
REGULATIONS AND STABILITY OF COMMERCIAL BANKS: AN ESTIMATED PANEL DATA STUDY FROM NIGERIA

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ABSTRACT

This study examined regulation and stability of commercial banks in Nigeria. The objective is to examine if regulation have any effect on the stability of commercial banks. Cross sectional data was sourced from financial statement of 14 commercial banks from 2011-2020. Liquidity was proxy for commercial bank stability while capital regulation, activity regulation, ownership regulation, deposits insurance coverage and regulation of entry were used as independent variables. After cross examination of the validity of the pooled effect, fixed effect and the random effect, the study accepts the fixed effect model. Findings revealed that 80 and 70 percent variation on liquidity of commercial banks can be traced to the independent variables. Capital regulation, activity regulation, ownership regulation and deposit insurance have positive effect on stability of Nigeria commercial banks while entry regulation have negative effect on stability. The T-Statistics and the probability value justify that ownership regulation and capital regulation have significant effect on commercial bank stability while entry regulation, activity regulation and deposit insurance have negative effect on commercial bank stability. From the regression summary, it concludes that regulation have significant effect on commercial banks stability in Nigeria. The study recommends that regulatory authorities should devise measures, policies and strategies of effective supervision and ensure that all banking rules and regulations such as capital regulations are well complied. Strategies should be formulated to enhance regulation of activities of commercial banks. Activities that endanger the stability of commercial banks stability should be discouraged. Section 21 of BOFIA Act should be complied with by the management of the commercial banks. Nigeria Deposit Insurance Corporation should ensure that insured commercial banks comply with the relevant laws guiding corporation.

Keywords: Regulations, Stability of Commercial Banks, Estimated Panel Data, Nigeria

SECTION I: INTRODUCTION

The banking sector plays a significant role in the growth and development of any economy. The banks are the transmission channels for monetary policy and enhance the realization of macroeconomic and monetary policy goals. The intermediary function bridges the savings and investment gap in the economy and facilitates an efficient payment system (Lucky, 2017). A sound banking system ensures the optimal allocation of financial resources. Banking system stability is important as bank failure can undermine public confidence in the system, force a sudden contraction in money supply, curtail savings and investment, induce a collapse of the payment system and results in severe dislocation of the real sector (Toby, 2008), thus the aim of ensuring banking stability is to prevent costly banking system crises and their associated adverse effect on the economy. A weak banking sector not only jeopardizes the short and long-term sustainability of the economy but can be a source of financial crisis which can result in economic crisis (Vaithilingm, Nairm and Samudram, 2015). A fragile banking sector places constraint on the monetary policy in the view of the lender of last resort function of Central Bank of Nigeria.

Banking system stability is a matter of concern to the monetary authorities, the government and attracts the attention of the multilateral financial institutions such as the International Monetary Fund (IMF) and the World Bank. The idea to develop banking system indicators was conceived by International Monetary Fund after the Asian Financial Crises in 1990 (Sunday and Sani, 2014) to monitor and ensure bank resilience to environmental shocks. Conceptually, a stable banking system is a system where the individual banks accounting for the most of the system's transactions are solvent and meet capital adequacy requirements (Toby, 2006). Banking system can also be considered stable if the banks are capitally adequate; if the banks are liquid, high quality of assets and profitable to withstand monetary and macroeconomic shocks and fall in the composite rate of 1 and 2 as specified by the Federal Deposit Insurance Corporation. The ability to monitor banking presupposes for analysis the current health and stability of the banking system and establishes the banking system resilience to system shocks. Understanding the underlying factors that influence the efficiency, performance, and stability of banking sectors is essential for bank executives, central banks, bankers association, and other financial/regulatory authorities to help them forge policies that improve the banking sector (Sufian et al., 2016).

The goal of bank regulation is to prevent or to reduce the probability of bank runs. The motivation is easy to find, the statistical data shows occurrence of more than 100 systemic bank crises with devastating consequences for economies all around the world since the 1970s' (Barth, et al., 2013). In Nigeria, the history of banking regulation dates back to the banking ordinance of 1952 which empowered Central Bank of Nigeria the regulatory functions in banking industry. Main regulatory objectives are connected to regulation of entry of new domestic and foreign banks; restrictions on bank activities; safety net support; disclosure of accurate comparable information; and government ownership (Ungureanu, 2008).

However, one question that matters is that has regulation achieved its objectives"? An examination of sector crisis revealed that despite various methods of regulation, banks crisis continue reoccur. At the international level, policies have been put in place to avert the issue of bank crises. In 1980, Basel I was introduced, in 1990, Basel II was introduced, in 2008 after the global financial crises; Basel III was introduced to regulate the banking industry to achieve desired banking system soundness. The existence of Basel I, Basel II, and Basel III could not serve as a remedy for bank failure. The subprime Asian financial crises and the

global financial crises of 2007/2008 cast doubt on the importance of the Basel Capital regulatory framework. In Nigeria, For instance, less than five years after the consolidation, in 2009 Central Bank of Nigerian Examination Team discovered that some Nigerian banks were unsound. More banks failure in the regulated banking era than the free banking era. Twenty-six (26) banks failed between 1930 to 1959 as against 36 between 1994 to 2003. Other studies (Ugwuanyi, 2015; Osuagwu, 2014; Onaolapo&Ajala, 2013; Ozili, 2015) examined regulation and commercial banks profitability, this study examines the effect of regulation on Nigeria commercial banks stability.

SECTION II: LITERATURE REVIEW

Banking Stability

The concept of banking system stability is derived from the financial system stability indicators with various studies on the micro and macro prudential determinants. A sound banking system is a system in which individual banks accounting for most of the system's transactions are solvent and meet capital adequacy requirements (Toby, 2006). Banking system is considered sound, if it is capitally adequate and can withstand monetary and macroeconomic shocks in its operating environment.

Federal Deposit Insurance Cooperation Composite Ratings of Banking Stability

The Federal Deposit Insurance Corporation developed rating method of classifying banks whether sound or not, composite ratings are based on a careful evaluation of an institution's managerial, operational, financial, and compliance performance.

Composite 1

Banks in this group are sound in every respect and generally have components rated 1 or 2. Any weaknesses are minor and can be handled in a routine manner by the board of directors and management. The banking institutions are the most capable of withstanding the vagaries of business conditions and are resistant to outside influences such as economic instability in their operating environment. These banking institutions are in substantial compliance with laws and regulations. As a result, these banks exhibit the strongest performance and risk management practices relative to the institution's size, complexity, and risk profile, and give no cause for supervisory concern.

Composite 2

Banks in this group are fundamentally sound. For a bank to receive this rating, generally no component rating should be more severe than 3 (FDIC, 2012). Only moderate weaknesses are present and are well within the board of directors' and management's capabilities and willingness to correct. These banks are stable and are capable of withstanding business fluctuations. These financial institutions are in substantial compliance with laws and regulations. Overall risk management practices are satisfactory relative to the institution's size, complexity, and risk profile. There are no material supervisory concerns and, as a result, the supervisory response is informal and limited.

