525.22	18,675.47	94,144.96
2016	21,624.63	21,082.72	101,489.49
2017	22,363.43	22,092.04	113,711.63
2018	25,079.72	22,521.93	127,762.55

Source: Author's Computation from CBN statistical Bulletin 2018

After the consolidation process, GDP, Money Supply and Credit to Private Sector (CPS) continued to grow at a speedy rate. Both variable shares of the GDP were on double digits and at an increasing rate. The 2004 consolidation process brought about developments in the operations of the banks and also rapid development of the financial markets which in turn increased diversity in the financial service sector

2.1 Players in the Financial Service Sector

The financial system in Nigeria is one of the largest in Africa, consisting of 24 strong capital-base commercial banks, 5 merchant banks, over 890 rural community and microfinance banks, 6 development finance institutions (DFIs), over 300 financial service companies, 5 discount houses, various insurance and pension schemes, Bureaux de Change and lots of online/mobile transaction platforms such as Interswitch, eTranzact, Paga etc.

2.1.1 The Banking System

The banking system is a catalyst for financial intermediation in which funds are transferred from the surplus spending unit to the deficit spending unit. The major players in the banking industry are both commercial and merchant banks. The commercial banks play a crucial role in the financial service sector by making financial resources available to finance and promoting growth and development. Their primary functions are (i) acceptance of deposits from individual business entities and the government by means of different accounts (ii) granting credit to people, government, and companies through loan, overdraft & cash credits and (iii) transfer of funds on behalf of the customer. Commercial banks invest their surplus deposit on investment such as lending to capitalists on various projects, real estate, partnership with private businesses in the production of goods & services, procurement and equipment leasing etc. They are also crucial in transmitting the economic policies of government especially through the monetary policy the Central Bank regulates the entire economy.

Due to the sensitive nature of their roles and the fact that the capacity of commercial banks to influence economic growth mainly depends on their efficiency, the government has continued to adopt a range of reform policies to protect the commercial banking sector. Such policies most times focus on risk management and improved corporate governance to strengthen and realign the banking industry so that through its intermediation functions it can contribute effectively to the development of the financial sector and the economy at large. These policies involve an extensive process of enhancing the regulatory and supervisory framework through promoting sound competition in banking operations, ensuring an efficient monetary management framework, enforcing capital adequacy, expanding the savings mobilization base, and fostering investment and growth through market-based interest rates.

The financial state and soundness of the commercial banking system have improved significantly since the consolidation process in 2004. The authorities closed 45 banks, raised the minimum capital requirements to 25 billion naira and compelled most of the remaining banks to comply with the regulatory laws. These process has affected the macro economic conditions in the banking sector and led to a significant increase in the total bank assets of each commercial banks, an overwhelming increase in the loan advances to individuals and other business units and a drastic drop in aggregate Non-Performing Loans (NPLs). These process has also improved the banking system structurally. As a result of the merger, the bank sizes and their market share index have increased.

Table 2.3: Commercial Bank Total Bank Asset and Loan Advances

Year	Commercial Bank Total Assets (N'Billion)	Commercial Bank's Loan Advances (N' Billion)
2005	4,515.10	3,012.56
2006	7,172.10	5,634
2007	9,134.20	7,492.45
2008	8,749	6,443.09
2009	17,522.90	8,150.88
2010	17,331.60	7,018.28
2011	18,300.30	6,685.85
2012	21,288.10	7,723.72
2013	23,533.60	9,467.28
2014	24,860.80	12,101.20
2015	28,173.30	12,101.32
2016	30,836.80	13,940.45
2017	33,302.50	14,519.75
2018	39.065.10	15,809.34

Source: Author's Computation from CBN statistical Bulletin 2018

A merchant bank is a banking institution that directly invests equity capital in businesses and often offers advisory services to those businesses. A merchant bank provides similar services as an investment bank, but typically serves smaller customers and invests directly in them. They have such functions among others as raising funds from the markets to help customer's businesses, offering advisory services to clients on investment decisions, offering advisory services on risk management to customers and providing assistance to customers in new projects by helping them to analyze the project's viability

3. REVIEW OF LITERATURE

Numerous studies have been conducted to examine the diversity and stability of the financial sector on the global scene, the continent of Africa and Nigeria in particular. In this research, empirical analysis is performed to assist in selecting a suitable technique to be used as well as seeing how estimated findings support theoretical arguments among interest variables. However, for both cross-country or country-specific analysis, empirical literature produced diverse outcomes that were reviewed based on specific grouping.

a) Financial Development and Economic Growth

To find out the nexus between financial development and economic growth, Eng and Habibullah (2011), Khadraoui (2012), Ross Levine (2005) and Ibrahim and Alagidede (2017) explored the causality issue on financial development and economic growth using different approaches and choice of variables. However, the authors came to a consensus that financial development is beneficial and matters for long-term growth in any economy. In the bid to achieve this empirical finding; Eng and Habibullah (2011), Levine (2005) and Ibrahim and Alagidede (2017) employed a GMM estimator while Khadraoui (2012) employed OLS methodology. The common variables of choice utilized by these authors are; GDP per capita, Inflation rate, Trade openness and Government spending.

On the contrary, Adu et al (2013) examined the long-run growth effects of financial development in Ghana. Real GDP, government expenditure, consumption expenditure to GDP ratio, trade openness, capital stock and inflation rate are the variables employed by the author. The findings suggested that whether financial development is good or bad for growth, it largely depends on the indicator used to proxy for financial development. Both the credit to the private sector as ratios to GDP and total domestic credit as a proxy are conducive for growth, while broad money stock to GDP ratio as a proxy is not growth-inducing.

And finally, Oluitan (2012) similarly investigated if financial institutions within Africa are well positioned to assist the continent out of poverty with their growth prone capability using the OLS as an estimation technique, the investigation suggested that the contribution of the financial sector through intermediation is important to growth. In conclusion, various authors have been able to draw out the positive impacts of financial development on the growth of the economy

b) Evaluating and Assessing Financial Stability

Udom et al (2018), Fadare (2011) Brave and Bruters (2011) and Owopoti (2014) evaluated how stable the operations of the financial system have been overtime. Capital adequacy, asset adequacy, bank size, returns on asset and inflation were the mutual variables employed by the four of them. Udom et.al., (2018) adopted the macro prudential approach and suggested that for amending financial crises, inflation moderation, close monitoring of the risk management framework of the banks and strict enforcement of corporate governance standards are the recommendations to be employed by the monetary authorities and policy makers.

