BANK REGULATION AND GROSS DOMESTIC CREDIT IN NIGERIA

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:

CERTIFICATION

This is to certify that the work entitled "**The Effects of Banking Regulation on The Development of Nigeria Banking Systems"** was carried out by **Ewelike Queendeanne Nneka,** with registration number **20154990548** of the department of Financial Management Technology, Federal University of Technology, Owerri and is hereby admitted as having partially satisfied the requirements for the award of Master of Science Degree in Financial Management Technology of the University.

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DEDICATION

This research work is dedicated to EKEANYANWU JOSEPH NGOZI**,** ENGR. FREDRICK C. NWOHA, and above all to God Almighty.

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ABSTRACT

This study empirically assessed the effect of bank regulation on the gross domestic credit in Nigeria, using time series data from 1990 to 2018. Adopting the co-integration procedures and the multiple regression, the results revealed prominent among others, that a significant relationship exists between variables of bank regulation and the level of gross domestic credit in Nigeria, taken together. Again, cash reserve ratio, liquidity ratio, and loan-to-deposit ratio had significantly affected the way Nigerian banks offer credit to various sectors of the economy. On the basis of the findingd, the study therefore, concluded among others that the selected bank regulatory instruments are adequate to predict the level of gross domestic credit thus, meaning that they actually exert significant influence on lending activities in the economy. On this premise, the study recommended among others that financial regulators should continue with the policy reforms that consolidate the emerging confidence in the banking sector, and avoid policy somersaults. Similarly, well-articulated banking regulatory policies were recommended to ensure that banks performance is enhanced.

Keywords: ***Bank Regulation, Banking Development, Co-integration Procedures, Gross Domestic Credit.***

CHAPTER ONE

INTRODUCTION

1.1 Background Information

The financial sector comprises of a broad range of institutions including banks, investment companies, insurance companies, and real estate firms. A large portion of this sector generates revenue from mortgages and loans, which gain value as interest rates drop. The health of an economy depends, in largely on the strength of its financial sector. The stronger it is, the healthier the economy. A weak financial sector typically means the economy is weakening(Adeusi and Oke,2013).

In order for an economy to remain stable, it needs to have a healthy financial sector. This sector advances loans for businesses so they can expand, grants mortgages to homeowners, and issues insurance policies to protect people, companies, and their assets. It also helps build up savings for retirement and employs millions of people. The financial sector generates a good portion of its revenue from loans and mortgages. These gain value in an environment where interest rates drop. When rates are low, the economic conditions open up the doors for more capital projects and investment. When this happens, the financial sector benefits, meaning more economic growth (The World Bank, 2016).

The banking sector is a section of the economy that essentially takes part in money-related intermediation. It is made up of firms and institutions that provide financial services to commercial and retail customers. The banking sector in Nigeria has no uncertainty seen some financial guidelines and improvements. The arrangement of money-related guidelines and changes saw in Nigeria happened because of certain undesirable variables, and explicitly as a result of the need to fortify the financial sector. In the pre and post-colonial days in Nigeria, banks endured a great deal of difficulties and in the long run fallen because of failure, incompetence, and unfortunate financial practices, and also due to non-adherence to ethical guidelines with respect to the administration, poor resource quality, under capitalization, and to a large extent, nonappearance just as deficient monetary guideline and supervision. Because of these ills in the banking sector at that point, there was a need to financially regulate the sector to guarantee its ideal performance (Kenton, 2019).

Banking regulation especially in the financial system is the sole obligation of the CBN and inclusively the Nigerian Deposit Insurance Corporation (NDIC). The CBN's dynamic contribution in banking regulation of the financial sector is principally intended to secure depositors' assets, fortify the banks against interior and outside shocks as well as promote financial soundness with the end goal of affecting the presentation of the monetary division and the general improvement of

the economy. Naturally, sufficient regulations of the banking system by CBN could be viewed as a sweeping job given the way that the financial business fills in as the motor and driver of each segment of the economy. For example, in the economic theory of regulation, it is a typical idea that the embodiment of banking regulation is to counteract market failure. Counteractive action of market disappointment assumes that legitimate guidelines and approach structure is set up by the apex bank, the Central bank. Besides, banking guidelines are intended to improve the overall performance of banks so as to enable them compete favourably among their counterparts anywhere in the world (Igbinosa, Ogbeide and Akanji, 2017).

Banking system improvement might be hard to achieve without purposeful and radical financial guidelines, administrative procedures and administrative system by the Central bank. In such manner, the objective of banking regulation ought to be to improve the organisation of banks in order to empower these banks contend positively in their performance globally. In the event that a bank is unduly exposed to capital and liquidity risks, the abundance of the investors will undoubtedly be influenced. To safe guide against this, the CBN accompanies apparent good administrative approach through changes and different strategies to address it. In this manner, money related guidelines in Nigeria involve a progression of changes which can be followed back to as right on time as the 1950s while changes likewise

happened during the 1990s and a noteworthy shakeup of the Nigerian financial segment occurred in the middle of 1999 and 2003 while different periods of changes are as yet occurring (Omankhanlen, 2012).

In spite of the way regulations for banks are being restructured because of the global trends, their usage requires complex advances relying upon every nation's arrangements and they could have altogether different impacts on bank execution relying upon institutional condition where banks work. Chortareas, Girardone, and Ventouri (2012) found that banking supervisory changes were vigorously related to the presentation and the strength of banks. On the other hand, powerful supervisors may exert a negative influence on bank performance. Incredible administrators may utilize their forces to profit favored constituents, draw in battle gifts, and concentrate fixes (Levine, 2011).

Giving an account of the Finance and Insurance Sector (ruled by money related establishments) in its most recent Gross Domestic Product figures, the National Bureau of Statistics noticed that monetary specialists face various key difficulties, including keeping up financial solidness; guaranteeing long haul fund for stable financial development; elevating more prominent access to budgetary administrations for the two families and little and medium-sized ventures (SMEs); and cultivating an aggressive financial industry. Striking the suitable balance in

attaining these objectives through financial supervision and regulation is an imperative policy issue for financial regulators (Uwaleke, 2018).

Fianancial regulations have turned out to be one of the most discussed subjects, particularly in banking industry, as an outcome of the most recent global financial systems. The subprime emergency of 2007 did not just hit the US economy, yet in addition set off the worldwide budgetary tidal wave and money related market strife. Truth be told, this emergency made money related guideline a crucial monetary idea, bringing likewise consideration regarding supervisory and administrative condition, and subsequently turning into the most testing point of overall research. As Leaven (2008) clarified, when the tempest passes, bank guideline will top the worldwide arrangement motivation. This section introduces new proof that a bank's private administration structure impacts its response to bank guideline. Since administration structures contrast methodically crosswise over nations, one-size-fits-all guideline might be insufficient. Bank guidelines must be hand crafted and adjusted as budgetary administration frameworks advance (Faten, 2013).

There was a moment pointer to failings and disappointment of the institutional structures for guideline of the different sectors of the financial market (Makhtar, 2010). This in turn raised a debate among regulators as to how an effective regulation

could be fixed to avoid future regulatory failures in the Nigeria's banking sector. An important aspect of the current review of the financial sector regulatory structures which was promoted by the collapse of major banks in the US and UK as to whether a unified or consolidated financial sector regulation is more appropriate in preventing financial sector emergencies. In perspective on the above-mentioned, as merged model for budgetary guideline was re-arranged in Nigeria both during and after the emergencies (Gummi, 2015).

Money related guideline/supervision is being set up to guarantee a sound and safe monetary framework in an economy. Be that as it may, poor supervisory framework, lack of operative risk asset database and information sharing system, as well as lack of commitments and abuse of duties on the side of financial institutions have contributed in disrupting the banking activities, insurance companies and security firms thereby, leading to unpleasant incident of bank distress and liquidation by the regulators. In accordance with these issues, different monetary part enactments/acts have been proclaimed just as the presentation of various methodologies all target expanding the adequacy of money related guideline and supervision. These measures are commonly strengthening and are intended to opportune distinguish and analyze developing issues in the segment with the end goal of showing most proficient goals coordinated towards guaranteeing proceeded with open certainty

and solidness in the Nigeria's money related framework (Gummi, 2015).

The banking sector in any economy serves as a catalyst for growth and development. Banks are able to perform this role through their crucial functions of financial intermediation, provision of an efficient payments system and facilitating the implementation of monetary policies. It is not surprising therefore, that governments globally attempt to evolve an efficient banking system, not only for the promotion of efficient intermediation, but also for the protection of depositors, encouragement of efficient competition and maintenance of public confidence in the system stability and protection against systemic risk and collapse. Thus, the subprime challenge in the housing/mortgage sector snowballed or spilled into the insurance industry, the credit markets (deposit money banks) and the capital markets (Tari andOliver, 2017).

The Nigerian financial sector, similar to those of numerous different less created nations, is exceptionally controlled, prompting money related disintermediation which hindered the development of the economy. Bako,Yahaya and Isaac (2013) likewise contend that the connection between the financial sector and the development of the economy has been feeble, meaning thate genuine division of the economy, most particularly the high need areas which are additionally said to be the financial development drivers are not viably and effectively adjusted by the

money related segment.

Moreover, the investigation uncovered that the banks are pronouncing billions of benefits however yet the genuine area keeps on debilitating, accordingly diminishing the profitability level of the economy. Thus, a great number of studies have centred on the investigation of the connection between monetary regulation and financial development (Bako,Yahaya and Isaac, 2013;Awoyemi and Dada,2015;Aluko,Oyebode and Senbore,2017).

1.2 Problem Statement

In view of the stability of the Nigeria Banking system, there are bedeviled practices which disturb bank regulation in carrying out their effects for the growth of the banking system. Those practices include: Lack of ability to offer loan to the small scales industries (Business), the inability to offer credits to various sectors of the economy with the expectation of credit to the central government, and the inability to effectively manage the financial aspect of the banking system which involves credit and savings(Chude and Chude,2014).

Apparently, studies continued to produce conflicting results, thus necessitating econometric analyses into financial regulation. The impact of financial regulations on performance of banks and growth of the economy has generated heated debate

among economic researchers especially in the recent times.

While some studies have argued that economic growth drives financial development(Nwoha,2003;Olorunshola,2003;Osayandeand Imafidon,2013;Gummi,2015;Igbinosa,Ogbeide and Akanji,2017).

The Nigeria economy is one of the biggest in Africa, yet hypothetical and experimental looks into it have given little accentuation on the idea of financial guidelines and banks execution, remembering the issue of monetary retreat and how it influences the genuine areas of the banking sector and the economy at large. This has created a ton of debates and further research should be conveyed to find out the exhibition of banks as impacted by money related guidelines by means of various money related changes and strategies.

In line with the foregoing, there is therefore, the need to investigate the relationship between the various bank regulatory frameworks and financial development activities in the economy.

Consequently, this study is on the relationship between bank regulation and gross domestic credit in Nigeria covering the period, 1990-2018.

1.3 Aim and Objectives of Study

From the foregoing scenario, this study investigated the impact of Nigerian bank regulation on the development of banking system in Nigeria. Specifically, the objectives of the study are to:

i. examine the relationship between bank regulation and gross domestic credit in Nigeria;
ii. ascertain the impact cash reserve ratio on gross domestic credit in Nigeria;
iii. determine the effect of interest rate on gross domestic credit in Nigeria;
iv. ascertain the impact loan-deposit ratio on gross domestic credit in Nigeria;
v. ascertain the impact liquidity ratio on gross domestic credit in Nigeria and,
vi. determine the impact monetary policy rate on gross domestic credit in Nigeria.

1.4 Research Questions

Given the objectives stated above, the following research questions were therefore raised and answered in this study.

i. What is the relationship between bank regulation and gross domestic product in Nigeria?

ii. To what extent has cash reserve ratio affected the level of gross domestic credit in Nigeria?

iii. What is the effect of interest rate on gross domestic credit in Nigeria?

iv. To what extent has loan-deposit ratio affected the level of gross domestic credit in Nigeria?

v. What is the effect of liquidity ratio on gross domestic credit in Nigeria?

vi. To what extent has monetary policy rate affected the level of gross domestic credit in Nigeria?

1.5 Hypotheses of Study

The following hypotheses shall be investigated in this study;

HO_1: There is no significant relationship between bank regulation and gross domestic credit in NIGERIA.

HO_2:Cash reserve ratio has no significant effect on the level of gross domestic credit in Nigeria.

HO_3: Interest rate has no significant effect on the level of gross domestic credit in Nigeria.

HO_4: Loan to deposit ratio has no significant effect on the level of gross domestic credit in Nigeria.

HO_5: Liquidity ratio has no significant effect on the level of gross domestic credit in Nigeria.

HO_6: Monetary policy rate has no significant effect on the level of gross domestic credit in Nigeria.

1.6 Justification of Study

This study is significant in that it will help depositors of funds in financial institutions to fully understand the mechanism of banking supervision and the provisions of the law as it relates to the deposit insurance scheme. It also provides a platform for the regulatory authorities to appreciate the impact of their activities on the banking industry, and underscores areas for improvement. It is also imperative to state that a study of this nature provides an independent platform via which the regulators can appraise fundamental tools of supervision in a bid to make reasonable adjustments where necessary.