Composite 3

Banks in this group exhibit some degree of supervisory concern in one or more of the component areas. These Banks exhibit a combination of weaknesses that may range from moderate to severe; however, the magnitude of the deficiencies generally will not cause a component to be rated more severely than 4. Management may lack the ability or willingness to effectively address weaknesses within appropriate time frames. Banks in this group

generally are less capable of withstanding business fluctuations and are more vulnerable to outside influences than those institutions rated a composite 1 or 2. The above condition can be traced to noncompliance with laws and regulations. Risk management practices may be less than satisfactory relative to the institution's size, complexity, and risk profile. These banks require more than normal supervision, which may include formal or informal enforcement actions. Failure appears unlikely, however, given the overall stability and financial capacity of these banks (FDIC, 2012).

Composite 4

Banks in this group generally exhibit unsafe and unsound practices or conditions. There are serious financial or managerial deficiencies that result in unsatisfactory performance. The problems range from severe to critically deficient. The weaknesses and problems are not being satisfactorily addressed or resolved by the board of directors and management. Banks in this group generally are not capable of withstanding monetary and macroeconomic shock in the operating environment. Again this can be traced to noncompliance with laws and regulations, excessive risk taking and insider dealings. Risk management practices are generally unacceptable relative to the institution's size, complexity, and risk profile. Close supervisory attention is required, which means, in most cases, formal enforcement action is necessary to address the problems. Banks in this group pose a risk to the deposit insurance fund. Failure is a distinct possibility if the problems and weaknesses are not satisfactorily addressed and resolved.

Composite 5

Banks in this group exhibit extremely unsafe and unsound practices or conditions; exhibit a critically deficient performance; often contain inadequate risk management practices relative to the institution's size, complexity, and risk profile; and are of the greatest supervisory concern. The volume and severity of problems are beyond management's ability or willingness to control or correct. Immediate outside financial or other assistance is needed in order for the Banks to be viable. Ongoing supervisory attention is necessary. Banks in this group pose a significant risk to the deposit insurance fund and failure is highly probable.

Measures of Bank Stability

With the recommendation of the IMF, Central bank of Bosnia and Herzegovina began with a compilation of selected FSI exclusively for the banking sector, primarily because the share of this sector in the overall financial system. In order to calculate those indicators aggregation and data consolidation were used. Aggregation is the summarization of data, so that the overall position of one or transaction for any group of reporting units is equal to the sum of data for all individual units within the group. Consolidation refers to the elimination of transactions between group members in order to express financial situation and performance of the group as one of the accounting subject in relation to other businesses outside the group, for statistical purposes. Consolidation of data is carried out on a group and sector level.

Profitability

To measure profitability, compiled FSI is as follows:

a) Return on average assets (ROAA) is an indicator of a set of basic indicators of financial soundness indicators and is intended to measure banks' efficiency in using its assets. This FSI provides an estimate of profit that can be used to cover losses in relation to assets. ROAA is calculated as the ratio of net income to average total assets (Lucky, 2017).

b) Return on average equity (ROAE) measures the efficiency of banks in the use of capital. This FSI provides an average income that can be used to cover losses in relative to capital. ROAE is calculated as the ratio between net income and average capital.

c) Net interest income to total income is calculated as the ratio of net interest income and total income. Net interest income is the difference between total interest income and total interest expense.

d) Non-interest expenses to gross income measures the share of administrative costs in total revenue. This FSI is calculated as the ratio of non-interest expense and total revenue. The non-interest expenses include direct expense (cost value adjustments for items of the balance of risk and risk reserves for items and other off-balance sheet business and direct expenses) and operating expenses (salaries and expenses contributions, the cost of office space, other fixed assets and overheads and other operating costs).

Capital Indicator

Indicators that measure capital adequacy are:

a) Basic capital to total risk weighted is used to determine how the indicator of net capital to total risk weighted susceptible to changes in additional capital and regulatory reductions. Capital adequacy is measured by this indicator is calculated as the ratio of basic capital (Tier 1) and total risk-weighted, which consists of RWA and operational risk weighted (ORW).

b) Net capital to total risk weighted corresponding to methodology capital adequacy ratio (CAR) calculating, which is prescribed by Basel Core Principles for internationally active banks in the G10 countries, except that the calculation and analysis of capital does not include the impact of country risk and transfer risk. The capital adequacy ratio measured by this indicator is calculated as the ratio of net capital and total risk-weighted.

c) Although the prescribed CAR for internationally active banks to Basel Core Principles is 8% or more, the existing regulations in Bosnia and Herzegovina require this rate to be at least at 12%.

Liquidity

Financial soundness indicator: liquidity is:

a) Liquid assets to total assets show how the banking sector is sensitive to liquidity crisis, and how it is able to meet the expected and unexpected demand for cash.

b) Liquid assets to short-term financial obligations as an indicator that measure liquidity mismatches of assets and liabilities, and gives an indication of the extent to which banks can withstand the withdrawal of short-term funds, and that they do not face with liquidity problem.

c) Short-term liabilities to total liabilities are short-term measure of participation in the total obligations, and represent a measure of liquidity risk caused by an unexpected increase in the share of total short-term financial obligations. It is calculated as the ratio of short-term liabilities to total liabilities (Lucky, 2017).

Asset Quality

To measure the quality of assets compiled FSI are as follows:

a) Non-performing assets (NPA) to total assets measures the asset quality of the banking sector, and the participation of non-performing assets to total assets. NPLs accounted for the largest portion of poor quality asset and therefore this indicator gives a good picture of the quality of the loan portfolio.

b) NPA less net of provisions to the equity shows the proportion of non-performing assets not covered by the provision of basic capital, and provides indications of additional provisions

which could be taken to the existing NPA. It is important indicator of the ability of bank capital to absorb losses arising from non-performing loans.

c) NPLs to total loans represent an indicator of basic set of FSI. It is calculated as the ratio between the non-performing loans to total loans. This indicator is a measure of loans quality.

Bank Regulation

Financial regulation according to Eatwell (1998) is vexed, there is no commonly accepted set of theoretical principles defining it, and that a major problem is building coherent theory of regulatory practice is that potential scale of losses associated with extreme event. Nonetheless, an attempt could be made to establish the components of financial regulation. It is a set of specific rules or agreed behavior imposed by government or its agencies to be able to control and guide the activities financial system for the achievement of desired objectives (Chris, 2003).