Fadare (2011) examined the key determinants of liquidity in the banking sector in Nigeria and assessed the extent to which liquidity in deposit money banks in the nation has been impacted by latest financial crises. Adopting the Autoregressive Linear Least Squares, the study disclosed that deposit money banks are considerably illiquid with respect to benchmarks during periods of financial crises and getting liquidity monetary policies right in those periods is essential to ensuring the banking sector's survival.

Brave and Butters (2011) provided a timely assessment of how tightly or loosely financial markets are operating relative to historical financial and economic conditions. The empirical finding indicates that known periods of the financial crisis is in accordance with peak periods of tightness in each index, and the turning points of each index coincide with well-known events in U.S. financial history. In exploring the effect of bank-specific industry and macroeconomic factors on bank profitability in Nigeria Owopoti (2014) used a panel data regression model and indicated that capital adequacy, bank size, productivity growth, and profitability deposits have a beneficial and substantial impact on development. Houben et.al.(2004) highlighted the fundamental framework for financial stability assessment and policy arguing that finance encourages production processes, wealth accumulation and diversification of risk but it is subject to market failures that justify a position for the public sector.

In assessing financial stability overtime, it has been shown that the monetary and financial authority needs to adhere to their recommendations and get suitable monetary policies to deepen the bank's stability and the financial system in general.

c) Assessing Diversity in the Financial System

In investigating diversity in financial sector, several authors made various submissions on how a diverse system influences the financial sector. These authors are Ayadi et al (2009), Michie (2011), De Jonghey (2008), Dai-Won Kim (2017) and Weller and Zulfiquar (2013). Ayadi et al (2009), Michie (2011), Dai-Won Kim (2017) and Weller and Zulfiquar (2013) had a consensus on how a diverse system in finance positively affects the growth and development of a nation. Ayadi et al (2009) investigated the role of institutional diversity in the banking sector in selected European countries; Austria, Germany, Italy, Spain and Belgium. Using descriptive analysis, the empirical findings show that the current crisis has made it more evident how valuable it is to promote a pluralistic market concept in Europe and to this end, to support and protect all types of ownership structures without deserting the principles of same business, same risks and same rules.

In an attempt to establish a realistic approach for attaining financial services diversity, Michie (2011) used wide-ranging descriptive analysis and the model involves current accounts, savings, SME loans, unsecured loans, insurance market and mortgages. The study found that higher diversity in the financial services industry includes wider stability, more accountability to customers, limited systemic risk and improved access to financial services.

Weller and Zulfiquar (2013) studied the link between financial market diversity and economic instability in developing economies from 1991-2011 using a polychoric correlation matrix. The study stated that financial market diversity matters for economic stability for most sub-periods during the past two decades as well as for most regions. The research particularly suggests that greater diversity is associated with faster growth, larger credit markets, a broader deposit base, and a smaller chance of asset bubbles, all of which could contribute to more stability. The authors likewise recommended that governments can increase their economies' stability by developing more diverse financial markets in a manner that is consistent with their financial institutional development.

Dai Won Kim (2017) examined the nexus between financial inclusion and economic growth in OIC countries using the panel VAR, IRF and panel granger causality tests and found out that financial inclusion has a positive effect on the economic growth and also that financial inclusion has a mutual causality with economic growth.

But on the contrary, Jonghey (2008) empirically found out that diversifying financial activities in one umbrella institution does not lead to a reduction of extreme banking risk, which may explain

why financial conglomerates trade at a discount. The study employed net commission income, net trading income, net other operating income, HHI (concentration index for interest income and non-interest income), cost-to-income ratio, the log of bank size and bank profitability.

In conclusion, more persons that worked on this concept saw the benefits of diversity as against its cost. It is evident that a diversified financial system will bring about easier access to financial service, more inclusion in finance, more transparency in financial dealings, reduced systematic risk and greater accountability to clients and customers and finally, in the long run, enhance growth and development

d) Financial Regulatory Bodies and Financial Stability in Nigeria

Chude and Chude (2014), Ogbeide and Akanji (2017), Priye and Ogriki (2014) and Wilson (2018) examined financial regulations and banking sector performance and made several recommendations that will improve the banking sector performance. Ogbeide and Akanji (2017) examined the financial regulation and banking sector performance in Nigeria using the Co-integration test and error correction model and proposed that the impact of the different financial legislations and reforms on the performance of Nigerian banks and the majority of financial regulation measures should be made public on a regular basis so as to allow stakeholders, shareholders and the general public to have trust and confidence in the financial system.

Chude and Chude (2014) used a wide-ranging descriptive study to investigate the effects of regulatory inconsistencies in the Nigerian banking sector. The finding suggests that regulatory inconsistency in Nigeria's Central Bank (CBN), Nigeria Deposit Insurance Corporation (NDIC) and the Financial Service Regulatory Coordinating Committee (FSRCC) have not ensured effective and efficient banking practices in Nigeria.

Priye and Ogriki (2014) studied the relationship between financial intermediation and economic growth in Nigeria using the Vector Error Correction Model and recommended that the monetary authorities should properly regulate the activities of intermediations in order to achieve a sound financial service system in Nigeria. Wilson (2018) in agreement studied the effect of deposit insurance scheme on the safety of commercial and micro finance banks in Nigeria. He submitted that the Nigeria Deposit Insurance Corporation (NDIC) should monitor the full activities of these banks in compliance with the international best practices so as to increase their market share and secure customer deposits.

Checking the relationship between competition and financial stability, Allen and Gale (2004) conducted a descriptive review to find out that the relationship between competition and financial stability, Allen and Gale (2004) suggested that it is ambiguous because competition can cause stability through efficiency and also cause instability as a result of excess regulation.