The findings of this study will be of immense benefit not only to the Nigeria banking industry and its related institutions, but also to those interested in understanding the inter-relationship between the actions of the regulators on one hand and the banking institutions on the other as well as providing a platform for promoting an efficient and effective banking practice.

1.7 Scope of Study

The study covers the operation of the regulatory authorities as it relates to the banking industry in the past twelve years prior to the consolidation era and thus, would be limited to the period of 1990 and 2018.

Secondly, the study assumes that the banking system has remained deregulated during the period covered in our study, as most banks practice universal banking, while the CBN/NDIC act as the regulatory authorities and supervisors of banks in the banking sector.

In view of the technicalities involved, it would be unrealistic to assume that all necessary facts have been gathered in the process of the study. Information gathered is limited to those accesses and made available by the respondents and also those gathered with the aid of local newspapers, magazines, journals and annual reports of the Central Bank of Nigeria (CBN), Nigeria Deposit Insurance Corporation (NDIC),

Agusto Industry report and basically the internet. However, the effect of this limitation will be reduced to the barest minimum.

CHAPTER TWO

REVIEW OF LITERATURE

2.1 Conceptual Review

2.1.1 Concept of Financial Regulations

Regulation implies an official principle made by government or some other position. It is a lot of explicit guidelines or concurred conduct either forced by some administration or outer office or purposeful by express understanding inside the business that shave the exercises and business tasks of the establishments in the business to accomplish a characterized goal (Gummi, 2015). It very well may be seen that, money related guideline remains in situation to guarantee standards are pursued, conduct is cleaned and tasks among partners are guided toward viable and proficient monetary framework. Monetary framework is a piece of different organizations, markets, instruments and administrators that connect inside an economy to give budgetary administrations (Igbinosa, 2017).

The regulation of banks is through certain working principles and guidelines that banks must pursue. These guidelines include issues of branch bank expansion, prudential guidelines, asset quality, liquidity considerations, risk management, capital quality, liquidity considerations, risk management, capital adequacy, and the kinds of business a bank may undertake. Banking guideline has created throughout

the years in light of the craving for a sound financial framework. Around the world, the financial business is profoundly managed; this is a result of the essential position the money related industry involves in many economies. Consequently, for the business to be proficient, it must be directed and administered in perspective on the disappointment of the market framework to perceive social sanity and the inclination for market members to go for broke which could disable the security and dissolvability of their organizations. Guideline and supervision of banks stay an essential piece of the component for guaranteeing free from any danger banking practice (Fapohunda & Eragbhe, 2017).

As banks operate in one of the most vigorously managed situations, investigations into the banking guidelines and their impact on bank performance has pulled in both theoretical and empirical quality. A large portion of these prior examinations did not concentrate on Nigeria. Those on Nigeria just focused on the impact of guideline on bank execution, ignoring the job of monetary improvement. A basic investigation of money related sufficiency pointers empowers strategy producers and controllers to effortlessly distinguish the qualities and powerlessness of a budgetary framework with the goal that they can take preventive activities to deflect emergency (Osayande & Imafidon, 2013). The financial adequacy pointers comprise of two sets which incorporate center and supported markers. The center pointers are utilized to decide the potential defenselessness of store taking establishments. They incorporate capital

ampleness, resource quality, income and benefit, liquidity and affectability to market dangers. The energized pointers as expressed by Asian Development Bank are gathered on a nation by nation premise to inspect the sufficiency of other monetary divisions. Besides, the capital ampleness is utilized to inspect adequacy of funding to help conceivable resource misfortunes, estimated by hazard weighted resources or non-performing advances. Resource quality proportions give an image of the contributors' advantage arrangement and quality. Profit and benefit proportions evaluate the proficiency of store talkers in utilizing their advantages (return on resources) and capital (return on value) and capacity to produce intrigue pay (intrigue edge to net salary) and limit authoritative expenses (non-intrigue costs to net pay). Liquidity pointers portrays the store taker's capacity to satisfy abrupt need for money while affectability to market hazard estimates the capacity of cash-flow to pad swapping scale instability (Asian Development Bank Annual Report, 2015).

The Nigerian banking system has undergone significant changes over the years, in relation to the number of institutions, ownership structure, as well as complexity and extensiveness of operations. These progressions have been impacted generally by difficulties presented by deregulation of the financial sector, globalization of activities, mechanical advancements and reception of administrative necessities that comply with worldwide principles. Between 2004 till March 2017, there were 23 business banks in Nigeria. In 2010, CBN issued the guidelines for the licensing,

regulations and operations of merchant banks. Under this regulation, merchant banks are required to have a minimum paid-up share capital (minimum capital base) of N15 billion and not allowed to accept cash deposits except they are beyond N100 million. With the liberalization of the financial markets in the 1980s, the number of merchant banks grew steadily from 12 in 1986 to 54 in 1992. Between the year 1994 and 1998, the number of merchant banks dropped to 38. The declining trend of merchant banks activities continued in 1999 and 2000. This was due to the change in status of some key merchant banks to commercial banking in 1999 and 2000. Currently, there are 6 operational merchant banks in Nigeria as at March 2017 (Alade, 2017).

In Nigeria, monetary segment change was a part of the Structural Adjustment Program (SAP) which commenced in 1986. The presentation of the program was on the impact points of the dismissal of IMF advance bundle with its contingency, a choice that rejected the agreement of a national discussion. The major money related division approaches actualized were the deregulation of loan costs, swapping scale and section/exit into banking business. Different estimates actualized included, foundation of the Nigeria Deposit Insurance Corporation (NDIC), fortifying the administrative and supervisory organizations, upward audit of capital ampleness standard, capital market deregulation and the presentation of direct fiscal arrangement instruments (Gummi, 2015).

2.1.2 The Nigerian Financial Sector Reforms

Nigeria was looked with a horde of financial issues. A portion of these were high swelling and joblessness, expanding destitution, low monetary development rate, high monetary shortfalls, immense parity of installments shortages, budgetary part constraint and declining terms of exchange. The financial emergencies have been ascribed to two fundamental elements, for example residential arrangement disappointments and deficient institutional limit (Mbaeri, Adioha, & Uzokwe, 2015). This infers the essential conditions for development and effective financial administration are the requirement for reception of a steady and fitting macroeconomic arrangement system and the presence of top notch foundations. The presentation of Structural Adjustment Program (SAP) in July 1986 was a push to fix the macroeconomic arrangement system. One of the parts of SAP was the change of the budgetary area, planned for expanding its effectiveness among others.

Changes are predicated upon the requirement for reorientation and repositioning of a current existing conditions so as to accomplish a viable and productive state. The monetary sub-area should be improved so as to upgrade its intensity and ability to assume a central job of money related speculation. Episodic writing demonstrates that monetary segment changes are moved by the need to develop the budgetary part and reposition it for development to wind up coordinated into the worldwide money related design and advance a financial area that is consistence with local

reconciliation necessity, reserve funds assembly and global accepted procedures (Adeusi & Oke, 2013).

Lemo (2005) places that the essential target of the changes was to ensure a productive and sound money related segment. He said that the Nigerian money related changes were intended to empower the financial business build up the necessary strength to help the monetary advancement of the country by proficiently playing out its capacity of budgetary intermediation. He further focused on that a principal target of the program was to guarantee the wellbeing of "saved" cash, position banks to assume dynamic advancement jobs in the Nigerian economy, and ended up real players in the sub-district, area and worldwide monetary markets. The monetary division changes were parts of the Structural Adjustment Program (SAP), which commenced in 1986. The presentation of the program was on the impact points of the dismissal of the IMF credit bundle with its contingency, a choice that mirrored the agreement of a national discussion.

The major financial sector change strategies actualized were the deregulation of loan costs, conversion scale and the progression of section/exit into banking business. Different estimates executed included, foundation of the Nigerian Deposit Insurance Corporation (NDIC), fortifying the administrative and supervisory establishments, upward audit of capital sufficiency gauges, capital market deregulation and some

bothered banks were exchanged, while the Central Bank assumed control over the administration of others, government share possessions in certain banks were additionally offered to the private area. With the end goal of this investigation, a feathered creature eye view will be taken of some money related segment changes as of late (Adeusi & Oke, 2013) for the subtleties and sequencing of the change measures.

2.1.2.1 Establishment of the Nigeria Deposit Insurance Corporation (NDIC)

Deposit insurance system are largely established to protect the banking system against possible *bank run* (unrestricted demand for cash by savers) that can cripple the financial intermediation process, disrupt the payments system, and have severe macro-economic effects (Mass & Talley, 1990). These systems (i.e. implicit formal and explicit informal deposit insurance schemes) also protect small depositors from losses in the event of bank failure and give the nation a formal and consistent mechanism for resolving failing bank situations.

The foundation of NDIC was educated by monetary condition under the Structural Adjustment Program (SAP), particularly arrangements identifying with banks investors backing, and on account of the harsh experience of past bank disappointments in Nigeria and the exercise of different nations with bank store

protection conspire (Ebhodaghe, 1991). The NDIC was set up by Decree No. 22 of 1988 and accused of the accompanying obligations.

(a) Insuring all store liabilities of authorized banks and such other store taking money related organizations (guaranteed foundations) working in Nigeria in order to cause trust in the Nigerian financial framework.

(b) Giving help with the enthusiasm of contributors, if there should arise an occurrence of inescapable or genuine budgetary troubles of banks, especially where suspension of installments is undermined and keeping away from harm to open trust in the financial framework. Such help could be:

i. taking over the management of a distressed bank;
ii. specific changes recommended to be made in the management of the distressed bank;
iii. a merge with another bank is carried out.

(c) Guaranteeing payments to depositors in case of imminent or actual suspension of payment by insured banks or financial institutions up to the maximum amount of N50, 000 of assessable deposit of an insured bank in the event of the failure.

(d) Assisting monetary authorities in the formulation and implementation of banking policies so as to ensure sound banking practice and fair competition among banks in the country.

The corporation has had huge effect in two zones – the improvement of bank executives and top administration staff and help to protected bank encountering liquidity issue. Since its origin, NDIC has contributed fundamentally to the spending limit of the Financial Institutions Training Center (FITC). In 1989, the unexpected withdrawal of government assets from the authorized banks to the Central Bank of Nigeria brought the beginning organization into center when the NDIC/CBN mutually sorted out settlement office was acquainted with help banks in genuine liquidity emergencies. Budgetary help adding up to N2.3 billion was given under the plan.

More so, the importance of NDIC was brought to focus in 1994 and 2006 when more than half of the nation's banks and other financial institutions were submerged in distress and the bank consolidation exercise of 2004 – 2005 respectively.

2.1.3 Influence of Financial Regulations on the Nigerian Banking Sector

Money related or fiscal soundness is the versatility of the financial sector/framework to foreseen unfriendly stuns while empowering the proceeding with smooth working of the budgetary framework intermediation process (CBN, 2010). A stable monetary

segment adds to more extensive financial development and rising expectation for everyday comforts. The framework performs one of the most significant capacities in the welfare of its residents by supporting the capacity of family units and firms to hold and move money related resources with certainty. To this end, the Central Bank of Nigeria (CBN) as the pinnacle administrative body of the Nigeria's budgetary framework as a team with other administrative experts in the government stood solidly to advance this goal by introducing novel skill to the administration of the economy. By and by, different mediation measures were successively set up to further fortifies the framework.

2.1.4 Financial Regulations and Monetary Stability

From the literature, it has been seen that well-separated and executed financial changes can help these financial improvement markers. Unconventional highlights of the change programs in Nigeria are the related irregularities in arrangement usage (Nnanna, 2004). In any case, a few investigations have demonstrated that the Nigerian money related framework has profited to a great extent from these changes, yet no different, the framework is as yet yawning for development (Adam & Agba, 2006).

Das, Quintyn, & Kina (2004), look to investigate the effect of administrative governance on financial framework dependability, they utilized multi-cross-

sectional information of creating and created nations and applied Weighted Least-square Regression, found a noteworthiness impact of administrative administration on sufficiency of budgetary framework. Utilizing factors reflecting macroeconomic conditions, structure of the financial framework and the nature of political organizations and open administration. In his mission, Iganiga (2010) targets surveying the impact of money related changes on the adequacy of monetary establishments with accentuation on banking division, utilizing information from 1986, and applying old style least square procedure, found that the presentation of the budgetary part has been extraordinarily impact by the changes. As local investment funds increment by 5% and capital base of firms revived open certainty and expanding reserve funds by 3.6%. So also, Ningi and Dutse (2008), investigated the effect of CBN's combination in the financial sector, they found a critical distinction as the CBN's choice has changed the market structure, expanded the productivity and dependability of banks, make open doors for members and raised their intermediation possibilities. Moreover, Idowu and Babatunde (2010), researched on the impact of budgetary change on capital market, utilizing time arrangement information (1986-2010), applying Ordinary Least Square Regression, found a negative connection between the two factors, for example money related change dissuaded capital market advancement.

2.1.5 Concept of Financial Intermediation Efficiency in Nigeria

Financial intermediation is the procedure by which middle people give a linkage between surplus units and shortfall units in the economy. For financial intermediation to succeed, three characteristics are fundamental and they are: cost, comfort and certainty. Money is pertinent for various purposes by various associations, individuals and other financial specialists. So as to give the required account, there are assortments of organizations rendering monetary administrations. Such organizations are called financial institutions. Commercial banks are among such foundations that render monetary administrations, also called direct fund (Akinsulire, 2010).