From the forgoing, financial regulation serves as a hub to the efficiency and stability of financial system (monetary stability). Financial institutions play a pivotal role in mobilizing savings, and efficient transformation of savings into real capital for investment. Hence the existence of a great number of risks inherent in the process of financial intermediation and maturity transformation pose threat to the efficiency of financial system. Thus, to erect confidence in the system characterized by volatile environment, financial regulation becomes the catalyst for mitigating the existence of market failures arising from externalities, market power and information problem (Chris, 2003). To achieve the intended objectives, the potency of financial regulation and structure could be assessed by stability, efficiency and fairness (Long and Vittas, 1992).

Capital Regulation

Since the inception of banking regulation in Nigeria, there has always been a directive issued from time to time by the regulatory authorities on the minimum paid-up capital required before a bank can be licensed to operate. The stipulated minimum paid-up capital requirements over the years have witnessed a steady growth in amount since the first Nigeria banking law was passed in 1952. The 1952 banking ordinance stipulated a minimum capital of N25, 000 for indigenes and N200, 000 for expatriate commercial banks in the system. This rose to N600, 000 and N1.05m for indigenes and expatriate banks respectively by the 1962 Act.

Theoretical approach focusing on bank regulation and supervision is emphasizing the positive influence and importance of capital adequacy requirements. Capital, as regulation instruments serve as a buffer against possible losses and hence diminish the occurrence of a failure (Barth, et al., 2003). However, it is discussed in study of Chortareas et al. (2010), whether it is precisely the implementation of capital requirements reducing the risk-taking incentives in banks decision-making.

The minimum paid-up capital before 1991 was N20 million and by the provision of section 9 (2) of Bank and Other Financial Institution Decree (BOFID), the minimum start-up capital rose to N50 million and in the 1997 budget it was increased to N500 million for both commercial and merchant banks. Presently, the minimum start-up capital has been increased from N2 billion in 2004 to a minimum of N25 billion. There is no doubt that the Basle Accord influenced the bank recapitalization policy in Nigeria.

Table1. Trend of Minimum Paid-up Capital of Banks in Nigeria (1952 – 2010)

Year	Type of Bank	Minimum Capital Requirement
1952	Commercial Banks	£12,500.00
1969	Commercial Banks	£300,000.00
1979	Commercial Banks Merchant Banks	N600,000.00 N2,000,000.00
1988 (February)	Commercial Banks Merchant Banks	N5,000,000.00 N3,000,000.00
1988 (October)	Commercial Banks Merchant Banks	N10,000,000.00 N6,000,000.00
1989	Commercial Banks Merchant Banks	N20,000,000.00 N12,000,000.00
1991	Commercial Banks Merchant Banks	N50,000,000.00 N40,000,000.00
1997	Commercial Banks Merchant Banks	N500,000,000.00 N500,000,000.00
2000	Commercial Banks Merchant Banks	N1,000,000,000.00 N1,000,000,000.00
2001	Commercial Banks Merchant Banks	N2,000,000,000.00 N2,000,000,000.00
2005 – till date	Commercial Banks	N25,000,000,000.00

Source: Lucky and Akani (2017)

Capital regulation became the focus of banking regulation since consultations for the first Basel accord began in 1988. The focal opinion was that more capital should make banking institutions better able to absorb losses with their resources, without becoming insolvent or requiring bailouts with public funds. On that account, regulatory consensus comes to view capital as a tool for curbing risk-taking created by limited liability and intensified by deposit insurance and bailout expectations. Given recent happenings, the global financial unquestionably indicated that existing capital regulation, in its design or implementation, was inadequate in the prevention of panic in financial systems, which necessitated emergency government intervention around the globe to prevent the collapse of banking institutions. Moreover, a large proportion of the rescued institutions appeared to be in compliance with minimum capital requirements shortly before and during the financial crisis (Demirguc-Kunt, Detragiache, Tressel, 2008).

Fernando and Herring (2001) opined that capital regulation is the flagship of financial regulation because it is considered a means to mitigate the risk of bank failures and related systemic adverse macroeconomic developments. However, the theoretical debate on the effects of capital regulation (almost exclusively referring to capital requirements) and general bank performance (profitability, efficiency, and stability) highlight both negative and positive effects. Put differently literature offers two scenarios through which capital requirements may influence systemic risk. On the one hand, capital requirement may likely reduce the individual risk-taking behaviour of banking institutions and consequently aid to reduce systemic risk, for the reason that individual risk is a significant driver of systemic risk. Banking institutions response to capital requirements may promote linkage within the banking system, and as a result, increase systemic risk. Thus, decreasing individual risk may not always concurrently reduce overall systemic risk (Zhou, 2013).

Regulation of Certain Activities

In Nigeria section 20 states that a bank shall not, without the prior approval in writing of the Bank, grant (a) to any person any advance, loan or credit facility or give any financial guarantee or incur any other liability on behalf of any person so that the total value of the advance, loan, credit facility, financial guarantee or any other liability in respect of the person is at any time more than twenty per cent of the shareholders fund unimpaired by losses or in the case of a merchant bank not more than fifty per cent of its shareholders fund unimpaired by losses and for the purpose of this paragraph all advances, loans or credit facilities extended to any person shall be aggregated and shall include all advances, loans or credit facilities

extended to any subsidiaries or associates of a body corporate, provided that the provisions of this paragraph shall not apply to transactions between banks or between branches of a bank or to the purchase of clean or documentary bills of exchange, telegraphic transfers or documents of title to goods the holder of which is entitled to payment for exports from Nigeria or to advance made against such bills, transfers or documents; (b) any advances, loans or credit facilities against the security of its own shares or any unsecured advances, loans or credit facilities unless authorized in accordance with the bank's rules and regulations and where any such rules and regulations require adequate security, such security shall be provided or, as the case may require, deposited with the bank.

The scope of activities helps define what is meant by a bank and since the scope of permissible activities differs across countries, banks are not the same across countries (Bart et al., 2013). It is the right of national regulators to give the license to banks and specify permissible activities. The theoretical frameworks define different effects of these restrictions on actual bank's behavior and performance. As it is summarized in the study of Barth et al. (2013), restrictions on banks' activities may violate ability of banks to monitor and process information about customers, building reputational capital, as well as limit the range of services provided to customers. Restrictions in the scope and scale of banks' activities decrease the bank's ability to diversify the income streams and it may disturb the value of a bank which increases the incentives for bad behavior. Thirdly, the right of activity restrictions in hands of national regulators can create a space for abuse of power through the discretion right (Barth, et al., 2013).

On the contrary to the previous arguments implying negative relationship with the activity regulations and the bank efficiency, we have also arguments that provide reasoning why are these regulations needed. The ability of banks to engage in broad financial activities is intensifying the moral hazard problems and enhancing the risk taking incentives in banks' behavior (Crockett, 2011). The activity restrictions are also a tool ensuring that banks are not able to develop into large and complex entities with strong position the market impossible to monitor and to regulate too big to discipline as it is called in the study of Barth et al. (2013).