It is now evident from their various positions that the regulatory authorities play a significant role in ensuring a sound financial system. If there are appropriate monetary policies and corporate governance formulated by both the CBN and the NDIC, it will improve the financial system operations and build trust in society. These regulatory bodies also have to be very careful in moderating the regulations in the financial service sector in order not to stiffen the operations of investors and in turn send them out of the Nigerian market

(e) Financial Stability and Systematic Risk

Laeven and Levine (2008), Čihák and Hesse (2008) Nderitu (2015) and Frait and Komarkova (2011) analysed the connections between systematic risk and financial stability. Laeven and Levine (2008) used the score (z score) to calculate cash flow rights in examining the connection between bank risk, capital regulations and deposit insurance policies. The empirical findings demonstrate that these factors depend critically on the ownership structure of each bank, such that the actual sign of regulation's marginal impact on risk varies with the concentration of ownership. Čihák and Hesse (2008) provided a cross-country empirical analysis of the role of Islamic banks in financial stability. He included Z score, bank's asset size, land over asset, cost-income ratio in the model of choice. The study found out that small Islamic banks are more stable and financially stronger than commercial banks because of their higher z-score.

Nderitu (2015) checked the effect of the factors risks exposure of commercial banks in Kenya, using risk adjusted return on assets, net capital flows, real GDP, exchange rate and inflation rate as variables of choice. The empirical findings showed that borrowing risk exposure was found not to be persistent, is mainly affected by the degree and level of concentration and also external economic shocks

Frait and Komarkova (2011) revealed a discourse on the creation of a macro prudential policy framework as a main element of the framework for financial stability. Using the contagion matrix, the research revealed that using forward-looking indicators, it will be important to capture the moment when systemic risk begins to accumulate.

All the above literature reveals the various factors that will drive a sound, stable and diverse financial system in Nigeria and globally. A very important factor that makes or mar a sound financial service sector is the financial regulatory authorities ranging from the monetary policy makers to the fiscal policy makers. These policies can also affect how resilient the financial service players will be able to withstand any form of shocks. Since these regulatory bodies are expected to be autonomous, they should implement policies that will drive the financial sector to achieve the macro economic objectives.

4. THEORETICAL FRAMEWORK

Following recent studies as used by (Maudos and de Guevara, 2007; Casu and Girardone, 2009; Turk Ariss, 2010), we specifically estimate market competition using the Lerner Index Framework as a measure of the competitive market in the banking sector. This measure reflects the degree to which market power enables firms to set a price above the marginal cost. It is calculated as follows

$$LER_{i,t} = \frac{(P_{i,t} - MC_{i,t})}{P_{i,t}} \quad \text{---------- (1)}$$

Where:

Pi,t = Bank i price at year t,

MCi,t = Marginal Cost.

Higher index values imply greater market power. The price of output Q is calculated as total revenues divided by total assets. In line with recent papers (Berger et al., 2009; Beck et al., 2013), we estimate the conventional marginal cost using a three-input, one-output, and one-time trend translog cost function. The final specification is:

$$lnTC = \alpha_0 + \alpha_1 lnQ + \sum_{j=1}^{3} \beta_j lnP_1 + \sum_{j=1}^{3} \beta_j lnP_2 + \sum_{j=1}^{3} \beta_j lnP_3 + \tau_1 t + \frac{\tau_2}{2} t^2 + \varepsilon_{it} \text{--- (2)}$$

where

TC = Total cost

Q = Commercial bank's single output proxied by total bank assets.

P1, P2, and P3 = Prices used in the production process

P1 = Price of labour (i.e., expenses on personnel over total assets)

P2 = Price of physical capital (i.e., other administrative expenses plus other operating expenses over total fixed assets)

P3 = Price of borrowed funds (i.e interest expenses over the sum of total deposits).

t = Time trend capturing the dynamics of the cost function over time

$\alpha, \beta \; and \; \tau$ = coefficients to be estimated.

Eit = two-component error term computed as follows:

$$\varepsilon_{i,t} = U_{it} + V_{it} \quad \text{---------- (3)}$$

where vit is a two-sided error term, and uit is a one-sided disturbance term representing inefficiency. From Equation (2), the marginal costs can be derived as follows

$$MC_{i,t} = \frac{TC_{i,t}}{Q_{i,t}} \left[\alpha_1 + \alpha_2 lnQ + \sum_{j=i}^{3} \gamma_j lnP_j + \tau_3 t\right] \quad \text{---------- (4)}$$

In incorporating bank stability, we proxy bank stability using the Standard score (Z-score), which has been used extensively in the banking literature (e.g., Boyd et al., 2006; Iannotta et al., 2007; Laeven and Levine, 2009). This measure is computed as the difference between the Return On Assets (ROA) and its mean divided by the standard deviation of the Return On Assets (ROA). The idea is to capture the number of standard deviations by which returns have to diminish in order to deplete the equity of a bank. Various approaches have been proposed to construct time-varying Z-score measures

$$Z\ Score_{i,t} = \frac{ROA_{i,t} + \mu(ROA)}{\sigma(ROA)} \text{ ---------- (5)}$$

Where

$ROA_{i,t}$= Return on assets for bank i in current period t.

$\mu(ROA)$ = Mean of return on assets

$\sigma(ROA)$ = Standard deviation of return on asset

The Z-score provides a measure of bank soundness. Higher values imply a higher degree of solvency and thus it gives a direct measure of bank stability. Since commercial banks are mostly oriented toward lending activities as their major source of earnings rather than intermediation activities, we are self-assured that their stability is strictly related to the quality of their loan portfolio. As such, we use loan assets to the public and other businesses to test for this relationship.

4.1 METHODOLOGY

4.1.1 Model Specification

The model to examine the stability of the financial sector in Nigeria will be an extension of the modified version of the Lerner Index of perfect competition due to Čihák and Hesse (2007) specified as follows:

$$Z_{i,j,t} = \alpha_0 + \alpha_1 B_{i,j,t} + \alpha_2 I_{j,t} + \alpha_3 T_{j,t} + \alpha_4 TI_{j,t} + \alpha_5 M_{j,t} + \varepsilon_{i,j,t} \text{ ----------(6)}$$

Where

Z score $Z_{i,j,t}$ = Dependent variable for bank i in country j and at time t.

$B_{i,j,t}$ = Vector of bank specific variables

$I_{j,t}$ = Vector of the banking industry specific variables in country j.

$T_{j,t}$ and $TI_{j,t}$ = The type of banks and the interaction between the type and some of the industry-specific variables as well as bank-specific variables respectively

$M_{j,t}$ = Vectors of macroeconomic variables.

$\varepsilon_{i.j.t}$ = Residual.