For each economy, financial intermediaries assume significant jobs in the development of the genuine economy by diverting assets from savers to borrowers in a way to encourage interest in physical capital, spur advancement and the innovative procedure. Likewise, the efficiency and effectiveness of banking approach is decidedly connected with how well money related markets work. Through their financial activities, increase efficiency and effectiveness in many ways for example by decreasing leakages in saving. Financial intermediaries move assets from the individuals who have investment funds to the individuals who can place them into utilization beneficially (Usman, Alimi, & Onayemi, 2018).

The Central Bank of Nigeria (CBN) in 2012 acquainted cashless strategy all together with change in the money driven economy and dense operational expenses generally gave to clients through different methods. This was planned to advance money related intermediation, dispose of rate of defilement exude from insufficient credit conveyance framework and furthermore to reduce the measure of money installment and lift electronic installment. Financial intermediation is the procedure by which delegates give a linkage between surplus units and shortfall units in the economy. Surplus units are firms/people who have overabundance assets over their quick needs while the individuals who need this reserve for sure fire venture programs are alluded to as shortage units. It is the money related middle people that build up the offices and instruments which make this loaning and acquiring conceivable (Akinsulire, 2010).

2.1.6 Institutional Structure of Nigeria's Financial System

As indicated by Gummi (2015), the institutional structure of financial guidelines at present utilized by most nations advanced close by the advancement and improvement of money related markets instead of because of facilitated endeavors of setting up an administrative system that meets every administrative target. Main considerations that impact the decision of a specific plan of institutional structures for money related guideline incorporate; the choice and inclination of political specialists, the nature and size of a nation's fiscal division and accordingly the

activity that have planned up during a nation's budgetary establishment. Internationalization of money related administrations, rise of enormous monetary combinations and exercise from budgetary emergencies in different nations are some territorial or outside elements that similarly impact the decision of money related administrative structure among nations (Mukhtar, 2010). This so clarifies why there is an enormous shift of models to institutional structures over the globe, with no single model considered as the ideal or best for all nations.

Despite some differences in the institution structure; almost all countries provide regulation for banks, insurance companies and securities firms. In a similar vein, three noteworthy models of institutional structure for money related guideline can be seen among the different models utilized around the world. These are; the "Multiple- Agency" regulator model (where each type of financial activity is regulated by specific or specialized agency), the "Unified" regulator model (requires merging all existing regulatory institutions into a single institution to undertake both prudential and market conduct supervision in the financial sector), and the "Common" regulator model, where one regulator is responsible for at least two of the three major financial sectors while another regulator takes care of the other (Gummi, 2015).

Be that as it may, Nigeria's institutional structure for money related guideline spins around the different office controller model, as the three noteworthy monetary segment exercises are directed by totally free organizations. The CBN and NDIC together manage Banks, NAICOM directs insurance agencies and SEC controls protections firms. This model permits clearness of target, center, obligation and responsibility. In view of the complexities related with budgetary segment, it is hard for a sole controller to find some kind of harmony between various destinations of managing each subsector. Embracing the different organization controller model will guarantee that, the destinations of every office are obviously and unambiguously determined. This will likewise keep every organization concentrated on her destinations and considered capable in case of any administrative disappointment. All things considered, it has been condemned on the ground that; it does not accommodate compelling merged supervision and make space for administrative exchange. As budgetary establishments become progressively advanced, they have abused the administrative hole frequently made by the numerous office controller framework to keep away from guideline or diminish administrative weight. There is likewise duplication of administrative endeavors. Regardless of the genuine imperfections related with this model, it is generally utilized principally in light of the fact that the institutional structure of budgetary guideline as of now utilized in

many nations mirror the chronicled advancement of their individual monetary parts (Gummi, 2015).

2.1.7 Banks and Other Financial Institutions Act (BOFIA)

As per BOFIA Act as amended in 1997, 1998, 1999 and 2002, mistakes happened because of the harmonization of the primary enactment with the ensuing corrections made in 1997, 1998, 1999 and 2002 which, among different reasons, accidentally imported arrangements that have been revoked (table 2.1). It is informative to take note of that despite the fact that Act No. 38 of 1998 was considered over the span of the planning of Laws of the Federation of Nigeria (LFN) 2004 in some way or another, the corrections presented by the revoked Act No.4 of 1997 were incidentally incorporated into BOFI Act, LFN 2004, CAP B3. Additionally, the arrangement on solidifying of records presented by BOFI (Amendment) Act No 10 of 2002 was excluded in LFN 2004 and has been embedded in this accumulation.

2.1.8 Introduction to Prudential Guidelines in Nigeria

The Nigerian financial area saw emotional development post union (2005) and the advancements represented a great deal of difficulties for the business and guideline. The underlying discernments that the Nigerian financial framework was sound and protected from worldwide budgetary emergency were lost. The components that prompted making of incredibly delicate monetary framework that was tipped into emergency by the worldwide budgetary emergency include:

1. Macro-monetary unsteadiness brought about by huge and abrupt capital outpourings;
2. Major disappointments in corporate administration at banks;
3. Lack of financial specialist and purchaser modernity;
4. Inadequate revelation and straightforwardness about monetary situation of banks;
5. Critical holes in prudential rules (current prudential rules were issued in 2010) and Uneven supervision and requirement. In addressing the above listed challenges, the CBN introduced a Four (4) Pillars

The Reform Programme in 2010 tailored towards:

i. Enhancing the nature of banks;
ii. Establishing budgetary steadiness;
iii. Enabling solid budgetary division development; and
iv. Ensuring the budgetary area adds to the genuine economy

As a major aspect of the activity to upgrade the nature of the banks, the CBN attempted a survey of the prudential rules. In such manner, the updated Prudential Regulations mean to address different parts of banks' tasks, for example, hazard the board, corporate administration, KYC and hostile to tax evasion/counter financing of psychological warfare and credit misfortune provisioning. The rules additionally

mean to address the characteristics of various advance sorts and financing to various parts.

The advance misfortune provisioning rules which structure some portion of the upgraded Prudential Guidelines give direction on acknowledgment and estimation of advances, foundation of advance misfortune recompenses, credit chance revelation and related issues. It sets out CBN's perspectives on sound credit provisioning and exposure rehearses for store cash banks in Nigeria.

The rules likewise fill in as an essential system for assessment of banks' provisioning approaches and practices. The goals of the improved provisioning rules are to:

1) Promote upgraded provisioning strategies and practices, which are reliable with sound hazard the board rehearses for Nigerian Banks;
2) Ensure that provisioning rules bolster the existence cycle and development times of the different particular credits;
3) Provide a system for guaranteeing that the current provisioning rules are counter-repeating; and
4) Provide system for "Hair styles" modifications for LOST Facilities.

These prudential rules ought to be viewed as least prerequisites and authorized banks are urged to actualize progressively stringent strategies and practices to improve relief of dangers.

2.1.9 Establishment of More Discount Houses

In 2001, the Central Bank of Nigeria embraced the all-inclusive financial strategy in this way annulling the characterization of banks by the idea of their business that existed until now. This is a framework that gives a level field to retail and discount financiers to cooperate. It breaks the limit among retail and discount banking.

So as to encourage the improvement of an auxiliary market for government obligation instruments in order to decreasing government reliance on the CBN financing of its shortage, three markdown houses were authorized in 1992. Notwithstanding intermediating assets among money related establishments, the rebate houses were additionally expected to advance essential and optional markets for government protections.

2.1.10 Establishment of Asset Management Corporation of Nigeria (AMCON)

The high occurrence of non-performing credits in the financial business and the subsequent disintegration of the capital of numerous banks educated the need to make pressing move thus, the foundation of AMCON. The substance is to liberate banks from the weight of poisonous resources. AMCON initiated tasks in December 2010 with the issuance of thought bonds worth N1036.3 billion of which N740 billion was reserved for acquisition of the Non-Performing Loans (NPL) in five business banks. The breakdown is as per the following, Wema bank, N15.2b;

Intercontinental bank, N146b; Bank PHB, N140b; Oceanic bank, N200b; Union bank, N239b; and Others, N295.8b. The protected banks were required to appreciate two arrangements of assets infusion: one was to purchase up their NPL and the other to cook for their capital ampleness (Obienusi & Obienusi, 2015).

Also, the AMCON in 2011 procured the benefits of Bank PHB and Afribank because of liquidation and failure to bargain their Non-Performing Loans (NPL), the intercession was profoundly noteworthy as speculators and investors are fought, workers are held just the names of the banks were changed. Bank PHB changed to Keystone bank while Afribank changed to Mainstream bank. This has been a striking improvement in the Nigeria's budgetary part where certainty and obstruction are consolidated to guarantee money related strength.

2.1.11 Promoting Customer Protection

So as to further jeopardize open trust in the financial framework and guarantee client insurance, the CBN built up a consumer and money related assurance division to give stage through which customers can look for change (CBN, 2010). In the initial three months of the division's activities, around 600 customer objections were gotten an unmistakable appearance of the nonattendance of a powerful grumblings goals instrument in banks. So as to further change this test, the CBN has given an order to banks to set up Customer Help Desk at their head workplaces and branches.

Additionally, through the division, the CBN in 2010 started an extensive audit of the manual for bank accuses of a view to making them practical and consumer amicable.

Moreover, it is significant that bank clients are appropriately taught and illuminated on their privileges and duties. Therefore, the Consumer and Financial Protection Division (CFPD) start a program on customer instruction and edification across the nation through different data dispersal medium, (for example, open talks, media adverts, and so on.). Right now the CBN is likewise working together with Consumer Protection Council (CPC) on the survey of the CPC Act No.66 of 1992 to further engage the controllers to uphold discipline in the market.

2.1.12 Removal of Credit Ceilings

In September 1992, credit ceils on banks that are pronounced sound by CBN. A bank was viewed as sound on the off chance that it met CBN rules on certain predefined criteria in the former three months. These criteria were: money hold, liquidity proportion, prudential rules, statutory least paid-up capital, capital ampleness proportion, and sound administration. With the utilization of these criteria, around 80 banks were embraced as sound and absolved from credit roofs (Adeusi & Oke, 2013). Similar criteria were applied for deciding banks that fit the bill to partake in the authority outside trade advertise.

2.1.13 Improvement in Nigerian Payment Systems

The Nigerian payments system has witnessed significant improvements over the years, moving from rudimentary level during its early years of banking business to the current level of sophistication. The high dependence on cash for settlement has result in inefficient allocation of resources and a low depth of financial intermediation, with adverse repercussions on monetary implementation. In addition, it has discouraged the use of specific banking services, resulting in the high operational cost for the CBN. At individual level, the volume and value of e-card transactions increased from 66,108,388 and N441.6 billion in 2008 to 114,592,66 and N645.0 billion in 2009, Reflecting increases of 73.34% and 46.1% respectively. Given the high dependency on cash in Nigeria, it is no surprise that Automated Teller Machine (ATM) transactions are widely used by individuals particularly in the urban areas. Absence of important ATM framework in rustic territories is a key test to the more extensive utilization of financial balances since it is the essential technique for getting to ledgers for some people. Available data on various e-payment channels indicated that, ATMs remained the most patronized channel accounting over 80% of e-payment transactions, while the Point of Sale (POS) was the least with less than 2% usage. In terms of volume, ATMs occupy 95.22%, POS occupy 1.8%, mobile phones 1.58% while web (internet) occupy 1.36% of e-transactions. In value terms, ATMs 85.05%, POS 1.71%, mobile phones 0.19% and web (internet) occupy

13.05% (CBN, 2012). The usage of mobile payment is still at its infancy as the regulatory framework was only recently approved, as well as the licensing the payment service providers. The payment system supported by the CBN will no doubt complement its cashless policy and synchronize with the objectives of financial stability, efficiency as well as enhances customers' confidence in the financial arena. Despite the advancement made up until now, the Nigerian installments and repayments framework is looked with certain difficulties which incorporates; powerless foundation, significant level of lack of education, high reliance on money exchange, high rate of neediness and obliviousness, low degree of web access and centralization of e-installments offices in urban territories and so on it is notwithstanding, expected that full execution of the installments framework vision 2020 venture would address these difficulties.