Deposit Insurance

Nigeria deposit insurance Act of 1989 as amended states that (1) The Corporation shall have responsibility for- (a) insuring all deposit liabilities of licensed banks and such other deposit-taking financial institutions (hereinafter referred to as "insured institutions) operating in Nigeria within the meaning of sections 16 and 20 of this Act so as to engender confidence in the Nigerian banking system; (b) giving assistance to insured institutions in the interest of depositors, in case of imminent or actual financial difficulties particularly where suspension of payments is threatened to avoid damage to public confidence in the banking system; (c) guaranteeing payments to depositors, in case of imminent or actual suspension of payments by insured institutions up to the maximum amount as provided for in section 20 of this Act; (d) assisting monetary authorities in the formulation and implementation of banking policy so as to ensure sound banking practice and fair competition among insured institutions in the country; and (e) pursuing any other measure necessary to achieve the functions of the Corporation provided such measures and actions are not repugnant to the objects of the corporation.

Deposit insurance is an instrument providing depositors a guarantee that in the event of bank problems they will receive a certain portion of the face value of their deposits. The risk of illiquidity, following from the uncertainty about the depositors' choice for the time and

amount of their withdrawals is one of the main threats for the cause of bank runs. Deposit insurance is used by many countries in order to prevent in order to prevent the bank runs and decrease the risk of systemic crisis (Barth, et al., 2013). However, rich deposit insurance can be misused and can encourage excessive risk taking by banks representatives as well as decrease the attention of depositors to monitor the bank executives themselves. Thus, the precise design of deposit insurance schemes, including coverage limits, scope 22% of coverage, whether coinsurance is a feature, sources of funding, premium structure, and management and membership requirements, may materially shape bank and depositor behavior (Barth et al. 2013). The evidence in the work of Barth et al. (2004) has confirmed the assumptions of theoretical approach about the risk in the design of deposit insurance schemes. The generosity of the deposit insurance has a significant positive effect on the bank fragility.

Regulation of New Bank

Section 2 of BOFIA states that any person desiring to undertake banking business in Nigeria shall apply in writing to the Governor for the grant of a licence and shall accompany the application with the following (a) a feasibility report of the proposed bank; (b) A draft report of the memorandum and articles of association of the proposed bank; (c) A list of the shareholders, directors and principal officers of the proposed bank and their particulars; (d) The prescribed application fee and (e) such other information, documents and reports as the Bank may, from time to time specify.

After the applicant has provided all such information, documents and report as the Bank may require under subsection (1) of this section, the shareholders of the proposed banks shall deposit with the bank a sum equal to the minimum paid-up share capital that may be applicable under section 9 of this Act. (3) Upon the payment of the sum referred to in Subsection (2) of this Section, the Governor may issue a licence with or without conditions or refuse to issue a licence and the Governor need not give any reasons for the refusal. (4) Where an application for a licence is granted, the Bank shall give written notice of that fact to the applicant and the licence fee shall be paid. (5) An application for a licence shall be forwarded to the Governor and all licences to be issued shall be with the prior approval of the Minister.

Entry limitations are closely related to the ownership regulations especially the participation of government in the ownership. National regulators regulate the degree of competition in the market by the implementation of the entry barriers. It is the role and right of regulators in every country to formulate and impose fair requirements and screen the possible entrants to analyze whether they are proper and fit the market structure. The barriers of entry are imposed in order to give the license to operate on the market only to those of higher quality and hence enhance the overall performance of the banking industry (Barth, et al., 2013). The evidence in the study of Barth et al. (2004) indicated that stronger restrictions on the entry into banking sector are positively associated with costs; however there is no significant relationship between restrictions and the overall performance of banking sector. However, the limitation on the bank entry as well as the foreign ownership is positively associated with the bank fragility and increase the probability of crises (Barth, et al., 2004).

Bank ownership

Bank ownership is one of the important characteristics influencing the performance and the efficiency of banks. One aspect of government participation in the bank ownership can be better possibility for bank regulation, closer supervision and monitoring through the

participation in the shareholders' board. In the theoretical approach there are different views considering the government ownership. Firstly, it is considered that governments have the access to the privileged information and good incentives taking into account social welfare. These characteristics enable government to overcome or prevent from capital-market failures, to utilize possible externalities as well as to support socially beneficial investments (Barth, et al., 2004).

On the contrary, due to the privileged position of the government there is a danger that government can act weaken the present regulatory policies and try to pursue policies underlying to enhancing of politically attractive decisions. Political power in the financial system can lead into decrease in efficiency through resource allocation, softens budget constraints. A fairly common practice when banks are government owned is for the government to use them as a vehicle for financing government-owned or otherwise favored enterprises and projects. Under such circumstances, it should be no surprise that the supervisory authorities are expected to play a supporting role and thus may overlook certain problems (Barth et al., 2009).

The foreign-owned bank underlying also to the home country regulation and supervision through its parental bank tends to operate on the market more efficiently, with lower tendencies for risky practices. Additionally, the presence of foreign owned banks may contribute to implementation of best practices used in the host country. The results in the empirical study of Barth et al. (2004), show that countries with higher percentage of government ownership are less financially developed and perform lower economic growth resulting from less developed and less stable and efficient financial markets.

Theoretical Framework

The idea of whether or not government and its agencies should intervene in financial matter has been fairly treated in literature. In particular, using Keynes' advocacy of direct and active government intervention through the invisible hand of the public sector to strengthen and enhance the flow of capital in the economy. This paper will adopt three working theories of financial regulations, thus; agency theory, risk management theory and the regulatory dialectic theory.

Agency theory as developed by Stiglitz in 1989 to justify the government goals of safety and protection. Regulatory intervention is required for the protection of public savings when it is threatened by the behavior of financial institutions. The main trust of this theory is that, government agencies must be present to supervise and limit the excesses of financial institutions toward customer safety and protection. The theory also focuses attention on the problems of hidden actions and hidden information, what Sinkey (1992) called moral hazard and adverse selection" respectively, to set strategies in order to circumvent the problems and ensure safety and confidence of savers in the system.

The regulatory dialectic theory is based on the work of Kane (1981). This theory strives to explain the ongoing struggle between the regulators and financial institutions. The regulators attempt to impose constraints on the financial system (interest rate, product, geographic control). The institutions who tend to be driven by profit or wealth maximization motives, attempt to circumvent the restrictions because they consider such as structural arbitrage. This process (contagion), create cost and benefit analysis for government officials leading to reactive adjustment in operative codes of regulation. Kane's theory examine the struggle engage by both the regulators and the financial institutions to achieve their goals, in the

process some adjustment emerged (exogenously) leading to regulatory changes toward financial or monetary stability.