However, the estimable modified form of equation (6) is therefore specified as follows:

$Z_t = \alpha_0 + \alpha_1 TBA_t + \alpha_2 LA_t + \alpha_3 RGDP_t + \alpha_4 EXR_t + \alpha_5 INF_t + \varepsilon_t$ ----------(7)

$Z_t = \alpha_0 + \alpha_1 LTBA_t + \alpha_2 LLA_t + \alpha_3 LRGDP_t + \alpha_4 LEXR_t + \alpha_5 INF_t + \varepsilon_t$ ----------(8)

where:

Z_t = z-score

TBA_t = Total Bank Assets

LA_t = Loan Assets

V_t = Vector of control variables (RGDP, Exchange Rate and Inflation Rate)

ε_t = error term or the residual

$\alpha_0, \alpha_1, \alpha_2 \ldots \alpha_3$ = Coefficient of the variables used in the study.

4.1.2 Pre Estimation Tests

The pre-estimation test in this study will basically be for stationarity purpose, considering the nature of macroeconomic variables, particularly financial series, the concept of stationarity and non-stationarity is a fundamental step before adopting any estimation technique. In reference to that, the Augmented Dickey-Fuller Unit Root Test shall be conducted to test for the existence of unit root in the series. In addition, the test of co-integration is used to examine whether or not the macroeconomic variables have a long-term connection. This approach will also analyse the short-run dynamics.

4.1.2.1 The Augmented Dickey-Fuller Unit Root Test

The Augmented Dickey-Fuller is a Dickey-Fuller development as it extends the Dickey-Fuller to include extra lag that accounts for possible serial correlation in the series. The Augmented Dickey-Fuller's universal test equation is expressed as:

The relevant cases when testing for it are:

$\Delta Y_t = \alpha + \beta_t + \delta Y_{t-1} + \sum_{i=1}^{n} \rho_i \Delta Y_{t-1} + \varepsilon_t$ ---------- (9.1)

Case I- Constant only

The underlying test equation is given as:

$\Delta Y_t = \alpha + \delta Y_{t-1} + \sum_{i=1}^{n} \rho_i \Delta Y_{t-1} + \varepsilon_t$ ---------- (9.2)

Case II- Constant and Trend

The underlying test equation is given as:

$\Delta Y_t = \alpha + \beta_t + \delta Y_{t-1} + \sum_{i=1}^{n} \rho_i \Delta Y_{t-1} + \varepsilon_t$ ---------- (9.3)

Case III- No Constant, No trend

The underlying test equation is given as:

$\Delta Y_t = \alpha + \delta Y_{t-1} + \sum_{i=1}^{n} \rho_i \Delta Y_{t-1} + \varepsilon_t$ ---------- (9.4)

4.1.2.2 The Co-integration Test

This research will use co-integration test to examine whether or not there is a long-run relationship between the financial sector and economic growth. This approach will also evaluate the short-run dynamics and therefore uses the F-test to evaluate the existence of the long-run equilibrium. If the F-statistics exceeds the critical upper bound value, a long-run relationship or co-integration will occur. On the other hand, if the F-Statistics is less than the lower critical bound value, then there is no long-run relationship.

If after conducting the stationarity test and all variables are stationary at level, there will be no necessity to test for co-integration. The ARDL bound test of co-integration will be used for a univariate analysis with test results for cointegration with different orders I(1) or I(O)

4.1.3 Estimation Technique for Financial Stability

In assessing the stability and diversity of the Nigerian financial sector, The Autoregressive Distributed Lag (ARDL) method will be adopted. It is a vector autoregression variant that captures linear interdependencies between various time series. The ARDL is the most suitable for this study because it tests the presence of a long-run relationship among data from time series which enables the understanding of stability over time. Moreso, the model addresses the problem of collinearity by enabling the lag of the dependent variable in the model with other independent variables and their lags making it more efficient to address distributed lag problems. The ARDL co-integration method is preferable when dealing with series that are integrated with different orders of I(1) or combination of both I(0) and I(1) and robust when there is a single long-run relationship in small sample size between the underlining series. ARDL is also suitable for resolving econometrics issues such as misspecification and autocorrelation to come out with a better interpretable model.

The ARDL model specification articulated is in accordance with the Pesaran et al. (2001) as an unrestricted error correction model (VECM) to test for co-integration between the variables under research.

$$\Delta Z_t = \delta_0 + \sum_{i=1}^{n} \delta_1 \Delta Z_{t-1} + \sum_{i=0}^{p} \delta_2 \Delta TBA_{t-1} + \sum_{i=0}^{k} \delta_3 \Delta LA_{t-1} + \sum_{i=0}^{v} \delta_4 \Delta RGDP_{t-1} + \sum_{i=0}^{q} \delta_5 \Delta EXR_{t-1} + \sum_{i=0}^{r} \delta_6 \Delta INF_{t-1} + \theta_1 Z_{t-1} + \theta_2 TBA_{t-1} + \theta_3 LA_{t-1} + \theta_4 RGDP_{t-1} + \theta_5 EXR_{t-1} + \theta_6 INF_{t-1} + U_t \text{ ---------- (10)}$$

δ_0 is the constant parameter, δ_1- δ_6 are the parameters coefficients of the model's short-run dynamics while $\theta_1 - \theta_6$ are the parameters coefficients for the long-run dynamics and U_t is the error term with zero mean and constant variance. Once the co-integration of variables has been established, the following long-run model can be estimated:

$$Z_t = \theta_1 Z_{t-1} + \theta_2 TBA_{t-1} + \theta_3 LA_{t-1} + \theta_4 RGDP_{t-1} + \theta_5 EXR_{t-1} + \theta_6 INF_{t-1} + U_t \text{ ------ (11)}$$

In order to determine the optimal lag length for the ARDL model in equation (8), lag selection criteria such as the Schwarz Information Criteria (SIC) and the Akaike Information Criterion (AIC) are used and the lag combination minimizing these criteria is the optimum lag for the model. In examining the existence of a long-run relationship between the variables in the equation given the selected lag, requires the F-test in which the combined significance of the lagged variable coefficients is tested with F-statistics calculated under the null. The computed F-statistics is therefore compared with the non-standard critical bound values reported by the Pesaran et al. (2001). If the F-statistics calculated exceeds the upper critical bound value, then H_0 will be rejected. If the F-statistics is below both the upper and the lower critical bound values, the null hypothesis of no co-integration is not rejected. However, if the calculated F-statistics falls on the critical lower and upper bounds, the test becomes inconclusive. After establishing the co-integrating relationship, the short-run dynamics is also specified with the error correction model representation of the ARDL:

$$\Delta Z_t = \delta_0 + \sum_{i=1}^{n} \delta_1 \Delta Z_{t-1} + \sum_{i=0}^{p} \delta_2 \Delta TBA_{t-1} + \sum_{i=0}^{k} \delta_3 \Delta LA_{t-1} + \sum_{i=0}^{v} \delta_4 \Delta RGDP_{t-1} + \sum_{i=0}^{q} \delta_5 \Delta EXR_{t-1} + \sum_{i=0}^{r} \delta_6 \Delta INF_{t-1} + \partial ECM_{t-1} + U_t \text{ ---------- (12)}$$

Where ∂ is the speed of adjustment parameter while ECM is the residual obtained from the long run estimation.