2.1.14 Concept of Financial Development and Banking Regulations

a) **Private Credit:** This refers to monetary funds provided to the private sector by financial corporations, through loans, purchases of nonequity securities, and trade credits and other accounts receivable, that establish a claim for repayment. The financial corporations include monetary authorities and deposit money banks **(**International Monetary Fund, 2019). Credit to the

private sector may sometimes include credit to state-owned or partially state-owned businesses.

b) **Domestic credit:** This refers to lending or credit that a country or territory's central bank makes available to borrowers within the same territory. This may include commercial banks and even involve the government itself.

c) **Gross Domestic Savings:** This consists of savings of household sector, private corporate sector and public sector. It is gross domestic product minus final consumption expenditure. It is expressed as percentage of GDP.

d) Reserve Requirement: This is a predefined least part of the total deposits of clients, which business banks need to hold as stores either in real money or as deposits with the national bank.

e) **Interest rate:** This is the percentage of money (principal) charged by the lender for the use of its money. The principal is the amount of money lent. Banks charge borrowers a little higher interest rate than they pay depositors so they can profit. Also, banks compete with each other for both depositors and borrowers.

f) **Liquidity ratio:** This measures the ability and luxury with which assets can be transformed to cash. Liquid resources are those that can be changed over to money rapidly if necessary, to meet monetary commitments; instances of liquid assets generally incorporate money, national bank stores, and

government obligation. To stay suitable, a financial establishment must have enough liquid advantages to meet its close term commitments, for example, withdrawals by investors. Capital and liquidity are unmistakable however related ideas. Each assumes a fundamental job in understanding a bank's suitability and dissolvability. Capital acts as a monetary cushion to soak up surprising losses and is the variance between all of a firm’s assets and liabilities. To remain solvent, the value of a firm's assets must exceed its liabilities. An average family funds help to represent the contrasts between these two ideas. On the liquidity side, cash in a family's financial records can be utilized to rapidly and effectively take care of its tabs, so a measure of the family's liquidity position would incorporate how a lot of cash is in the financial records just as how a lot of money the family has available. On the capital side, the family's benefits incorporate the cash in the financial records, yet additionally its home, bank accounts, and different ventures. The family obligation, or cash it owes, for example, a home loan, are its liabilities. So the distinction between the family's obligation and its advantages would give a proportion of the family's capital position.

g) **Deposit Rate:** This is paid by financial institutions to deposit account holders. Deposit accounts include certificates of deposit, savings accounts and self-directed deposit retirement accounts.

h) **Loan-to-Deposit Rate:** This is used to assess a bank's liquidity by comparing a bank's total loans to its total deposits for the same period. It is expressed as a percentage. In the event that the proportion is excessively high, it implies that the bank might not have enough liquidity to cover any unanticipated store prerequisites. On the other hand, if the proportion is excessively low, the bank may not be winning as much as it could be.

2.2 Theoretical Review

2.2.1 Seven Pillars of Financial Development

To understand and measure the degree of financial development, it will be of interest to consider all of the different factors that together contribute to the degree of depth and efficiency of the provision of financial services. Conceptually, in thinking about an index that measures the degree of financial development, the various aspects of development, according to World Economic Forum (2008) can be seen as "seven pillars" of financial development;

1. First pillar: Institutional environment

Monetary hypothesis, in the first pillar recommends that a solid institutional condition exists to ease data and exchange costs. This column poles that the nearness of legitimate organizations that defend the premiums of speculators is an essential piece of monetary improvement. Changes that support a nation's lawful condition

and financial specialist security are probably going to add to better development prospects. Additionally, better corporate administration is accepted to energize money related advancement, which thus positively affects development.

2. Second pillar: Business environment

The second pillar expresses that the better the business condition, the better the presentation of money related organizations, and the higher the level of budgetary improvement. This column centers around the business condition and thinks about the accessibility of human capital; the condition of physical capital; and different parts of the business condition, including tax collection levels and the expenses of working together for monetary mediators.

3. Third pillar: Financial stability

The third pillar tends to the security of the monetary framework. This factor is significant given the inescapability of scenes of budgetary emergencies that negatively affect monetary development and lead to critical misfortunes to financial specialists, including fundamental financial emergencies, foundational corporate emergencies, cash emergencies and sovereign obligation emergencies. A controlled framework would hamper the budgetary advancement and development that expands returns, broadens dangers, and better dispenses assets to the most noteworthy return ventures. Then again, a monetary framework that is extremely

free and inventive and is daintily directed and managed may in the long run become unsteady and trigger credit blasts and resource bubbles that can seriously influence development, returns and welfare.

4. Fourth pillar: Banks

One of the key proportions of the adequacy of the financial framework caught in this column is size. The more noteworthy the size of the financial framework, the more prominent the measure of assets that can be diverted from savers to speculators. This upgrades the procedure of money related advancement, which thusly prompts more prominent financial development. Another key part of the financial framework is its productivity. A significant part of proficiency is the structure of bank proprietorship and how this structure influences its presentation. Freely possessed banks will in general be less effective, hindering the procedure of credit assignment and directing of capital, which thus hinders the procedure of money related intermediation. Another proportion of the effectiveness of a financial framework is the level of outside responsibility for, which mirrors a nation's venture atmosphere and the eagerness of the legislature to permit rivalry. Effectiveness likewise includes the level of banking focus, which is caught in a proportion of the portion of benefits (stores) in the three biggest banks in a nation. A third key part of productivity caught by this column is the job of monetary data exposure inside the activity of banks. Strategies that prompt right data divulgence, approve private part corporate control

of banks, just as inspire private specialists to practice corporate control, will in general energize bank improvement, activity, and strength.

5. Fifth pillar: Non-banks

Non-bank money related mediators, for example, specialist sellers, conventional resource administrators, elective resource directors and insurance agencies, are viewed as both a supplement to banks, just as a substitute for them. Their integral job lies in their endeavors to fill any vacuum made by business banks. Their opposition with banks enables the two parties to work all the more effectively in gathering business sector needs. Exercises of non-bank money related delegates incorporate their interest in protections markets, just as the activation and distribution of budgetary assets of a more drawn out term nature, for instance in protection exercises.

6. Sixth pillar: Financial markets

The four noteworthy sorts of money related markets incorporate security markets (both for government and corporate securities), financial exchanges where values are exchanged, outside trade markets and subsidiaries markets. Securities exchange liquidity is measurably critical regarding its positive effect on capital gathering, efficiency development, and present and future paces of monetary development. All the more by and large, financial hypothesis recommends that securities exchanges

support long-run development by advancing specialization, procuring and scattering data, and preparing reserve funds in an increasingly proficient manner to advance speculation.

7. Seventh pillar: Size, depth, and access

The measures represented in this last pillar span the size and profundity of the financial framework and the level of access by the two savers and clients of cash-flow to money related administrations. These large-scale level issues of size and profundity and miniaturized scale level issues of access are indispensably identified with the arrangement and distribution of capital that drive monetary development.

2.2.2 Review of the Universal Banking Model

The Universal Banking model adopted in 2001 has allowed banks to diversify into non-bank financial business, following the bank consolidation exercise in 2005, banks became awash with capital, which was deployed in a variety of financial services and setting up subsidiaries. Soon, a number of weaknesses began to surface, such as inadequate skills and poor risk management practice, poor corporate governance practices and the inability of regulators to keep pace with the development and growth in the sector facilitated a high incidence regulatory arbitrage (CBN, 2010). In effect, the laudable objectives of UB model were vitiated by operators, with bank operating as financial supermarkets, to the detriment of core

banking practices. In order to address this challenge, the CBN has reviewed the UB model with a view to inducing banks to focus on core banking businesses. Under the new model, banks will not be allowed to invest in non-bank subsidiaries. Banks which currently hold such investments would be required to either divest or spin off the business. The three classes of deposit money banks being proposed are international banks, national banks, and the regional banks. This revision and reorientation has no doubt impacted on the banking industry as there is increases in focus and innovation in the sector, various financial products were introduced and bank distress has been considerably reduced. The reviewed UB model also favors specialization as well as efficiency and stability in the system.

2.2.3 Interest spreads and credit rationing theory

Interest rate spreads, or blemished diverting of money related assets from savers to financial specialists, does not exist in a simply hypothetical world portrayed by the nonattendance of exchange costs and awry data. In such a world, money related organizations would not be expected to prepare reserve funds and allot advances, as savers would dole out their investment funds legitimately to borrowers dependent on ideal information on venture conceivable outcomes. Access to outside money would be frictionless, restricted distinctly by the between fleeting riches requirement of the borrower, which would be known similarly well and with sureness by both the loan specialist (saver) and the borrower (investor). Speculation choices would in

this way be autonomous of financing and utilization choices and dependent on the normal return of the venture (Beck, 2017).

Financial intermediaries and sorted out money related markets emerge to ease advertise gratings, for example, exchange costs, vulnerability about venture results, and data asymmetries. These market grindings make it hard to de-couple speculation from financing choices. A similar market contacts' not just prompt a wedge between the financing costs that borrowers need to pay on their advances and the loan cost that savers get on their stores, however they additionally may bring about acknowledge apportioning as we will talk about in the accompanying. We will concentrate on three significant wellsprings of market contacts and their impacts on spreads and credit apportioning (Beck and De la Torre, 2017).

2.2.4 Bank Liquidity Theory

In light of the worldwide money related emergency of 2007-2009, the Basel Committee has proposed another worldwide arrangement of liquidity necessity, the Liquidity Coverage Ratio (LCR) and the Net Stable Funding Ratio (NFSR), to supplement its amended structure of universal capital prerequisites. The essential and evident inspiration for the new enthusiasm for dealing with banks' liquidity is worry about liquidity hazard: The goal of the LCR is to advance the transient versatility of the liquidity hazard profile of banks. It does this by guaranteeing that

banks have a satisfactory load of unrestricted excellent fluid resources that can be changed over effectively and promptly in private advertises into money to meet their liquidity requirements for a 30 schedule day liquidity stress situation (Basel Committee on Banking Supervision, 2013). After the breaking down of interbank markets and the substantial dependence of banks on national bank loaning during the emergency, approach creators naturally might want to lessen the probability of fundamental emergencies, fire deals, and the reliance of banks on the moneylender after all other options have run out.

One of the most noteworthy highlights of present day banks is their capacity to transform individual illiquid advances into tradable protections and use them as wellspring of liquidity. Simultaneously these banks still use money stores and interbank advertises as wellsprings of liquidity. From one perspective, dependence on tradable protections diminishes banks' expense of liquidity the board. Then again, as the 2007-09 budgetary emergency indicated dependence on such protections uncovered the entire money related framework to stuns to credit hazard implanted in these protections. Banks that depended on such protections turned into the focal point of occasions in August 2007, when markets for securitized resources gave indications of stress, which quickly spread to interbank markets hampering banks' capacity to deal with their liquidity.

2.2.5 Liquidity Management Theory

There are probable contradictions between the objectives of liquidity, safety and profitability when linked to a commercial bank. Efforts have been made by economists to resolve these contradictions by laying down some theories from time to time. These theories monitor the distribution of assets considering these objectives. These theories are referred to as the theories of liquidity management.

2.2.5.1 Asset Theory

The theory of asset management states that banks must seek high returns, reduce risk and make adequate provisions by holding liquid assets. This theory is in support of the need for holding short term assets to cushion the effect of uncertainties in the banking operations and various needs for liquidity. Banks must lend to borrowers who are willing to pay high interest and unlikely to default on their loans, and raise liquidity required without bearing huge costs. Banks are not only funded by assets but they are largely financed by collateralised borrowing which cannot be relied on during financial distress (Brunnermeier & Pedersen, 2008). This refers to loans that provide the lender with a priority claim on specific asset and a general claim on the debtors' other assets. The amounts of liquid assets to be held depend on the bank's apparent need for liquidity and deposits flow, financial market conditions and monetary policy directions. The concept of asset management has some

shortcomings. It focuses on asset side of the balance sheet which makes the theory grossly deficient in the active money markets. The bank and the rate of changes in purchased funding are dependent on the market (Nwankwo, 1990). It also fails to consider that high returns are associated with high risks. According to Dietrich & Wanzenried (2011), achieving high returns while holding a large portion of liquid assets at a low risk can be difficult as liquid assets are costly and have the tendency of reducing profits. In addition, the assets have to be attractive and easily marketable. Failure to do so has been proven to lead to bankruptcy or the need for an emergency loan. Cash asset is presumed to have no unique role in the process of acquisition and disposal of financial assets but the easiness of exchange for cash balance.

The easiness is defined as ratio of stock of cash balances to meeting financial obligations on maturity. The closer assets to maturity, the greater in general are the possibilities of realizing them before maturity without risk of significant capital loss. The more liquid a bank is in this sense the greater is its capability to meet its obligations as they fall due. Higher ratio implies better performance, while lower ratio is an indicator of threat to the bank and would tend to inhibit bank performance.

Financial assets such as treasury bills have low risk: the risk of loss of value due to changes in interest rate policies is always very low since they are held in short term bases. Financial assets can be categorised into: running assets, reserve assets along

with other liquid assets which are mostly short-term claim e.g. treasury bills and investment assets including long-term claims e.g. bonds; money (cash), stock and bonds (Hicks, 1967); and assets 'held for trading', 'held to maturity investment', 'loans and receivables' and 'available for sale' for treatment purposes (Keynes, 1937). Keynes explained the three motives of holding financial assets to include the transactional, precautionary and speculative motives (Keynes, 1937). The economics and finance literature in support of Keynes' assertion analyse four possible reasons for firms to hold liquid assets: the transaction motive (Miller & Orr, 1966); the precautionary motive (Oppler, Pinkowitz, Stulz, & Williamson, 2016); the agency motive (Michael, 1986) and the tax motive (Foley, Titman, & Twite, 2007).