Empirical Review

Ndugbu and Ochiabuto (2015) examined the relationship between supervision and survivability of banks. The study employs E-view statistical software using the two stage least square method to evaluate a set of factors which affect bank survivability. Data for the study were extracted from the Central Bank of Nigeria's (CBN) statistical bulletin and bureau of statistics publications (1981-2013). The results confirm positive significant relationship among capital protection; earnings strength and bank liquidity while cash reserve ratio and bank strength had negative impact on bank liquidity. These variables were found to be inelastic due to time lag banks may take to adjust to supervision patterns, reforms and finding alternatives. A short time frame given by the supervisory authority to implement a new regulation by banks resulted to inelastic bank liquidity. The strength-supervision model showed positive significant relationship among bank liquidity, asset quality and bank strength.

Das, Quintynand Kina (2014) examined impact of regulatory governance on financial system stability; they used multi-cross-sectional data of developing and developed countries and applied Weighted Least-square Regression, found a significance influence of regulatory governance on financial system soundness. Using variables reflecting macroeconomic conditions, structure of the banking system and the quality of political institutions and public sector governance. Iganiga (2010) examined the effect of financial reforms (regulation) on the effectiveness of financial institutions with emphasis on banking sector, using data from 1986, and applying classical least square technique, found that the performance of the financial sector has been greatly influence by the reforms. As domestic savings increase by 5% and capital base of firms rekindled public confidence and increasing savings by 3.6%.

Ningi and Dutse (2008) examined impact of CBN's consolidation in the banking sector; they found a significant difference as the CBN's decision has changed the market structure, increased the efficiency and reliability of banks, create opportunities for participants and raised their intermediation potentials. Idowu and Babatunde (2010) investigated the effect of financial reform on capital market, using time series data (1986-2010), applying Ordinary Least Square Regression, found a negative relationship between the two variables, i.e. financial reform deterred capital market development. Pasiouras et al. (2009) used the financial data provided in bank scope and data for regulatory and supervision policies collected by World Bank (1999, 2003) for 615 banks from 74 countries during the time period 2000 and 2004, observed counter wise effect of capital requirements, described in the first pillar of Basel II, on 10 these two types of efficiency measures. The results have shown a positive impact has been shown on cost efficiency but a negative impact on profit efficiency.

Demirguc-Kunt et al. (2013) investigated the effectiveness of current regulatory capital regulations and tested theories that support the use of capital regulation to curtail bank risk-taking incentives and absorbing losses. They found support for the assertion that stronger capital levels are important components during systemic crises. Therefore, suggesting that the current focus on strengthening capital requirements is appropriate. Additionally, they found that greater emphasis on higher quality capital' in the form of tangible assets or Tier I capital is justified. Fanti (2014) investigated the effects of capital accords introduced by the BIS (Basel I, Basel II, and Basel III). The main result obtained suggested that the introduction of

sufficiently high capital requirements is effective for the objective of maintaining or restoring banking sector stability with heterogeneous and homogeneous banks' expectations.

Berger & Bouwman (2013) examined the relationship between bank capital and different facets of bank performance in normal times, and banking and market crisis periods for US banks. Their study indicated that bank capital increases the probability of survival and market share of small banking institutions at all times (normal times, banking crisis, and market crisis). Additionally, they found that high capital levels help medium and large banking institutions primarily during banking crises, and particularly during the one with relatively limited government intervention, and the credit crunch of the early 1990s. In sum, they are of the opinion that capital acts as an absorber of losses.

Deli & Hasan (2016) examined the effects of bank capital regulation on loan growth by using bank-level data from 125 countries within the period of 1998 to 2011. The results indicated that capital regulation only has a weak negative effect on loan growth. Moreover, the effect is entirely offset when banks hold moderately high levels of capital. However, they found that the components of capital requirements that have the most significant negative effect on loan growth are those associated with the prevention of banks to utilize as capital borrowed funds and assets other than cash or government securities. Lutz (2016) examined the effects of new capital requirements for systematically important financial institutions (SIFI) proposed by the U.S Federal Reserve. The results obtained indicated that the announcement to recapitalize SIFI led to lower abnormal initial stock returns for the SIFI that then reverse and dissipate after three days. Interestingly, the findings suggest that the increased capital requirements proposal for large SIFIs had no impact on economic and financial market interest rates.

Guidara, Lai, Soumare, and Tchana (2013) investigated the cyclical behaviour of Canadian banks' capital buffers and evaluated its effect on banks' risk and performance throughout business cycles and about Canadian regulatory changes during the different Basel regimes. They found that Canadian banks were well capitalized, which explains how they weathered the recent global financial crisis. They found that bank capital buffers demonstrate positive co-movements with business cycles. Conversely, their results did not show any strong evidence that variations of banks' capital buffer affect the exposure of banks to risk and return on equity. Thus, the drive to hold excess capital buffer may be motivated by market discipline.

Dagher, Dell'Araccia, Laeven, Ratnovski, and Tong (2016) examined how various levels of bank capital would have performed in past banking crises. They found that high capitalization can absorb losses during banking crises, but decline fast once capitalization attains 15–23 percent of risk-weighted assets. They suggested that protection against extreme crises requires significantly more loss absorption capacity; however, such crises are rare.

Olajide, Asaolu & Jegede (2011) conducted a study to ascertain the impact of financial reforms on the performance of Nigerian banks for the period of 1995 to 2004. In a bid to determine the effects of regulatory policies of recapitalization, interest rate deregulation, and exchange rate reforms, a pooled panel regression analysis was adopted. The results obtained showed mixed effects on the net interest margin and profitability level of Nigerian banks. The study, however, concluded that bank-specific characteristics disclosed significant positive effects on the profitability and efficiency of banks, whereas the industry structure proxies suggested not to have contributed significantly to the profitability and efficiency performance

of Nigerian banks. In an attempt to examine the effect of changes in capital levels of Nigerian banks.

Agbeja (2013) employed panel data from thirty-two (32) commercial banks for the period 1992 –2007. The results obtained indicated that capital base requirement was not effective in reducing distress in the Nigerian banking industry. Agbeja opined that the minimum capital requirement imposed by regulatory authorities was not sufficient. And as such, he suggested that the CBN further increase the capital base of Nigerian banks to stimulate efficiency. Yauri, Musa & Kaoje (2012) investigated the impact of capital regulation on bank liquidity and financial distress in the Nigerian banking sector over a ten-year period (1997 –2006). The sampled period includes four bank recapitalizations that took place in the Nigerian banking sector from N50 million to N500 million in 1997; to N1 billion in 2001; to N2 billion in 2002; and to N25 billion in 2005. Employing a simple regression model, correlation analysis and the product moment correlation analysis, they found that a relationship exists between an increase in the minimum capital base of commercial banks and their liquidity and asset quality as liquidity and asset quality tend to improve with recapitalization.