4.1.4 Financial Diversity Index

Following Michie and Oughton (2013), we will construct the financial diversity index for Nigeria based on market competition and the concentration index. As for market competition, the Hirschman-Herfindahl index (HH Index) will be used to measure market competition for 5 top commercial banks in Nigeria. These banks are First Bank, Zenith Bank, Guaranty Trust Bank, United Bank for Africa and Union Bank. The choice of these banks is because their market share accounts for 61% of the total commercial banks' asset (CBN Financial Stability Report, 2017). The concentration index will measure the degree of concentration and competition in the banking industry. In measuring the concentration ratio to evaluate the degree of concentration, It is attained by calculating the market share of the five dominant banks to the entire banking industry's market capitalization. The Herfindahl-Hirschman index for market concentration is the most suitable for measuring the degree of concentration for diversity. Symbolically, it takes the form of;

$$HHI = \sum_{k=1}^{n}(\frac{qk}{Q})^2 = \sum_{k=1}^{n}(rk)^2 \text{ ---------- (13)}$$

Where

n = Number of banks in the banking sector,

qk = Volume of the bank k's output,

Q = Total volume of the banking sector's output,

rk = Bank k's share of the banking sector's output

k = Banking unit.

4.1.5 Post Estimation Test

Furthermore, the Breusch-Godfrey LM Test for Serial Correlation will be used ensure that the error term of the last period is not correlated with that of the current period; The Jarque – Bera Normality Test will be used to check if the error terms are normally distributed and the White Test for Heteroskedasticity will be used to check whether the error term has a constant variance or not.

4.2 VARIABLE DESCRIPTION AND SOURCES

Variable	Definition/ Measurement	Source
Z-score	Defined as $z \equiv (k-\mu)/\sigma$, where k is equity capital as percent of assets, μ is average return as a percent of assets, and σ is standard deviation of return on assets as a proxy for return volatility. Measures the number of standard deviations a return realization has to fall in order to deplete equity, under the assumption of normality of banks' returns.	Author's Calculation Based on Annual Bank Reports of 10 strong capital based Commercial Banks (Various years)
TBA	Total Bank Asset (In Nigerian naira "billion"). These are the physical and financial properties a bank owns.	Author's Calculation Based on Annual Bank Reports of 10 strong capital based Commercial Banks (Various years)
LA	Loan Asset (In Nigerian naira). This involves loan advances to individual, other banks and other business entities.	Author's Calculation Based on Annual Bank Reports of 10 strong capital based Commercial Banks (Various years)
EXR	Year-on-year change in the nominal exchange rate, local currency per U.S. dollars (percent	CBN Statistical Bulletin
RGDP	GDP incorporating inflation (in local currency)	CBN Statistical Bulletin
INF	Inflation (percent).	CBN Statistical Bulletin

The study employing these variables makes use of time series quarterly data from 2005:Q1 - 2017:Q4.

5. ANALYSIS OF EMPIRICAL RESULT

5.1 Unit Root Test Results

The study further its analysis by testing the properties of the time series used for investigation. The stationarity tests on the variables were carried out using the Augmented Dickey-Fuller (ADF) test. The Augmented Dickey-Fuller (ADF) technique employed is based on the McKinnon critical values. The unit root test results for stationarity for ADF at levels and at first difference are presented in Tables 5.1 below:

Table 5.1: Unit Root Test Results for Stationarity (ADF at various levels)

Variable	DF	ADF (Test Critical Values)	t-Statistic	P-Values	Order of Integration
ΔZSCORE	1% 5%	-3.1521* -3.1810**	-4.1231	0.0000	I~I(0)
ΔTBA	1% 5%	-4.121990* -3.144920**	-4.857103	0.0031	I~I(1)
ΔLA	1% 5%	-2.4270* -2.6753**	-3.2460	0.0002	I~I(0)
ΔRGDP(1)	1% 5%	-3.7215* -3.4509**	-3.9512	0.0000	I~I(1)
ΔEXR(1)	1% 5%	-3.9270* -3.2126**	-4.6838	0.0000	I~I(1)
ΔINF	1% 5%	-3.1315** -3.175352	-4.1178	0.0000	I~I(1)

Source: Author's Calculation
Key: MacKinnon (1996) one-sided p-values; *Significant at 1%; **Significant at 5%; ***Significant at 10%

From the results presented in Table 5.1, it was observed that financial stability (ZSCORE) and Loan Asset (LA) were stationary at 5 per cent level of significance in their level form, that is, integrated of order I (0). The remaining variables were non-stationary at their level form. This led to testing at first difference, which revealed that the remaining variables (i.e. Total Bank Asset, Real GDP, Exchange Rate and Inflation rate) were stationary at first difference, that is, integrated of order one I(1).

5.2 Bound F-statistic to Cointegration

The results of the bounds test and the critical values are presented in Table 5.2. The cointegration result of the model, shows that the calculated F-statistic is within the lower and upper bounds Critical Value for *I (1)*, at 5% and 10% level of significance. This implies that there are co-

integration and the long-run relationship among the variables included in the equation. We therefore proceed to estimate long-run coefficients for the equation.