2.2.5.2 Trade-Off Theory Liquidity

This theory has had a great effect on holding liquid assets. Under perfect capital market assumptions holding cash asset neither creates nor destroys value. The bank can always raise funds from capital markets when need arises, there are no transaction costs in raising these funds, and the funds can be raised at a fair price because the capital markets are assumed to be fully informed about the prospects of the bank. According to the Tradeoff theory, banks target an optimal level of liquidity to balance the benefit and cost of holding cash. The cost of holding cash includes low rate of return due to liquidity premium and tax disadvantage. The benefits of

holding cash are saving of transaction costs to raise funds in which assets are liquidated to make payments and using of liquid assets to finance its activities and investment where other sources of funding are not available or very expensive. Trade off model explains that, firms with high leverage attracts high cost of servicing the debt thereby affecting its profitability and it becomes difficult for them to raise funds through other sources. Holding cash on that point is not only maintained by the smaller firm but also larger firms. So firm size does not matter when the question of bankruptcy interrupts the capital structure decision.

2.2.5.3 Commercial Loan Theory

The commercial loan or the real bills doctrine theory states that a commercial bank should forward only short-term self-liquidating productive loans to business organizations. Loans meant to finance the production, and evolution of goods through the successive phases of production, storage, transportation, and distribution are considered as self-liquidating loans. This theory also states that whenever commercial banks make short term self-liquidating productive loans, the central bank should lend to the banks on the security of such short-term loans. This principle assures that the appropriate degree of liquidity for each bank and appropriate money supply for the whole economy.

The central bank was expected to increase or erase bank reserves by rediscounting approved loans. When business started growing and the requirements of trade increased, banks were able to capture additional reserves by rediscounting bills with the central banks. When business went down and the requirements of trade declined, the volume of rediscounting of bills would fall, the supply of bank reserves and the amount of bank credit and money would also contract.

There are a few favorable circumstances that could be credited to Commercial Loan Theory: These momentary self-selling beneficial advances gain three points of interest. In the first place, they get liquidity so they consequently sell themselves. Second, as they develop in the short run and are for profitable desire, there is no danger of their hurrying to terrible obligations. Third, such advances are high on profitability and acquire salary for the banks.

Despite the advantages, the commercial loan theory has certain defects. First, if a bank declines to grant loan until the old loan is repaid, the disheartened borrower will have to minimize production which will ultimately affect business activity. If all the banks pursue the same rule, this may result in reduction in the money supply and cost in the community. As a result, it makes it impossible for existing debtors to repay their loans in time. Secondly, this theory believes that loans are self-liquidating

under normal economic circumstances. If there is depression, production and trade deteriorate and the debtor fails to repay the debt at maturity.

Thirdly, this theory disregards the fact that the liquidity of a bank relies on the marketability of its liquid assets and not on real trade bills. It assures safety, liquidity and profitability. The bank need not depend on maturities in time of trouble. Furthermore, the general demerit of this theory is that no loan is self-liquidating. A loan given to a retailer is not self-liquidating if the items purchased are not sold to consumers and stay with the retailer. In simple words a loan to be successful engages a third party. In this case the consumers are the third party, besides the lender and the borrower.

2.2.5.4 Shiftability Theory

This theory was proposed by H.G. Moulton. It states that, for an asset to be perfectly shiftable, it must be directly transferable without any loss when there is a need for liquidity. This is specifically used for short term market investments, like treasury bills and bills of exchange which can be directly sold whenever there is a need to raise funds by banks. But in general circumstances when all banks require liquidity, the shiftability theory need all banks to acquire such assets which can be shifted on to the central bank which is the lender of the last resort.

The shiftability theory has positive elements of truth. Now banks obtain sound assets which can be shifted on to other banks. Shares and debentures of large enterprises are welcomed as liquid assets accompanied by treasury bills and bills of exchange. This has motivated term lending by banks.

However, Shiftability theory has its own demerits. Firstly, only shiftability of assets does not provide liquidity to the banking system. It completely relies on the economic conditions. Secondly, this theory neglects acute depression, the shares and debentures cannot be shifted to others by the banks. In such a situation, there are no buyers and all who possess them want to sell them. Third, a single bank may have shiftable assets in sufficient quantities but if it tries to sell them when there is inability to get much needed cash in the bank, it may adversely affect the entire banking system. Fourth, if all the banks simultaneously start shifting their assets, it would have disastrous effects on both the lenders and the borrowers.

2.2.5.5 Anticipated Income Theory

This theory was proposed by H.V. Prochanow in 1944 on the basis of the practice of extending term loans by the US commercial banks. This theory states that irrespective of the nature and feature of a borrower's business, the bank plans the liquidation of the term-loan from the expected income of the borrower. A term-loan is for a period exceeding one year and extending to a period less than five years. It

is admitted against the hypothecation (pledge as security) of machinery, stock and even immovable property. The bank puts limitations on the financial activities of the borrower while lending this loan. While providing financial accomodation, the bank considers security along with the anticipated earnings of the borrower. So a loan by the bank gets repaid by the future earnings of the borrower in installments, rather than giving a lump sum at the maturity of the loan.

Anticipated Income Theory dominates the commercial loan theory and the shiftability theory as it satisfies the three major objectives of liquidity, safety and profitability. Liquidity is settled to the bank when the borrower saves and repays the loan regularly after certain period of time in installments. It fulfills the safety principle as the bank permits a relying on good security as well as the ability of the borrower to repay the loan. The bank can use its excess reserves in making term-loan and is convinced of a regular income. Lastly, the term-loan is highly profitable for the business community which collects funds for medium-terms.

The theory of anticipated income is not free from demerits. This theory is a method to examine a borrower's creditworthiness. It gives the bank conditions for examining the potential of a borrower to favorably repay a loan on time. It also fails to meet emergency cash requirements.

2.2.6 Gap Management Theory

A gap is a break between prices on a chart that occurs when the price of a stock makes a sharp move up or down with no trading occurring in between. Gaps can be created by factors such as regular buying or selling pressure, earnings announcements, a change in an analyst's outlook or any other type of news release. Gaps are a regular occurrence in all financial markets. However, they are rarely seen in the forex market since it is highly liquid and trades 24 hours a day. The open on the first day of the week is where gaps are most likely to occur in the forex market.

In general, a trading strategy in which the participant borrows short and lends long. This strategy gives the lender an overall better interest rate as short rates are generally lower than long rates. Also in technical analysis, gapping can refer to the use of a gap strategy which looks at stocks that display price gaps from previous closes. To employ a gap strategy an investor can scan the morning prices for a gap and watch to see what the stock does in the first couple hours of the trading day. In general, if the price goes up, it signals a buy, and if it goes down, a short. There are several variations of the gap strategy.

i. **Liquidity Gap:** The difference between a firm's assets and a firm's liabilities, caused by said assets and liabilities not sharing the same properties. This gap can be positive or negative, depending on if the firm has more assets than liabilities or vice

versa. For banks, the liquidity gap can change over the course of the day as deposits and withdrawals are made. This means that the liquidity gap is more of a quick snapshot of a firm's risk, rather than a figure that can be worked over for a long period of time. To compare periods of time banks, calculate the marginal gap, which is the difference between gaps of different periods

ii. **Dynamic Gap:** Refers to asset and liability risk management at financial institutions. An asset-liability model that takes into account projected future balances or the difference between interest sensitive assets and interest sensitive liabilities at specific future time periods. Simply: a bank's gap is defined as the difference between a bank's rate-sensitive assets and rate-sensitive liabilities. Gap analysis is the method to determine the market risk, or interest rate exposure. Dynamic gap analysis attempts to reflect the reality that, on an ongoing basis, loan payments and maturities are replaced with new loans; deposit withdrawals are replaced by new deposits. It is the opposite of static gap analysis.

A regulatory model consists of agencies and a set of measures embodied in legislation or in government policy, which primary goal is to constrain, shape control the behavior of financial institutions. 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.

Risk management theory was developed by Davis in 1991 to explain why regulators are concerned with monitoring and supervising the management of risks, such as liquidity and credit due to the effect of mismanagement by major banking financial institutions, of the amount and timing of such risks on other parts (layers) of the financial system. The main trust here is, the level of risk in the system, the volatile nature of financial sector requires an ultra-sound to ensure risks are minimal and participants bear less burden in the financial system (Currie, 2003).

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 etc). 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. In a nutshell, 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.

The debate on the role of financial intermediation and the financial system in economic development was revived by Mckinnon (1973) and Shaw (1973). In the debate, the functions of financial institutions in the saving-investment process were underlined as being an effective conduit for the mobilization and allocation of capital by equilibrating the supply of loan able funds with the demand for investment funds, and the transformation and distribution of risks and maturities (Kolawole, 2012).

There is also a theoretical link between financial policy reforms and money market operations. In the conventional Keynesian theory and policy, impact of monetary

policy can be transmitted to the rest of the economy through the monetary system. For instance, there is the assumption that in the presence of an efficient money market, interest rate elasticity permits the allocation of funds among competing uses in an efficient way. It is believed, therefore, that liberalization of interest rate, accompanied by price competitiveness of the banking system would stimulate the rate of savings in a given level of income and hence supply of domestic capital (Gordon, 2005).

In Shaw's paradigm, expanded financial intermediation between savers and investors, under ideal conditions, increases incentives to save and invest and also raises the average efficiency of investment. Additionally, it further raises real returns to savers, while also lowers real costs to investors by accommodating liquidity preferences. It could also lead to reducing risk through diversification, reaping economic of scale in lending, increasing operational efficiency and lowering information costs to both savers and lenders through specialization and division of labour (Gordon, 2005).

Theories suggest that economic and social development can be accelerated by an efficient, competitive financial sector. This, in turn, requires a large and diversified universe of savers and financial intermediaries and a wide range of financial

instruments and issuers to provide a "critical mass'' of activity to warrant the necessary financial market infrastructure (Adam & Mistry, 1990).

Among the critical policies that influence financial system is the deregulation of the interest rate and financial system, however, resulted in greater competition involving the use of both price and non-price variables (Terriba, 1986). Government restrictions in the financial subsection hinder financial development and, ultimately, economic growth (Schupeter, 1934).

2.3 Review of Empirical Studies

Yaqub and Omobitan (2012) investigated the impact of financial reforms on the development of the sector using correlation analysis and Granger Causality test. The result demonstrated that deregulation has neglected to improve the advancement of the money related segment.

Kolawole (2012) examined the causal linkage between open markets (OPM), financial sector development (FSD) and economic growth in Nigeria. Time series data for the period 1990 to 2010 were fitted into the regression equation using various econometric techniques such as Augmented Dickey Fuller (ADF) test, Granger causality test, Johansen co-integration test and Vector Error Correction Method (VECM). Empirical results showed that causality does not exist between

open markets, financial sector development, and growth as pairwise causation between these variables was also found to be weak and insignificant in the country.

The study of Chude & Chude (2014) investigated the implications of regulatory inconsistencies on the Nigerian banking industry. Regulation by and large indicates some sort of mediation in any business which extends from unequivocal legitimate control to casual friend gathering control by government or some other such definitive bodies. The strategy utilized in completing this work is descriptive desk research. The findings show that regulatory in consistencies of Central Bank of Nigeria (CBN), Nigeria Deposit Insurance NDIC, Financial regulatory coordinating committee (FRSCC) have not guaranteed effective & efficient banking practices in Nigeria. Additionally, each managerial system propounds new financial guideline that is proliferated by the following system in this way adding to bank trouble and disappointment.

Gummi (2015) in his own paper seek to explain the trends and impact of financial regulation on the Nigeria's banking sector after the bank consolidation exercise in 2005. Activities of the administrative bodies were analyzed in the light of hypothetical viewpoints of budgetary guideline, their jobs just as the institutional structures depicted the framework's administrative model. The investigation hypothetically set up a positive connection between money related guideline and banking area improvement in the nation. The patterns demonstrates that money

related guideline builds the security, certainty, soundness and effectiveness in the framework.

Nyantakyi & Mouhamadou (2015) presents a comparative review of the banking systems and regulations in Africa relative to other regions of the world. It compares indicators of the banking environment (including efficiency, depth, penetration, innovation, and competition), as well as regulation and supervision standards. The survey proposes that while Africa's financial condition is moderately shallow and less infiltrated, it is as aggressive as those in other creating and high pay districts. The area has made enhancements in banking innovation and advancement, and at times, has jump frogged in front of different locales especially in portable banking. As far as guidelines, banks in Africa are very much managed with rivalry and passage guidelines comparable to measures in other real districts. Despite this, there has been colossal advancement in checking fundamental bank emergencies in the district. Since the mid-1990s, the locale has enrolled a solitary foundational bank emergency (43 preceding that) in respect to 47 for the remainder of the world. This is ascribed to a moderately sheltered financial condition that has risen up out of more grounded monetary guidelines and improved generally speaking administration.