Nwankwo (2013) conducted a study that dwelled on the performance of the Nigerian banks in relation to the banking consolidation exercise that culminated in 2005. The study empirically investigated the effect pre and post bank consolidation performance of Nigerian banks on the Nigerian economy using T-test. The study results suggested that banking consolidation engineered mergers and acquisitions gave rise to improved bank performance regarding asset quality, liquidity, and profitability, which in turn had positive effects on the economy. In essence, the study implied that the banking sector contributed little to economic growth in periods before the banking consolidation reforms, whereas the contribution of Nigerian banks to economic growth increased in the post-banking consolidation period due to improved asset quality, liquidity levels and profitability. Ezike & Oke (2013) investigated the impact of the adoption of capital adequacy standards on the performance of Nigerian banks, using a mix of three old generation banks (Pre-SAP) and three new generation (Post-SAP) banks within the period of 2003 to 2007. The authors employed the ordinary least squares (OLS) estimation technique to ascertain the effect of loans and advances, shareholders' funds, total assets and customer deposits, on earnings per share and profit after tax. The results indicated that capital adequacy exerts a major influence on the performance of Nigerian banks. Additionally, they opined that regulatory authorities increased the minimum capital requirement in line with the Basel Accord framework recommendations, and the impact was positive.

Olalekan & Adeyinka (2013) sought to ascertain the effect of capital adequacy on the profitability of deposit-taking banks in Nigeria. The study relied on primary data from a 76% of 518 questionnaire responses obtained from bank staff and secondary data from published financial statements of banks for the period of 2006 to 2010. The results from the analysis of the primary data revealed a non-significant relationship between capital adequacy and profitability of banks, whereas the analysis of secondary data indicated a positive and significant relationship. They opined that the results implied that capital adequacy plays a central role in the determination of profitability in the Nigerian banking sector. Ikpefan (2013) investigated the effect of capital adequacy on the management and performance of Nigerian commercial banks for the period of 1986 to 2006. The study tried to capture the relationship between bank capital and bank performance empirically. The study examined how capital adequacy and bank performance have been improved by the recapitalization exercise and the consolidation of the Nigerian banking sector. Using the ordinary least square

regression method on a sample of fourteen (14) commercial Nigerian banks, the study indicated that the capital adequacy ratio adopted (shareholders' funds/total assets) which measures the capital adequacy of banks (risk of default) has a negative effect on return on assets (ROA). The study showed that the efficiency of management proxied by operating expenses is negatively related to return on capital (ROC). The empirical studies examined in this study focused more on bank regulation and profitability of commercial banks. This study focused on regulation and commercial banks stability in Nigeria.

SECTION III: METHODOLOGY

Descriptive and longitudinal design was employed with a view to making statistical inferences on the effect of regulation and commercial bank stability in Nigeria. A Sampling frame of 14 quoted commercial banks was selected using random sampling techniques. The required cross-sectional data were sourced from annual reports of the commercial banks from 2009-2018.

Analytical Framework and Empirical Model Specification

This analysis is carried out within a panel data estimation framework. The preference of this estimation method is not only because it enables a cross-sectional time series analysis which usually makes provision for broader set of data points, but also because of its ability to control for heterogeneity and endogeneity issues. Hence panel data estimation allows for the control of individual-specific effects usually unobservable which may be correlated with other explanatory variables included in the specification of the relationship between dependent and explanatory variables (Hausman and Taylor, 1981).

In order to circumvent these problems, panel estimation techniques of fixed and random effects will be adopted in this study, in addition to the traditional pooled regression estimation. Decisions will be made between the fixed and random effect models using the Hausman specification test. The panel model for the study is specified based on the modified model of Akeem, Edwin, Kiyanjui and Kayode (2014).

$$Y_{it} = \beta X'_{it} + \alpha Z'_i + \varepsilon_{it} \quad 1$$

$$Y_{it} = \beta X'_{it} + \alpha Z'_i + \varepsilon_{it} \quad 2$$

Where:

- Y = dependent variable
- D = independent variable
- β_o = intercept
- β_i = coefficient of the explanatory variable
- e = error term
- I = cross-sectional variable
- T = time series variable

Model Specification

Pooled regression specification

$$LIQ = \alpha_0 + \alpha_1 CR_{1it} + \alpha_2 AR_{2it} + \alpha_3 DI_{3it} + \alpha_4 ONR_{4it} + \alpha_5 ER_{5it} + \varepsilon_{1it} \quad 3$$

Fixed Effect Model Specification

$$LIQ_{it} = \alpha_0 + \alpha_1 CR_{it} + \alpha_2 AR_{it} + \alpha_3 DI_{it} + \alpha_4 ONR_{it} + \alpha_5 ER_{it} + \sum_{i=1}^9 \alpha_i idum + \varepsilon_{it} \quad 4$$

Random effect model specification

$$LIQ_{it} = \alpha_0 + \alpha_1 CR_{it} + \alpha_2 AR_{it} + \alpha_3 DI_{it} + \alpha_4 ONR_{it} + \alpha_5 ER_{it} + \mu_i + \varepsilon_{it} \quad 5$$

Where

- LIQ = Liquidity of commercial banks proxy by liquid assets to total loans and advances
- CR= Capital regulation measured by tier 1 plus tier 2 capital to total risk assets
- AR = Activity regulation measured by liquidity ratio
- DI = Deposit insurance measured by the variation on number deposit in NDIC
- ONR = Regulation of ownership measured by ownership concentration
- ER = Entry regulation measured by dummy variable of 1 for new entry and 0 for no entry
- et = Stochastic or disturbance/error term.
- t = Time dimension of the variables
- α_0 = Constant or intercept.

Estimation Techniques

Panel unit root test result

The data were checked for the presence of unit root using the ADF Fisher Chi-Square and Philiperon Fisher Chi-Square, which is based on the well-known Dickey–Fuller procedure. The null hypothesis for these tests is that there is a presence of non-stationary series against the alternative hypothesis of stationary series. The unit root test is important because non-stationary series regression estimation leads to spurious regression estimations with the wrong magnitude and sign of the parameter of the regressors, with wrongly inferred implications. The study assumes an absence of a time trend; hence it is tested for stationarity allowing for constant only. Stationarity denotes the non-existence of unit root. We shall therefore subject all the variables to unit root test using the augmented Dickey Fuller (ADF) test specified in Gujarati (2004) as follows.

$$\Delta y_t = \beta_1 + \beta_2 + \delta y_{t-1} + \alpha_i \sum_{i=1}^m \Delta y_{t-1} + Et \quad 6$$

Where:

- Δy_t = change time t
- Δy_{t-1} = the lagged value of the dependent variables
- Σ_t = White noise error term

If in the above $\delta = 0$, then we conclude that there is a unit root. Otherwise there is no unit root, meaning that it is stationary. The choice of lag will be determined by Akaike information criteria.