Table 5.2: Co-integration Results and Critical Values

Estimated Model	F-Statistics	K	90% level		95% level		99% level	
			I(0)	I(1)	I(0)	I(1)	I(0)	I(1)
ZSCORE	13.72	5	2.26	3.35	2.62	3.79	3.41	4.68

Source: Author's computation, 2019

5.3 Result of the Long-Run Relationship

Table 5.3 presents the long-run and short-run for equations for the financial stability model. The long-run result discloses that the relationship between financial stability and total bank asset is significant at 1% level of significance, i.e. an increase in total bank asset has a negative effect on financial stability in the country. This implies that the composition of bank assets in Nigeria is not sufficient enough to support financial stability in the country. This result negates the aim of the consolidation exercise which is supposed to fortify the financial institution for stability. However, the post consolidation experience shows a poor linkage between financial stability and total bank assets. This could be due to sharp practices among the operators in the financial sector or sundry hostile banking environment which does not allow bank assets to reflect their true opportunity costs. This result is contrary to financial stability theory which presupposes higher financial stability with increased total bank assets. It is therefore important to understand the structure of the bank assets in the country in order to establish the link to financial stability. This also places skepticism on the roles and functionality of the Asset Management Company of Nigeria (AMCON), who is supposed to serve as an arbiter certifying the authenticity of the assets in the Nigerian financial institutions.

Findings also revealed that a positive and significant relationship exists between financial stability and loan assets in the Nigerian financial institutions in the post consolidation era. Thus, a 1% increase in loan assets of the financial institutions increased financial stability index of the country by 28%. This suggests that total loan asset is a good driver of financial stability in the country. This could be due to the sundry policies of the Central Bank of Nigeria (CBN) on the structure of loan and advances such as single obligor limit criteria, loan composition and portfolio management, debtors background checks etc. This development could also be due to the policies

of the AMCON which stipulated some guidelines to be met by both the financial institutions and the prospective debtors before loan advancement. This has reduced the incidence of bad debt in the country and had, therefore, increased the positive effects of loan assets to financial stability in the country.

The result shows that there is a positive but insignificant relationship between financial stability and total output (RGDP). This finding suggests that financial stability in Nigeria is not dependent on the growth of the economy. This is plausible because the structure of GDP growth in Nigeria precludes the growth of financial activities. this could be due to the level of financial inclusion in the country. The poor financial coverage in the country made a lee way for financial leakages which could not be captured in financial activities. Since a greater percentage of the Nigerian population are unbanked, their financial activities are often excluded in the aggregate activities of the financial sector. This has a serious implication for the financial stability in the country because the financial sector is yet to come up with suitable product that raises the level of financial inclusion in the country. Until such level is reached, the relationship between financial stability and the gross domestic product in the country might remain murky.

Table 5.3: The Long Run Estimation Results for the Model

ARDL (1, 1, 1, 1, 1, 0, 1) selected based on SC		**Dependent Variable: ZSCORE**		
Regressor	**Coefficient**	**Std Error**	**t-Stat**	**P-Value**
C	-2.4416	0.9420	-2.5918	0.0144*
ZSCORE(-1)	0.9329	0.1218	7.6587	0.0000***
EXR	-0.4739	0.1338	-3.5420	0.0013**
EXR(-1)	0.5695	0.1374	4.1432	0.0002***
INF	0.0043	0.0014	2.9944	0.0054**
INF(-1)	-0.0047	0.0018	-2.5954	0.0143**
LA	-0.3319	0.0987	-3.3617	0.0021**
LA (-1)	0.2853	0.0822	3.4733	0.0015**
RGDP	0.8015	1.2547	0.6388	0.5276
TBA(-1)	-0.1806	0.1000	-1.8062	0.0806*

R-squared	0.935970	Mean dependent var	0.035370
Adjusted R-squared	0.919962	S.D. dependent var	0.024330
S.E. of regression	0.006883	Akaike info criterion	-6.931009
Sum squared resid	0.001895	Schwarz criterion	-6.514341
Log likelihood	187.7407	Hannan-Quinn criter.	-6.771788
F-statistic	58.47040	Durbin-Watson stat	1.293215
Prob(F-statistic)	0.000000		

Source: Author's Computation, 2019

Note: *, **, and *** represent 10%, 5% and 1% significant levels respectively.

Moreover, there is a positive relationship between financial stability and the lagged value of the exchange rate. Thus, a 1% increase in the exchange rate led to about 57% increase in the level of financial stability in the country. This result suggests that financial stability is positively influenced by exchange rate. Given the fact that Nigeria operates an open economy that allows free flow of foreign goods, the level of Foreign direct investment (FDI) which comprises foreign private investment and foreign portfolio investment; is significant in determining the level of financial stability in the country. This result also implies that Nigeria is susceptible to any fluctuation in the global market and could, therefore, suffer grave consequences if there is no buffer stock in the financial institutions to withstand the shocks in the global market.

Finally, the long run result shows that there is a positive relationship between financial stability and inflation rate. Thus, a 1% change in the inflation rate increased financial stability by 0.43%. This result suggests that, in the domestic economy, financial stability is driven by inflation rate. This is plausible because the financial sector is sensitive to the stability of macroeconomic variables such as the relative prices in the county. Whenever price levels change arbitrarily, it increases the level of uncertainty in the financial system and makes speculative transactions foggy. This could also have implications for the financial stability index in the country.

Further diagnostics of the long run results show that the coefficient of determination (R^2) is strong at 94%. This was still robust after adjusting for the degree of freedom with the Adjusted- R^2 value of 92%. This implies that about 94% of the total variation in the dependent variable (ZSCORE) is accounted for by the regressors (Total Bank Asset, Loan Asset, Inflation Rate, Exchange Rate and Output). The result also shows that the long run model has a good fit with the F-statistics value that is statistically significant at 1%. This signifies that the explanatory variables have a joint significant effect on financial stability in the country. The Durbin-Watson statistic of 1.33 shows that the model is free from autocorrelation. Thus, the model is suitable and offered reliable estimates.

5.4 Result of the Short-Run Relationship

Considering the significance level of the lagged values, the result of the short run relationship between financial stability and the explanatory variables are presented in Table 5.4. Findings revealed that the short-run result is similar to that of the long run. In the short-run, financial

stability is negatively related to total bank assets and positively related to exchange rate, inflation rate, total loan assets and output. Thus, a 1% increase in total bank asset led to about 15% decrease in the level of financial stability in the country. Also, a 1% increase in the exchange rate led to about 73% increase in the level of financial stability in the country Furthermore, a 1% increase in the inflation rate led to less than 1% increase in the level of financial stability in the country. Moreover, a 1% increase in total loan assets led to about 38% increase in the level of financial stability in the country. Finally, the results revealed that 1% increase in the gross domestic product does not affect the level of financial stability in the country. The implications of these results are similar to those given for the outcome of the long run estimates.