The study of Ondiege (2015) scrutinized the role of regulatory environment in the development financial inclusion through digital means that use of mobile phones to provide financial services such as payments and deposits. The paper concentrated

on inventive cell phones cash and banking choices in four African nations - Kenya, Nigeria Tanzania and Uganda. It features contrasts among the 4 nations and their money related administrative condition. It further inspects various guidelines that have affected the advancement of budgetary consideration using the portable monetary administrations in the 4 nations. MNOs still face various difficulties in these nations that may undermine the development of budgetary incorporation if not tended to. The paper presumes that MFIs should overhaul their innovation to have the option to embrace the rising versatile financial innovation and furthermore look for arrangements that are easy to use and simple to execute. The expanded access to PDAs by the unbanked Africans is the most practical and monetarily effective technique for giving money related administrations to most of the African populaces. This is advancing money related consideration on the landmass. Along these lines controllers need to deliver issues identified with: improvement of steady administrative systems; need as well as constrained interoperability; among other to advance monetary consideration. Guidelines permitting MONs-drove tasks, for example, those in East African nations have demonstrated to be more effective than those of bank-drove, for example, in Nigeria as far as expanded budgetary consideration. While the job of the state ought to be to create strong administrative systems, assemble the money related framework and direct budgetary education

programs, private area job is make administrators that can give great quality monetary administrations at a moderate expense to most of Africans.

The issues and challenges around corporate governance in the Nigerian banking industry was examined in Garuba & Otomewo (2015). Data were sourced from survey questionnaire. It was found that lack of presentation of information was common in banks pre-consolidation than post-consolidation era. Frauds, override of internal control and non-adherence to limit of authority in a bid to meet set targets and recapitalization of bank played a vital role in promoting good corporate governance. Additionally, lack of effective corporate governance results to the failure of banks in Nigeria.

Dori (2016) assessed the relationship and effects of Central Bank of Nigeria's development finance policy on economic growth and development of Nigerian economy. Central bank of Nigeria advancement money is the monetary activities associated with the arrangement and execution of strategies, plans, projects and developments for the arrangement and supply of credit, advances, account, gifts and assets to the profitable parts of the economy to convey financial administrations in a powerful, productive and practical way to accomplish monetary development and improvement. Central Bank of Nigeria assumes an advancement account jobs through its credit plans like horticulture credit assurance plot. The significant discoveries of the examination were more noteworthy number of the beneficial

divisions of Nigeria need access to satisfactory account and credit this decreases their all out profitable limit and influences the economy adversely. Be that as it may, Central Bank of Nigeria's advancement money arrangements and plans have expanded the efficiency, venture, investment funds, work and yield of the profitable parts of Nigeria. For this situation the improvement account has upgraded the advancement of Nigerian economy. The end got from the discoveries as contained in the proposals incorporates: the three levels of governments should give the national bank of Nigeria's improvement fund approach and plans fundamental help, sufficient consideration and exposure.

A study by Fapohunda & Eragbhe (2017) empirically examined the impact of regulation, financial development and financial soundness on bank performance in Nigeria for the period 1985-2015. The study used two regulatory indicators (cash reserve ratio and monetary policy rate) as measures of regulation; the ratio of broad money supply to Gross Domestic Product (M2/GDP) for financial development; bank non-performing loans to total gross loans for financial soundness while bank performance was proxy by earnings of bank after tax. It adopted a multivariate OLS analysis for the estimation process, co-integration analysis for long-run equilibrium relationship and the associated error correction model to determine the short-run impact of the variables. The findings of the study revealed that cash reserve ratio,

monetary policy rate, financial developments and financial soundness largely impact on bank performance both in the short run and long-run.

Igbinosa, Ogbeide, & Akanji (2017) assessed financial regulation and banking sector performance in Nigeria. Specifically, the study determines the impact of reforms on banking sector performance and also assesses the nexus between capital adequacy and banking sector performance. Time series data for the period 1993 to 2014 was used. As an analytical tool, the study uses unit root test to determine the stationary state of the variables. The study equally employed the Johansson co-integration and error correction model (ECM) statistical techniques to establish both short-run and long-run dynamic relationships between the endogenous and exogenous variables. The empirical result presents that financial regulation significantly affects the banking sector performance while financial regulation has both short-run and long-run dynamic relationships with the banking sector performance in Nigeria. It was also revealed that the four-period lag of capital adequacy negatively affects banking sector performance and is not statistically significant.

Udom, Eze, & Inim (2018) in their paper evaluated the stability in the financial system between 1997 and 2016 using the macro prudential approach. Using indicators of capital adequacy, asset quality and profitability, the analysis is conducted on a time series basis to highlight the strengths and vulnerabilities in the system during the review period. The pointers demonstrate that before the part of the

bargain, indications of approaching emergencies had begun to rise in the framework. The proposals proffered for improving such an emergencies incorporate the control of swelling, close checking of the hazard the executives' system of the banks and exacting requirement of corporate administration models.

2.4 Summary of Reviewed Literature

The review to this examination has perceived regulation as an official standard made by government or some other position. It include explicit standards or concurred conduct which can be forced by some legislature or willful by express understanding. In banking regulation, these rules encompass virtually every aspect of banking such as location and types of investment. Nigeria was viewed with a mass of financial issues. A portion of which include include and joblessness, expanding destitution, low monetary development rate, high monetary shortfalls, immense parity of installments shortages, financial sector constraint and declining terms of exchange.

To comprehend and quantify the level of monetary advancement, the literature considered the majority of the various components that together add to the level of profundity and productivity in the arrangement of money related administrations. Thoughtfully, in considering a record that estimates the level of monetary

advancement, the different parts of improvement, as per World Economic Forum (2008) was viewed as “seven pillars” of money related improvement.

Theories were likewise displayed in the writing to explain the position of financial regulation in the development of banking system. For instance, Bank liquiditry theory proposed another worldwide arrangement of liquidity necessities, to supplement its amended structure of universal capital prerequisites. Again the liquidity management theories monitor the distribution of assets considering the contradictions between the objectives of liquidity, safety and profitability when linked to a commercial bank effort. However, gap management theory are proposed to regulate occurrence in all financial markets.

Empirically, the related literary works to this investigation have demonstrated that financial guidelines, policies, and reforms are necessary in the proliferation of financial soundness, but if not well regulated, it can add to the troubles of banks and thereby hinder the performance and development activities of banks.

2.5 Research Gap

From the observational examinations explored up until now, it could be learned that no ongoing investigation have been closed on the the effect of financial regulation and the development of banking system in Nigeria, with extraordinary accentuation

on the period 1990 to 2018, consequently this investigation fills the gap in the literature.

CHAPTER THREE

METHODOLOGY

3.1 Research Design

This study employed the procedures of conducting unit root, granger and co-integration tests. Therefore, to avoid the problems associated with the use of a time series data, some basic data estimations were carried out namely, the unit root test, granger causality test as well as co-integration test to avoid spurious results.

3.2 Sources of Data

The data used for this study are basically time series covering 1990 – 2018, that is twenty-eight (29) years. The data were sourced from secondary sources which included Central Bank of Nigeria Statistical Bulletin and National Bureau of Statistic (NBS) publications.

3.3 Test of Hypotheses

The test statistics include therefore, Coefficient of Correlation (R), Coefficient of Determination (R^2), the analysis of variance (ANOVA/F-ratio) and the t-distribution (t-test). While the ANOVA/F-test establishes the significance or otherwise, of the model as a whole, the coefficient of correlation seeks to test the strength or magnitude of the relationship between of the dependent variable, gross domestic credit and the selected bank regulatory instruments. T-test seeks to test the extent of

contribution or level of significance of each of the explanatory variables to the dependent variable, (e.g., the gross domestic credit).

3.3.1. Test of the Model Significance: The Analysis of Variance Approach

The first test carried out under hypothesis testing is a test of the model significance. This sought to test for the significance of the model as a whole. There are two ways to accomplish this; the analysis of variance or the coefficient of determination, R^2. Here, this statistical tool aims to split the variations of a variable, the gross domestic credit (GDCR) regressand with its component parts, variations in the dependent variable (GDCR), that are accounted for by the explanatory variables (regressors), that is, the different sources of growth in the gross domestic credit (GDCR) as produced by the bank regulatory instruments; are called the EXPLAINED VARIATIONS. Other sources not thus explained are due to random or chance factors. These are estimates of the population disturbance variable 'u' and are represented by 'e', otherwise referred to as the RESIDUALS or error term.

Table 3.1: A Hypothetical ANOVA Table

Source of Variation	Sum of Squares	Degree of Freedom	Mean Square of Error	f-Statistic
Regression	ESS = (R^2XTSS)	K-1	$\frac{ESS}{K-1}$	$\frac{MS\Sigma_{ESS}}{MS\ \Sigma_{RSS}}$
Residual	RSS= $\sum_{t=1}^{n} (e)^2$	N-k	$\frac{RSS}{N-k}$	F-Tabulated
Total Variation	$\sum_{t=1}^{n} (e)^2$ $(GDP_{gt}-GDP_{gt})^2$	N-1		Decision: if Fcal>Ftab reject Ho and Accept Ha

Source: Nworu (2011).

For the hypotheses, the regression equation is presented thus;

$GDCR_t = \beta_0 + \beta_1 CRR_t + \beta_2 INT_t + \beta_3 LDR_T + \beta_4 LQR_t + \beta_5 MPR_t + U_t$……..... 3.1

Rearranging equation 3.1 above, we have;

$U_t = GDCR_t - (\beta_0 + \beta_1 CRR_t + \beta_2 INT_t + \beta_3 LDR_T + \beta_4 LQR_t + \beta_5 MPR_t)$…….. 3.2

$U_t^2 = GDCR_t - (\beta_0 + \beta_1 CRR_t + \beta_2 INT_t + \beta_3 LDR_T + \beta_4 LQR_t + \beta_5 MPR_t)^2$……..……. 3.3

Summing both sides of equation 3.3 we get;

$$\sum_{j=1}^{n} U_t^2 = \sum_{t=1}^{n} (GDCR_t - (\beta_0 + \beta_1 CRR_t + \beta_2 INT_t + \beta_3 LDR_T + \beta_4 LQR_t + \beta_5 MPR_t)^2 \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 3.4$$

In the Regression, $\sum_{t=1}^{n} U_t^2$, (estimate of the population disturbance), is given by; $\sum_{t=1}^{n} U^2$, otherwise called the RESIDUAL

SUM OF SQUARES (RSS)

$\sum_{t=1}^{n} (GDCR_{gt} - \hat{GDCR}_t)^2$, is the sum of squares of the deviation of the actual gross domestic credit ($GDCR_t$) variables from their mean. While the explained sum of squares (ESS) is gotten with the formula, $ESS = R^2 X(TSS)$
Where;

R^2 = the coefficient of determination from the regression.

Therefore,

RSS = TSS – ESS (Koutsoyiannis, 1986 and Guajarai, 1985).

3.3.1.1 Test of the Model Significance: The Coefficient of Determination, R^2 Approach

Another way to test for the model significance is through the coefficient of determination or R^2 for short. The R^2 is calculated from the regression, and it gives the proportion of the total variation in the dependent variable, actual gross domestic credit that is explained by the independent variables, here the selected instruments of bank regulation.

R^2, from the sample is a statistical estimate of the population, u^2, (row squared). Value of R^2ranges between 0 and 1;

-0.0 - - - -1.00 Inverse or negative variation

0.00 - - - - 0.29 Highly insignificant, positive

0.30 - - - - 0.49 Insignificant, positive

0.70 - - - - 1.00 highly significant, positive

In setting up the test the following hypothesis is tested;

HO_1:ρ^2 = O i.e., the regressors, the growth in the selected instruments of bank regulation, or sources of growth in the gross domestic credit, in a given year have no significant relationship with the actual growth of the gross domestic credit for that year.

$HA_1\rho^{2} > O$ (One-tailed test of significance i.e., at least, there is a significant relationship between one of the independent variables and the actual growth of the gross domestic credit.

DECISION RULE

If F-ratio calculated is greater than the F-ratio tabulated or theoretical F, at alpha (α) – level of significance, and (K-1) (N-K), degrees of freedom, then we Reject Ho; and Accept Ha, and thus state that there is some truth in the estimated model (i.e. the regression model is significant since the regressors significantly account for the variation in the dependent variable ($GDCR_t$)

Here, F (calculated) $= \dfrac{R^2 / (K-1)}{(1-R^2)/(N-K)}$ …….. 3.5

3.3.1.2 Test of Significance of the Explanatory Variables, T-Test

Having established the significance of the estimated model as a whole next is to test the specific strengths of the various regressors in bringing about this result. This carried out through the test on the estimated parameters of the regressors or independent variables.

The test-statistics, or student t-test is calculated as follows;

$$\text{T-test} = \frac{\beta_k}{Se(\beta_k)} \quad \text{for } K = 1 - 6 \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots 3.6$$

Where;

β_k = estimate of the population parameters for the regressors (i.e the selected instruments of bank regulation).

$Se(\beta_k)$ = Standard error of the estimate

DECISION RULE

If absolute value, or $\left| \frac{\beta_k}{Se\ (\beta_k)} \right| > t_{n-k}$ at $\alpha/2$

level of significance, we Reject Ho and Accept Ha: to conclude that the variable belongs significantly to the model.

3.3.2 Specification of Models

The actual gross domestic credit figures for the period 1990 – 2018, herein represented by the symbol $GDCR_t$, are regressed on the selected instruments of bank regulation for the corresponding period. These components of bank regulation are hereby represented as follows:

CRR = Cash Reserve Ratio in year t;

INT = Real Interest Rate in year t;

LDR = Loan-Deposit Ratio in year t;

LQR = Liquidity Ratio in year t;

MPR = Monetary Policy Rate in year t;

The dependent variable, however, is as specified:

GDPR = Ratio of Gross Domestic Credit to Gross Domestic Product in year t;

Where;

β_0 = The intercept parameter, β_1 …… β_6 (betas) are the regression coefficient or the slope parameters for the various regressors (explanatory variables or selected bank regulatory instrument) as stated above.