Decision Rule

t-ADF (absolute value) > t-ADF (critical value) : Reject H_0 (otherwise accept H_1)

Note that each variable will have its own ADF test value. If the variables are stationary at level, then they are integrated of order zero i.e 1(0). The unit root problem earlier mentioned can be explained using the model:

$$Y_t = Y_{t-1} + \mu_t \quad 7$$

Where Y_t is the variable in question; μ_t is stochastic error term. Equation (a) is termed first order regression because we regress the value Y at time “t” on its value at time (t- 1). If the coefficient of Y_{t-1} is equal to 1, then we have a unit root problem (non-stationary situation). This means that if the regression.

$$Y_t = Y_{t-1} + \mu_t \quad 8$$

Is run and L is found to be equal to 1 then the variable Y_t has a unit root (random walk in time series econometrics). If a time series has a unit root, the first difference of such time series are usually stationary. Therefore to solve the problem, take the first difference of the time series. The first difference operation is shown in the following model:

$$\Delta Y_t = (L-1) Y_{t-1} + \mu_t \quad 9$$

$$\delta Y_{t-1} + \mu_t \quad 10$$

(Note: $\delta = 1-1 = 0$; where $L = 1$; $\Delta Y_t = Y_t - Y_{t-1}$) 11

Integrated Of Order 1 Or I(1)

Given that the original (random walk) series is differenced once and the differenced series becomes stationary, then the original series is said to be integrated of order I or I (1).

Integrated of Order 2 Or I (2)

Given that the original series is differenced twice before it becomes stationary (the first difference of the first difference), then the original series is integrated of order 2 or I(2). Therefore, given a time series has to be differenced Q times before becoming stationary it said to be integrated of order Q or I (q). Hence, non-stationary time series are those that are integrated of order 1 or greater.

The null hypothesis for the unit root is: $H_0: a = 1$;

The alternative hypothesis is $H_1: a < 1$.

We shall test the stationarity of our data using the ADF test.

Granger Causality Test

Thus, Granger causality test helps in adequate specification of model. In Granger causality, test, the null hypothesis is that no causality between two variables. The null hypothesis is rejected if the probability of F^* statistics given in the Granger causality result is less than 0.05. The pair-wise granger causality test is mathematically expressed as:

$$Y_t \pi_o + \sum_{i=1}^n x_1^y Y_{t-1} \sum_{i=1}^n \pi_1^x x_{t-1} + u_t \quad 12$$

and

$$x_t dp_0 + \sum_{i=1}^n dp_1^y Y_{t-1} \sum_{i=1}^n dp_1^x x_{y-1} + V_1 13$$

Where x_t and y_t are the variables to be tested while u_t and v_t are the white noise disturbance terms. The null hypothesis $\pi_1^y = dp_1^y = 0$, for all I 's is tested against the alternative hypothesis $\pi_1^x \neq 0$ and $dp_1^y \neq 0$. if the co-efficient of π_1^x are statistically significant but that of dp_1^y are not, then x causes y. If the reverse is true then y causes x. however, where both co-efficient of π_1^x and dp_1^y are significant then causality is bi-directional.

SECTION IV: PRESENTATION OF RESULTS AND DISCUSSION OF FINDINGS

The following tables explain the dynamic relationship between regulation and stability of commercial banks in Nigeria.

Table 1: Regression Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
Fixed Effect Regression Results				
AR	0.136172	0.184779	0.736944	0.4626
ONR	0.101556	0.077020	1.318567	0.0098
CR	0.281553	0.172765	1.629687	0.0058
DI	0.193587	0.195210	0.991686	0.3233
ER	-0.421159	0.995672	-0.422990	0.6731
C	47.06465	4.987661	9.436215	0.0000
Effects Specification				
Cross-section fixed (dummy variables)				
R-squared	0.800540			
Adjusted R-squared	0.770868			
F-statistic	26.97984			
Prob(F-statistic)	0.000000			
Durbin-Watson stat	2.129266			
Random Effect Regression Results				
AR	0.135859	0.183801	0.739163	0.4611
ONR	0.100944	0.076310	1.322812	0.0082
CR	0.223415	0.169662	1.316827	0.0001
DI	0.189510	0.194650	0.973593	0.3320
ER	-0.462113	0.995240	-0.464323	0.6432
C	48.03021	5.783498	8.304699	0.0000
Effects Specification				
			S.D.	Rho
Cross-section random			11.19640	0.7871
Idiosyncratic random			5.822809	0.2129
Weighted Statistics				
R-squared	0.034471			
Adjusted R-squared	0.001556			
F-statistic	0.956806			
Prob(F-statistic)	0.446781			
Durbin-Watson stat	1.878836			
R-squared	0.036896	Mean dependent var		46.60579
Sum squared resid	21326.97	Durbin-Watson stat		0.393084
Correlated Random Effects - Hausman Test				
Equation: Untitled				
Test cross-section random effects				
Test Summary		Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random		23.839782	5	.0000

Source: Extract from E-view 9.0

In view of the panel data, fixed effect and random effect regression were run and subsequently, lagrangian multiplier test for random effects models was carried out. Hausman specification test was then used to decide between the two results. The result from the Hausman test revealed a Chi2 value of 23.839782 with p-value of 0.0000 that is statistically significant. This implies that the test considered the fixed effect as the most appropriate estimator.

The fixed effect model shows that the independent variable explains 80 and 77 percent variation on the liquidity of Nigeria commercial banks over the periods covered in this study. The F-statistics and the F-Probability validates that the model is significant. The β coefficient of the variables shows capital regulation, assets quality regulation; ownership regulation and deposit insurance have positive effect on liquidity of commercial banks. The T-Statistics and the probability value justify that ownership regulation and capital regulation have significant effect on commercial bank stability while other variables have no significant effect on the dependent variable.

Table II: Test for Stationarity

Variables	ADF - Fisher Chi-square/ PP - Fisher Chi-square	Statistics	Probability	REMARK	DECISION
LIQ	ADF - Fisher Chi-square	69.5334	0.0000	Stationary	Reject H0
	PP - Fisher Chi-square	122.586	0.0000	Stationary	Reject H0
CR	ADF - Fisher Chi-square	80.8985	0.0000	Stationary	Reject H0
	PP - Fisher Chi-square	110.904	0.0000	Stationary	Reject H0
ONR	ADF - Fisher Chi-square	72.4680	0.0000	Stationary	Reject H0
	PP - Fisher Chi-square	177.331	0.0000	Stationary	Reject H0
DI	ADF - Fisher Chi-square	59.0337	0.0000	Stationary	Reject H0
	PP - Fisher Chi-square	123.968	0.0000	Stationary	Reject H0
AR	ADF - Fisher Chi-square	71.3774	0.0000	Stationary	Reject H0
	PP - Fisher Chi-square	185.634	0.0000	Stationary	Reject H0
ER	ADF - Fisher Chi-square	101.691	0.0000	Stationary	Reject H0
	PP - Fisher Chi-square	200.353	0.0000	Stationary	Reject H0

Source: Extract from E-view 9.0

The table above presents the summary results of the ADF and PP panel unit root tests. The results show that the null hypotheses of a unit root test for first difference series for all the variables can be rejected at all the critical values indicating that the level series which is largely time-dependent and non-stationary can be made stationary at the first difference and maximum lag of one. Thus, the reduced form model follows an integrating order of 1(1) process and is therefore a stationary process. It also reveals that the test of stationarity in the residuals from the level series regression is significant at all lags. Furthermore, this indicates that the regression is no more spurious but real. That is to say, all the variables are individually stationary and stable. At this level, all the t-statistic became significant at 5 percent.