Table 5.4: The Short Run Estimation Results for the Model

ARDL (1, 1, 1, 1, 0, 1,) selected based on SC			**Dependent Variable: ZSCORE**	
Regressor	**Coefficient**	**Std Error**	**t-Stat**	**P-Value**
C	-0.0029	0.0033	-0.8586	0.3976
D(ZSCORE(-1))	1.2044	0.2735	4.4027	0.0001***
D(EXR)	-0.5300	0.1253	-4.2295	0.0002***
D(EXR(-1))	0.7305	0.1886	3.8731	0.0006***
D(INF)	0.0045	0.0012	3.7950	0.0007***
D(INF(-1))	-0.0061	0.0017	-3.4780	0.0016**
D(LA)	-0.4019	0.0970	-4.1437	0.0003***
D(LA(-1))	0.3843	0.1016	3.7800	0.0007***
RGDP	0.2553	1.1078	0.2305	0.8193
D(TBA(-1))	-0.1515	0.0777	-2.0312	0.0051**
ECM(-1)	-0.9223	0.3240	-2.8459	0.0080**

R-squared	0.887597	Mean dependent var	0.035042
Adjusted R-squared	0.825187	S.D. dependent var	0.024463
S.E. of regression	0.014572	Akaike info criterion	-5.427909
Sum squared resid	0.008281	Schwarz criterion	-5.007264
Log likelihood	146.6977	Hannan-Quinn criter.	-5.267725
F-statistic	9.910073	Durbin-Watson stat	2.177251
Prob(F-statistic)	0.000000		

Source: Author's Computation, 2019
Note: *, **, and *** represent 10%, 5% and 1% significant levels respectively.

In assessing the long run convergence, the error correction model (ECM) result is discussed. The ECM, which shows the degree of adjustment to long run equilibrium, gave a coefficient of about -0.92. This, substantiates the long-term connection between the variables and the speed at which the convergence between the variables from short to long-run equilibrium is adjusted is approximately 92 percent.

For the short-run, further diagnostics of the results show that the coefficient of determination (R^2) is strong at 89%. This was still robust after adjusting for the degree of freedom with the Adjusted-R^2 value of 83%. This implies that about 89% of the total variation in the dependent variable (ZSCORE) is accounted for by the regressors (Total Bank Asset, Loan Asset, Inflation Rate, Exchange Rate and Output). The result also shows that the long run model has a good fit with the F-statistics value that is statistically significant at 1%. This signifies that the explanatory variables have a joint significant effect on financial stability in the country. The Durbin-Watson statistic of 2.18 shows that the model is free from autocorrelation. Thus, the model is suitable and offered reliable estimates

Fig 5.1: Herfindahl Hirshman Index of Market Competition

Source: Author's Computation, 2019

5.5 Concentration Index

Fig 5.5 shows the concentration and diversification index of the commercial banks and other financial institutions in Nigeria using the Hirshman Herfindahl Index. Market concentration in this index is a function of the number of firms and their respective shares of the total production in the market. The concentration ratio varies between 0 and 1, when it tends towards 1, it means the financial service sector is highly concentrated.

The result reveals a cyclical movement throughout the post consolidation era. The market competitiveness of banks was highly concentrated until it recorded a drastic fall in 2007 and 2008 as a result of the global financial crises. It rose slightly in 2010 and fell again in 2013 due to overwhelming problems from the fiscal axes. The debt profile in 2013 was 8.9 billion US dollar and these rendered the banking sector less competitive.

This movement shows a less stable financial system and a fairly diversified financial system because of certain factors which are (i) an increased product and service diversification over the years and (ii) as a result of more competition, it weakened the monopolistic power of some big banks which gave rise to investment and the digital means of banking

5.6 Post Estimation Test

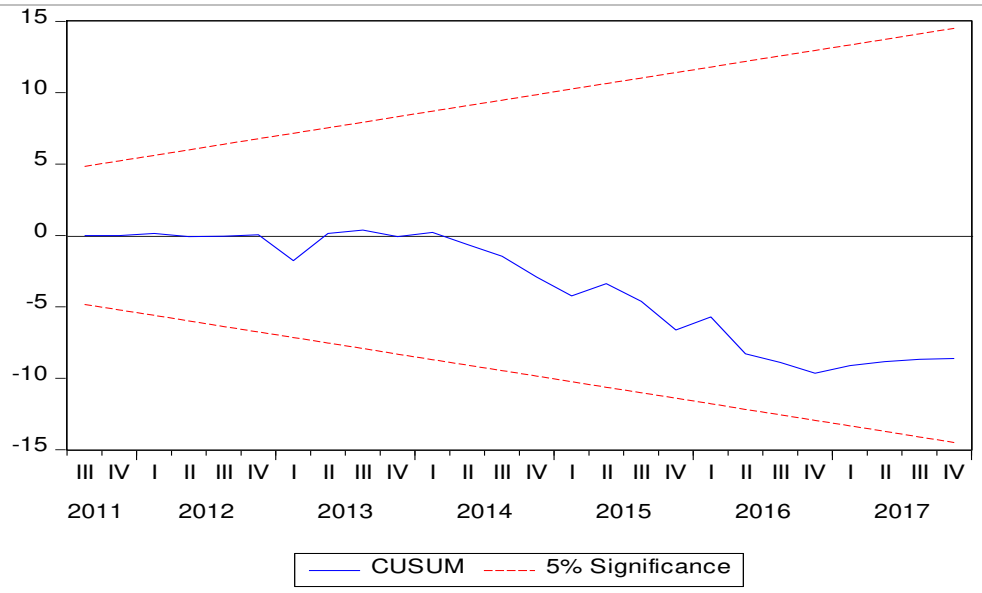
Like any other time series analysis, diagnostic tests are imperative in assessing the validity, efficiency and consistency of the estimated model. Table 5.6 shows that the Model passed all the diagnostic tests. The result is free from autocorrelation. The Jacque Bera statistics confirmed that the model is stable because the normality test favours the alternative hypothesis. The functional form results reveal that the model is correctly specified. The results of the heteroscedasticity show that the residual is constant over time since the null of the presence of heteroscedasticity is rejected.