Here, β_1 …… $\beta_5 > 0$.

The term, U_t, otherwise called the stochastic term of the regression is introduced to represent the random or unexplained variation encountered in the modeling since in real life which we are trying to mimic through this estimation, chance events do occur which would make our model not to be 100% deterministic.

3.3.3 Unit Root Model

$$GDPt = \alpha GDPt - 1 + \mu 1t \dots\dots\dots\dots\dots\dots\dots 4$$

If we subtract GDP_{t-1} from both sides of equation (4), we have:

$$\Delta GDPt = (\alpha - 1)GDPTt - 1 + \mu 1t \dots\dots\dots\dots 5$$

In the same vein, $MID_t = bMID_{t-1} + \mu_{2t}$

$$\Delta MIDt = (b-1)MIDt - 1 + \mu 2t \ldots\ldots\ldots\ldots\ldots 6$$

3.3.4 Causality Model

$$GDPt = \sum_{t=1}^{n} \emptyset tMIDt - 1 + \sum_{J=1}^{n} \gamma \text{tGDPt} - \text{j} = \mu 3t \ldots\ldots 7$$

$$GLOBt = \sum_{t=0}^{n} \rho t\ MIDt - 1 + \sum_{J=0}^{n} \theta GDPt - 1 + \mu 4t \ldots\ldots 8$$

Where;

I and j = lag period

a, b,θ,ø,γ and ρ = parameters

t= time period

GDCR = Gross Domestic Credit

MID = Instruments of Bank Regulation.

3.4 Assumptions of the Linear Regression Model

In choosing the above model, we make the following principal assumptions about our population disturbance term, μ_t. These assumptions about the distribution of the values of μ_t' are very crucial for the estimates of the regression. These include the following:

a. *Assumption of Randomness*: The value "μ_t" may assume in any given period depends on chance 'μ_t' being a random real variable may be positive, zero or negative , each with a certain probability of occurrence for a particular period.

b. *Assumption of Zero Mean*: The mean value of 'μ_t' in any particular period is zero. This being the case, the expected value, ($\varepsilon(\mu t)$, of 'μ_t', for all observations , t = 1,2,3….n, is equal to zero.

c. *Constant Variance Assumption*: The variance, $\delta^2\mu_t$, is constant in each period, that is, the variance of 'μ_t' for each explanatory variable is constant. This being the case, 'μ_t' will show the same dispersion for all values of the explanatory variables. ($\varepsilon(\mu^2_t) = \delta^2$. This is called the assumption of *HOMOSCEDASTICITY*. If this assumption does not apply, then the condition of *HETROSCEDASTICITY* obtains under which condition, therefore, it would be difficult for us to construct confidence intervals on the regression estimates. These tests, therefore, become inapplicable.

d. *Normality Assumption*: The variable'μ_t' has a Normal distribution that is, the values of 'μ_t' (for each explanatory variables) have a bell shaped symmetrical distribution. The above four principal assumptions are

symbolically represented as; $\mu_t \sim N (O,\delta^2\mu_t)$, that is, μ_t is a random variable, with a normal distribution, zero mean and a constant variance.

e. Other Assumptions of the Model

i. Cov (μiμj) = O (there is no covariance between the disturbance terms of different observations

ii. Cov (Xi'sμi) = O (No covariance between the disturbance) term and the explanatory variables)

iii. Cov (XiS) = O (No Covariance between the explanatory variable (i.e. No multicollinearity exists).

iv. The relationship is IDENTIFIED – that is the model has a unique mathematical form. Its explanatory variables are not found in any other mathematical equation) related to phenomena being studied.

v. It is also assumed that the model is correctly SPECIFIED mathematically.

CHAPTER FOUR

RESULTS AND DISCUSSIONS

The implication of econometric analysis is to discover and establish existing relationship between the different economic variables involved in the analysis. In the light of this, this chapter presented the results and analysis of the Nigerian banking regulatory measures using a behavioural model. This is done through the use of multiple linear regression method of ordinary least square (OLS). The software package used was the Econometric Package, E-views version 10.0.

4.1 Data Presentation

Table 4.1 presented the Nigeria data set on gross domestic credit, cash reserve ratio, interest rate, loan-to deposit ratio, liquidity ratio and the monetary policy rate for the period, 1990 to 2018. The gross domestic credit as a financial development indicator was used to represent the dependent variable for the analysis. The banking sector regulation measures are the policies, adjustments, and regulatory tools for banking activities.

Here, the gross domestic credit variable, GDCR was defined as the ratio of gross domestic credit to gross domestic product. Other variables were denoted thus; Cash Reserve Ratio (CRR), Interest Rate (INT), Loan-to-Deposit Ratio (LDR), Liquidity ratio (LQR), and the Monetary Policy Rate (MPR) for the period under investigation, 1990-2018.

Table 4.1: Data set on Gross Domestic Credit and Bank Regulation (1990-2018)

YEAR	GDCR	CRR	INT	LQR	MPR	LDR
1990	11.65	2.9	25.5	44.3	18.5	66.5
1991	13.71	2.9	20.01	38.6	15.5	59.8
1992	18.8	4.4	29.8	29.1	17.5	55.2
1993	22.29	6	18.32	42.2	26	42.9
1994	24.91	5.7	21	48.5	13.5	60.9
1995	16.38	5.8	20.18	33.1	13.5	73.3
1996	9.82	7.5	19.74	43.1	13.5	72.9
1997	8.9	7.8	13.54	40.2	13.5	76.6
1998	11.17	8.3	18.29	46.8	13.5	74.4
1999	11.91	11.7	21.32	61	18	54.6
2000	6.84	9.8	17.98	64.1	14	51
2001	10.44	10.8	18.29	52.9	20.5	65.63
2002	11.73	10.6	24.85	52.45	16.5	62.78
2003	13.56	10	20.71	50.9	15	61.85
2004	11.66	8.6	19.18	50.48	15	68.63
2005	10.39	9.7	17.95	50.18	13	70.8
2006	2.49	2.6	17.26	55.7	10	63.6
2007	8.15	2.8	16.94	48.75	9.5	70.78
2008	12.65	3	15.14	44.25	9.75	80.93
2009	17.75	1.3	18.99	30.7	6	85.66
2010	15.56	1	17.59	30.43	6.25	74.2
2011	20.88	8	16.02	42	12	44.77
2012	17.71	12	16.79	49.72	12	42.31
2013	18.15	12	16.72	63.21	12	37.97
2014	21.65	16.25	16.55	38.32	13	64.24
2015	22.96	24	16.85	42.35	11	69.58
2016	26.46	22.5	16.87	45.95	14	79.95
2017	23.71	22.5	17.58	49.05	14	78.2
2018	20.65	22.5	16.91	60.95	14	64.34

Sources: CBN Statistical Bulletin (2018)

4.2. Data Analysis

4.2.1 Data Reliability and Estimation

In this section, the focus is to ensure that the results generated from the data analysis are not spurious and therefore, can be relied upon for policy recommendations. Hence, the section first established the stationarity of the entire data set employed in the various estimations. When a particular data set is found to be stationary, it then suffices that the data set can be relied upon for the estimation.

4.2.1.1 Unit Root Test

Table 4.2: Unit Root Test for the Variables

	Augmented Dickey-Fuller test statistic		
Variable	T-statistic.	Critical value	Order of Integration
GDCR	-4.515803	-3.699871	1(1)
CRR	-4.142957	-3.737853	1(0)
INT	-4.440224	-3.689194	1(0)
LDR	-4.016787	-3.699871	1(0)
LQR	-5.588718	-3.699871	1(1)
MPR	-2.996502	-2.971853	1(0)

Source: E-views 10.0 Econometric Package.

The unit root test was carried out using the Augmented-Dickey Fuller test in order to test for the stationarity and the order of integration of the data set. The displayed results in Table 4.2 indicate that whereas four of the variables(cash reserve ratio, real

interest rate, liquidity ratio, monetary policy rate) were stationary at level or 1(0) order of integration, two variables ratio(gross domestic credit, liquidity ratio) however, were stationary at first difference, 1(1). This means that the data set can be relied upon for the analysis and devoid of spurious results (see the results in the appendix).

4.2.1.2 Granger Causality Test

In addition to the unit root test, the granger causality test was also carried out to determine the direction of effect between the pairs of variables in the model, especially between each of the explanatory variables and the dependent variable, gross domestic credit. The results indicate there was no significant causal effect between the gross domestic credit and any of the explanatory variables.

Table 4.3: Granger Causality Test Results

Pairwise Granger Causality Tests			
Date: 09/11/21 Time: 13:25			
Sample: 1990 2018			
Lags: 2			
Null Hypothesis:	**Obs**	**F-Statistic**	**Prob.**
CRR does not Granger Cause GDCR	**27**	**0.02339**	**0.9769**
GDCR does not Granger Cause CRR		**1.00312**	**0.3829**
INT does not Granger Cause GDCR	**27**	**0.43101**	**0.6552**
GDCR does not Granger Cause INT		**1.30915**	**0.2903**
LDR does not Granger Cause GDCR	**27**	**0.30044**	**0.7435**
GDCR does not Granger Cause LDR		**0.31122**	**0.7357**
LQR does not Granger Cause GDCR	**27**	**0.33237**	**0.7208**
GDCR does not Granger Cause LQR		**0.32552**	**0.7256**
MPR does not Granger Cause GDCR	**27**	**0.66193**	**0.5258**
GDCR does not Granger Cause MPR		**0.02377**	**0.9765**

Source: Eviews 10.0

4.2.1.3 The Co-Integration Test Results

However, with the data set turning out to be stationary, we then applied the Johansen co-integration test in the modeling. The essence of this test is to establish the presence of a possible short or long-run equilibrium existing between the variables

and hence the various estimated regression equation results. These results are presented in table 4.4 below.

Table 4.4 Co-integration Test Results

Date: 09/11/21 Time: 13:17				
Sample (adjusted): 1992 2018				
Included observations: 27 after adjustments				
Trend assumption: Linear deterministic trend				
Series: GDCR CRR INT LDR LQR MPR				
Lags interval (in first differences): 1 to 1				
Unrestricted Cointegration Rank Test (Trace)				
Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None *	0.716114	101.9613	95.75366	0.0174
At most 1	0.602007	67.96338	69.81889	0.0697
At most 2	0.558700	43.08771	47.85613	0.1305
At most 3	0.377818	21.00091	29.79707	0.3576
At most 4	0.198988	8.188801	15.49471	0.4454
At most 5	0.078184	2.198057	3.841466	0.1382
Trace test indicates 1 cointegrating eqn(s) at the 0.05 level				
* denotes rejection of the hypothesis at the 0.05 level				
**MacKinnon-Haug-Michelis (1999) p-values				

Source: Eviews 10.0

The Johansson co-integration test in Table 4.4 indicated that there is only (1) one co-integrating equation. Thus, there is a possibility of long-run equilibrium among the variables under study (see results in the appendix).

4.3 Hypotheses Testing

In carrying out the tests, due consideration was given to the six hypotheses of this study, comprising of one lead hypothesis and five sub-hypotheses. While the lead hypothesis (hypothesis 1) was tested with the aid of ANOVA F-statistic, the sub-hypotheses (hypotheses 2-6) were however, tested using the Student t-statistic test.

4.3.1. The Influence of Bank Regulation On Gross Domestic Credit In Nigeria (Test Of Hypothesis 1)

Here, the lead equation was to be estimated and the hypothesis states as follows:

HO_1: There is no significant relationship between the bank regulation and the level of gross domestic credit in Nigeria.

HO_2: Cash reserve ratio has no significant effect on the level of gross domestic credit in Nigeria.

HO_3: Interest rate has no significant effect on the level of gross domestic credit in Nigeria.

HO_4: Loan to deposit ratio has no significant effect on the level of gross domestic credit in Nigeria.

HO_5: Liquidity ratio has no significant effect on the level of gross domestic credit in Nigeria.

HO_6: Monetary policy rate has no significant effect on the level of gross domestic credit in Nigeria.

Table 4.5: Results of the Global Statistics the Bank Regulation and Gross Domestic Credit Model.

Test-statistic	MODEL ORDINARY LEAST SQUARE
R-square	0.621
Adjusted R-square	0.539
S.E of Regression	4.0870
Sum of squared residual	384.181
Log likelihood	-78.615
Durbin-Watson stat	1.396
Mean depend. Var	15.273
S.D. depend. Var	6.0120
Akaike info criterion	5.760
Schwarz criterion	6.118
Hannan-Quinn criterion	5.924
F-statistic	7.548
Prob(F-statistic)	0.00000

Source: Eviews 10.0 Statistical Package.NB: *** = significant at 1%; ** = significant at 5%; * = Not significant. F- ratio tabulated DF (5, 23); 1% = 3.94, 5% = 2.64

Table 4.4 shows the results of the global statistics as produced under the model.