Table III: Cross Section Specific Results

Phillips-Peron results (non-parametric)					
Cross ID	AR(1)	Variance	HAC	Bandwidth	Obs
ACCESS	-0.589	8.439879	4.416199	8.00	9
ECOBANK	-0.635	5.299897	2.909330	4.00	9
FCMB	-0.447	2.703935	0.480026	6.00	9
FIDELITY	-0.092	10.86230	2.584433	8.00	9
GTB	-0.347	0.736439	0.156368	8.00	9
FIRST BANK	0.246	7.206486	2.338393	8.00	9
POLARISE	-0.442	2.384979	1.098295	8.00	9
STERLING	-0.431	5.704505	3.912315	3.00	9
STANBIC	0.152	8.697229	3.255600	5.00	9
UBA	-0.433	12.18952	4.147579	5.00	9
UNION	0.361	2.609414	2.706010	1.00	9
UNITY	-0.359	6.381967	1.745875	8.00	9
WEMA	0.236	16.17294	11.58446	8.00	9
ZENITH	0.350	46.26527	52.00436	2.00	9
Augmented Dickey-Fuller results (parametric)					
Cross ID	AR(1)	Variance	Lag	Max lag	Obs
ACCESS	-1.134	2.942628	1	--	8
ECOBANK	-1.478	4.521220	1	--	8
FCMB	-1.723	0.832422	1	--	8
FIDELITY	-0.623	7.258792	1	--	8
GTB	-1.168	0.339602	1	--	8
FIRST BANK	-0.476	4.036185	1	--	8
POLARISE	-1.279	1.825780	1	--	8
STERLING	-0.988	4.154314	1	--	8
STANBIC	-0.259	6.423903	1	--	8
UBA	-0.784	5.585504	1	--	8
UNION	0.323	2.915136	1	--	8
UNITY	-0.827	5.741308	1	--	8
WEMA	-0.186	11.87840	1	--	8
ZENITH	-0.106	25.80506	1	--	8

Source: Extract from E-view 9.0

The result of the power for all the test procedure when the underlying time series model is stationary AR, all the procedures produced a reasonably high power over all the sample sizes and order considered except at order where ADF (Augmented Dickey Fuller) and KPSS produced extremely low power compared to PP. Under this condition, Philip-Peron (PP) has the highest power over all the sample sizes and AR orders considered. The table presents similar analysis on stationary MA, the power of the tests are extremely high over all the sample sizes and orders considered. All the test procedures produced high power over all the sample sizes at order 1 but ADF and KPSS produced low power over all the sample size at order 2 & 3.

Table IV: Presentation of Granger Causality Test

Null Hypothesis:	Obs	F-Statistic	Prob.
AR does not Granger Cause LIQ	112	0.10366	0.9016
LIQ does not Granger Cause AR		0.48732	0.6156
ONR does not Granger Cause LIQ	112	0.14625	0.8641
LIQ does not Granger Cause ONR		1.26128	0.2875
CR does not Granger Cause LIQ	112	0.54224	0.5830
LIQ does not Granger Cause CR		1.47727	0.2329
DI does not Granger Cause LIQ	112	0.43842	0.6462
LIQ does not Granger Cause DI		0.38695	0.6801
ER does not Granger Cause LIQ	112	NA	NA
LIQ does not Granger Cause ER		NA	NA

Source: Extract from E-view 9.0

The objective of causality test is to examine if past variation in on the variables can affect significantly the present condition. From table IV above, the probability coefficient of the variables are greater than 0.05 at 5% level of significance, we therefore conclude there is no causal relationship between the independent to the dependent and the dependent to the independent. This means that past variation have no significant effect on the present changes on the variables.

Discussion of Findings

This study intended to establish the relationship between regulation and the stability of Nigeria commercial banks. Evidence from the results proved that the independent variables as estimated in the regression model explained 80 percent variation on the stability of commercial banks over the periods covered in this study. The beta coefficient of the variables indicates that capital regulation, activity regulation, ownership regulation and deposit insurance have positive effect on commercial bank stability. The positive regression coefficient of 0.223415 as parameter for capital regulation, 0.135859 as parameter for activity regulation, 0.189510 as parameter for deposit insurance and 0.100944 as parameter for ownership regulation proved evidence that a unit increase on the variables can increase commercial banks stability by 2.2 percent, 1.3 percent, 1.8 percent and 1.0 percent. The positive effect of the variables confirm our a-priori expectation and validates the objectives of banking sector regulations as contained in relevant laws such as Bank and Other Financial Institutions Act of 1991 as amended. Findings of the study confirm the findings of Ndugbu and Ochiabuto (2015) on the positive effect of supervision on the survivability of commercial banks in Nigeria. However, findings also revealed that entry regulation have negative effect on commercial banks stability in Nigeria such that a unit increase can negatively affect commercial banks stability by 4.6 percent. This finding is contrary to the expectations of the study and the objectives of banking regulation.

Section V: Conclusion and Recommendations

Conclusion

This study aimed to investigate regulation and stability of commercial banks in Nigeria. To achieve this objective, a cross sectional panel data were sourced from financial statement of 14 commercial banks quoted on the floor of Nigerian Stock exchange from 2009-2018. After testing the significant of the model, the study adopts the fixed effect model which found that 80 and 70 percent variation on liquidity of commercial banks can be traced to the independent variables. It shows that capital regulation, activity regulation, ownership regulation and deposit insurance have positive effect on stability of Nigeria commercial banks, the T-Statistics and the probability value justify that ownership regulation and capital regulation have significant effect on commercial bank liquidity while other variables are statistically not significant.

Recommendations

1. The regulatory authorities should devise measures, policies and strategies of effective supervision and ensure that all banking rules and regulations such as capital regulations are well complied.
2. Further strategies should be formulated to enhance regulation of activities of commercial banks. Activities that endanger the stability of commercial banks stability should be discouraged. Section 21 of BOFIA Act should be complied with by the management of the commercial banks.

3. Nigeria Deposit Insurance Corporation should ensure that insured commercial banks comply with the relevant laws guiding corporation. There should also be increase from the present 1 to 16 ratio of deposit from commercial banks.

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