Table 5.6: Post Estimation Test

Test Statistics	LM Version	F Version
Model 1		
Serial Correlation	CHSQ (1) = 0.014 [0.91]	F (1,22) 0.008[0.923]
Functional Form	CHSQ (1) = 0.460 [0.483]	F (1,22) 0.278[0.587]
Heteroskedasticity	CHSQ (1) = 0.372[0.536]	F (1,35) 0.356[0.548]

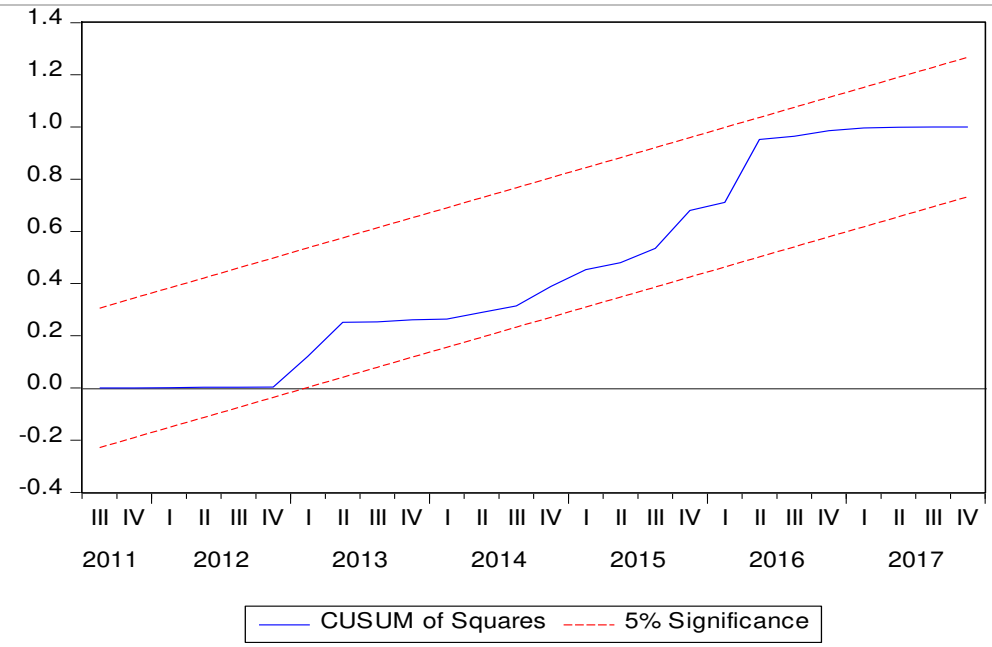
Source: Author's Computation, 2019

Fig 5.2: Stability test result: CUSUM



Source: Author's Computation, 2019

Fig 5.3: Stability test result: CUSUM of Squares



Source: Author's Computation, 2019

The Stability test results, using the CUSUM and the CUSUM of Squares show that the model is fit because the lines fall within the 5% level of significance. This shows that the model is stable and did not suffer from any estimation bias.

6. CONCLUSION AND RECOMMENDATION

6.1 Conclusion

This study assesses the stability and diversity of the Nigerian financial sector in the period of 2005-2017, sourcing data from the annual report of commercial banks and the CBN statistical bulletin. This study employs the Autoregressive Distributive Lag (ARDL) method to achieve its stated objectives. The financial stability was calculated using the z-score and also the diversity level of the financial system was computed using Hirshman Herfindahl Index. The study employs Bank assets, Loan assets, RGDP, exchange rate, and inflation rate as the explanatory variables while the financial stability calculated as z-score is the dependent variable. The findings of this study show a significant negative relationship between financial stability and bank assets while there exists a positive significant relationship between the dependent variable and loan assets, exchange rate and inflation rate. However, the study recorded a positive insignificant relationship between the dependent variable and output. The concentration index used to estimate the financial sector diversity shows an indicating a less stable financial system and a fairly diversified financial system in Nigeria.

Also, the diagnostic tests conducted revealed that all the instruments in the model and estimation are valid and also confirmed that the model passes the test of fitness, stable, normal, and free from serial correlation, Heteroskedasticity, and multicollinearity. Therefore, these findings can form the basis for policy recommendations.

6.2 Policy Recommendations

Based on the findings of this study, below are the policy recommendations:

The total bank asset poses a negative effect on financial stability; more acquisition of assets by banks might lead to fewer funds available for investment purpose which will pose a threat to financial and economic development. The purchasing of assets might be a large cost on the banks due to refurbishment and maintenance, also the banks in the country could be more involved in risky assets which is a great threat to the stability of the sector. Therefore, the Asset Management Company of Nigeria (AMCON) and the Central Bank of Nigeria (CBN) should strictly monitor the directors of bank in acquisition of assets.

Since exchange rate and inflation rate are prominent factors affecting the financial stability of any economy, the Central Bank of Nigeria which is the monetary authority should get more involved

in ensuring exchange rate harmonization (i.e. parallel and official) and also control inflation rate to an adaptable level to enhance predictions and flow in the economy.

The insignificant relationship between financial stability and the output shows a weak financial inclusion and financial coverage in the country. To improve the financial coverage in the country, there is a need to improve the financial literacy of the large populace in the country. Commercial banks and other financial institutions should make banking activities more flexible and liberal; the opening of bank accounts should be easily accessible to an average Nigerian and also the bank charges should be kept at minimum rates and convenient.

To improve diversity in banking, the financial institutions particularly the commercial banks should fully inculcate the global idea of financial technology (fintech) to deliver better financial service through technology solutions and also keep itself abreast of the pace of development in foreign countries financial service sector as this will gear them towards delivering better and innovative service to Nigerians.

More so, the monetary authority should direct the commercial banks to give out loans with moderate interest rate and also control the inflationary pressures that might be posed as a result of the low interest rate through other instruments like treasury bills. Overall, the financial sector should be more adaptable and friendly for financial activities to be easily conducted.

Finally, knowing the CBN increased the loan to deposit ratio (LDR) from 60 percent to 65 percent, it gives the private investors access to borrow more from banks and other financial institutions in order to boost the private sector contribution to GDP especially the non-oil sector. The monetary authority should monitor the process in achieving the target and purpose of this policy. Also, the non-performing loans of banks should be drastically reduced in order to reduce the impairment costs of banks which can be an impediment to the stability and diversity of banking operations.

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