4.3.1.1 Test of Model Significance – ANOVA.

In order to confirm the specification status of our model, we employ the analysis of variance or ANOVA, for short.

Decision Rule

Employing the E-views software, and since the F – ratio calculated (7.548) > F – ratio critical (3.94, 2.64), at both 1% and 5% levels of significance respectively, we reject Ho and conclude that there is a significant relationship between bank regulation and gross domestic credit in Nigeria (see result in appendix).The estimated regression result is presented thus;

$$\mathbf{GDCR=41.548 +0.711CRR_t + 0.042INT_t –0.187LDR_t –0.440LQR –-0.084MPR}$$

……..4.1

4.3.1 The Effect of Bank Regulation Instruments on Gross Domestic Credit in Nigeria (Test of Hypothesis 1 Sub-Hypotheses)

The sub-hypotheses from HO_1 are as follows;

HO_2: Cash reserve ratio has no significant effect on the level of gross domestic credit in Nigeria.

HO_3: Interest rate has no significant effect on the level of gross domestic credit in Nigeria.

HO_4: Loan to deposit ratio has no significant effect on the level of gross domestic credit in Nigeria.

HO_5: Liquidity ratio has no significant effect on the level of gross domestic credit in Nigeria.

HO_6: Monetary policy rate has no significant effect on the level of gross domestic credit in Nigeria.

Having tested the significance of the model, we go a step further to test the significance of the bank regulation tools in contributing to the total variation in the level of gross domestic credit in Nigeria for the period under review. This was achieved through the student t – test. We refer to the regression result in Table 4.6. From Table 4.6, three explanatory variables(cash reserve ratio, loan-deposit ratio, liquidity ratio) proved to be significant contributors to the level of gross domestic credit within the Nigerian banking .While both the cash reserve ratio and liquidity ratio were statistically significant at 1%, loan-deposit ratio was significant at 5%.

Table 4.6: T- Statistic Table-Bank Regulation Effect on Gross Domestic Credit

VARIABLE TEST STATISTIC	CRR_t	INT_t	LDR_t	LQR_t	MPR_t
Coefficient of the Variable	0.710587	0.041648	-0.187198	-0.440176	-0.084625
Standard Error	0.132773	0.277433	0.074879	0.098514	0.238969
T-Statistic Calculated	5,351	0.150	-2.500	-4.468	-0.354
T-Statistic Tabulated 1%	2.807	2.807	2.807	2.807	2.807
T-Statistic Tabulated 5%	2.069	2.069	2.069	2.069	2.069
Significance	1%	NS	5%	1%	NS

Source: Eviews 10.0 Statistical Package (2014)**.**NB: NS = Not Significant. T-ratio DF (23); 1% = 2.807, 5% = 2.069.

4.4 Discussion of Results

The results of the global statistics on table 4.5 indicated that a significant relationship existed between bank regulation and gross domestic credit in Nigeria, at within the period, 1990-2018. In addition, three of the explanatory variables(cash reserve ratio, loan-deposit ratio, liquidity ratio) were found to be statistically significant. This result is related to the study of Fapohunda & Eragbhe

(2017). In their study, cash reserve ratio and monetary policy rate had a significant relationship with financial sector development in Nigeria. Also the study of Alade (2017) sees monetary policy rate as significant tools in forecasting the development of banking system in Nigeria.

The result obtained in this study further showed an R^2 of 0.621, with the Adjusted R^2 of 0.539.The implication of this result is that changes in the banking sector regulation have been able to explain at least 62% of the variation in the level of gross domestic credit and at least explained 53% of such variations after adjusting for errors. Thus, the regulatory measures can safely be said to possess the potential to influence the potency of domestic credit in the Nigerian economy.

In the study of Fapohunda& Eragbhe (2017), cash reserve requirement negatively influenced banking sector performance while monetary policy rate positively influenced banking sector performance in contrast to the findings of this study.

CHAPTER FIVE

CONCLUSIONS AND RECOMMENDATIONS

5.1 Summary of Findings

The study empirically assessed the effect of bank regulation on the development of the banking system in Nigeria, with emphasis on gross domestic credit using time series data from 1990 – 2018. Preliminary test was conducted using unit root, granger causality and co-integration procedures, thus permitting the avoidance of spurious results often associated with time-series data analysis. The study also employed the Ordinary Least Square (OLS) method of model estimation, and analysis of variance, (ANOVA) was employed to investigate the effect of bank regulatory variables (CRR, INT, LDR, LQR, and MPR) on bank development model represented by gross domestic credit (GDCR).The findings revealed the following;

1. There is a significant relationship between bank regulation and the level of gross domestic credit in Nigeria.
2. The cash reserve ratio as an instrument of bank regulation exerted a significant effect on the level of gross domestic credit in Nigeria.
3. The real interest rate as an instrument of bank regulation did not exert any significant effect on the level of gross domestic credit in Nigeria.

4. The loan-deposit ratio as an instrument of bank regulation exerted a significant effect on the level of gross domestic credit in Nigeria.
5. The Liquidity ratio as an instrument of bank regulation exerted a significant effect on the level of gross domestic credit in Nigeria.
6. The monetary policy rate as an instrument of bank regulation exerted a significant effect on the level of gross domestic credit in Nigeria.

5.2 Conclusions

The findings of this study therefore, informed the following conclusions;

1. Bank regulation in Nigeria has significantly influenced the development of Nigerian banking system, especially through the gross domestic credit within the period 1990 through 2018.
2. The selected bank regulation instruments can reliably be employed to predict the level of gross domestic credit within the banking industry in Nigeria.
3. Both the cash reserve ratio and interest rate with their positive coefficients failed to meet the a priori expectation.

5.3 Recommendations

Based on the findings of the study, the following recommendations are noteworthy:

1. Stringent credit approaches ought to be set up by the regulators of banks in Nigeria so as to decrease harmful resources and upgrade the monetary

sufficiency of the banks in Nigeria. This will empower them to contend seriously with their global partners.

2. Banking regulators (like Central Bank of Nigeria, NDIC and so forth) should be given more capacity to reinforce bank guidelines and supervision in Nigeria. They should solidify prudential rules and empower market discipline.
3. Strong supervision should be put in place to ensure that banks conduct careful credit analyses before administering loans to borrowers in order to avoid bad loans/non-performing loan.
4. The positive coefficients of the cash reserve ratio and interest rate could be pointers to policy somersault by the monetary authorities. The study therefore recommends that clear-cut policies must be made and left to run in the banking system irrespective of changes in leadership of the supervisory agencies.

5.4 Contribution to Knowledge

This study provides a platform for the regulatory authorities to appreciate the impact of their activities on the banking industry, and underscores areas for improvement. It also provided an independent platform via which the regulators can appraise fundamental tools of supervision in a bid to make reasonable adjustments where necessary.

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Appendix I

Summary of the Amendments of Banks and Other Financial Institutions

S/N	SECTIONS OF THE BOFI ACT LFN 2004	COMMENTS
1	S. 1(1)	The functions, powers and duties of the CBN were made subject to the supervision of the Minister of Finance by virtue of section 2 of Act No. 4 of 1997. As mentioned earlier, this Act had been repealed by Act No. 38 of 1998 thereby restoring the original provision of section 1 and other provisions of the BOFI Act, 1991 hitherto affected by Act No. 4 of 1997.
2	S. 1(2)	The marginal note referring to Act No.4 of 1997 as the authority for this provision should be removed for the same reason as item1 above
3.	S. 3(3)	The language of this provision has been altered by section 2 of the BOFI (Amendment) Act No. 10 of 2002 which was not considered in the compilation of the LFN 2004.
4.	S. 3(5)	This sub-section which was introduced by Act No 4 of 1997 was repealed by Act No. 38 of 1998 thereby restoring the original provision of Section 3 of the BOFI Act, 1991
5.	S. 20 (5)	This sub-section which was also introduced by Act No 4 of 1997 was repealed by Act No. 38 of 1998 thereby restoring the original provision of Section 20 of the BOFI Act, 1991
6.	S.29(4)	The rendition in the LFN is different from how it was couched in the enabling Act. While the enabling Act has paragraphs A & B, the LFN merged the two paragraphs. Since the section was not affected in any of the amendment Acts, we have restored the provisions in the enabling Act.
7.	S29(5)	The rendition in the LFN is the amendment effected by Act No 38 of 1998 which was repealed by Act No 40 of 1999 thereby restoring the provision in the enabling Act.
8.	S. 29(9)	Same as item 5.

9.	S.30	The section was introduced by Act No 4 of 1997 which had been repealed by Act No. 38 of 1998 thereby restoring the original provision of Section 30 of the BOFI Act, 1991. The section was therefore, deleted.
10.	S.31(8)	The reference to "1997 No.4" and "1998 No.38" is misleading. The provision is contained in the primary legislation and is not affected by any of these amendment Acts
11	S.43	Reference to"1997 No.4" should be deleted as Act No 4 of 1997 is no longer as extant law.
12	S43(1)(b)	Section 53 that was mentioned in the proviso to S. 43(1)(b) has no relevance to the provision in this section. The appropriate section is section 52 which has been inadvertently omitted in the LFN.
13	S.44	The provisions amending Act No. 4 of 1997 have been incorporated inadvertently. The original provision has therefore been restored.
14	S44(2)	The rendition of the sub-section in the LFN had been repealed by Act No 38 of 1998. The Act (No 38 of 1998) also amended the provision in the principal Act. The rendition in Act No 38 of 1998 has been restored.
15	S.50	See comment on S.44 (item 13) above.
16	S.51	Reference to "No 4 of 1997" should be deleted as Act No 4 of 1997 is no longer as extant law.
17	S.52	The section was inadvertently omitted in the LFN. It is pertinent to mention that Act No.4 of 1997 which repealed this section has been repealed by Act No. 38 of 1998. The section as rendered in the principal Act should, therefore, be restored. However, due to numbering challenges, it could not be restored as section 52 in the LFN. It has been attached as a separate document in this compilation.
18	S.60B	This sub-section which was on the power of Government to freeze accounts was introduced by BOFI (Amendment) Act No. 10 of 2002 as Section 60B. It was inadvertently omitted in the BOFI Act, LFN 2004, Cap B3. It would be incongruous to insert it as Section 60B because it is not the appropriate section. We have, therefore, attached it as a separate document in this compilation.

19	S.62(2)	Amendment to S.59A (2) of the principal Act by No 4 of 1997 has been abrogated by Act No. 38 of 1998 thereby restoring the provision of the principal Act.

Appendix II

Regression: BANK REGULATION AND GROSS DOMESTIC CREDIT IN NIGERIA

YEAR	GDCR	CRR	INT	LQR	MPR	LDR
1990	11.65	2.9	25.5	44.3	18.5	66.5
1991	13.71	2.9	20.01	38.6	15.5	59.8
1992	18.8	4.4	29.8	29.1	17.5	55.2
1993	22.29	6	18.32	42.2	26	42.9
1994	24.91	5.7	21	48.5	13.5	60.9
1995	16.38	5.8	20.18	33.1	13.5	73.3
1996	9.82	7.5	19.74	43.1	13.5	72.9
1997	8.9	7.8	13.54	40.2	13.5	76.6
1998	11.17	8.3	18.29	46.8	13.5	74.4
1999	11.91	11.7	21.32	61	18	54.6
2000	6.84	9.8	17.98	64.1	14	51
2001	10.44	10.8	18.29	52.9	20.5	65.63
2002	11.73	10.6	24.85	52.45	16.5	62.78
2003	13.56	10	20.71	50.9	15	61.85
2004	11.66	8.6	19.18	50.48	15	68.63
2005	10.39	9.7	17.95	50.18	13	70.8
2006	2.49	2.6	17.26	55.7	10	63.6
2007	8.15	2.8	16.94	48.75	9.5	70.78
2008	12.65	3	15.14	44.25	9.75	80.93
2009	17.75	1.3	18.99	30.7	6	85.66
2010	15.56	1	17.59	30.43	6.25	74.2
2011	20.88	8	16.02	42	12	44.77
2012	17.71	12	16.79	49.72	12	42.31
2013	18.15	12	16.72	63.21	12	37.97
2014	21.65	16.25	16.55	38.32	13	64.24
2015	22.96	24	16.85	42.35	11	69.58
2016	26.46	22.5	16.87	45.95	14	79.95
2017	23.71	22.5	17.58	49.05	14	78.2
2018	20.65	22.5	16.91	60.95	14	64.34

Appendix III:
RESULTS
PRINOUT

Dependent Variable: GDCR				
Method: Least Squares				
Date: 09/11/21 Time: 12:54				
Sample: 1990 2018				
Included observations: 29				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	41.54763	10.01995	4.146491	0.0004
CRR	0.710587	0.132773	5.351900	0.0000
INT	0.041648	0.277433	0.150121	0.8820
LDR	-0.187196	0.074879	-2.499974	0.0200
LQR	-0.440176	0.098514	-4.468172	0.0002
MPR	-0.084625	0.238969	-0.354126	0.7265
R-squared	0.621344	Mean dependent var		15.27345
Adjusted R-squared	0.539028	S.D. dependent var		6.019587
S.E. of regression	4.086994	Akaike info criterion		5.835488
Sum squared resid	384.1809	Schwarz criterion		6.118377
Log likelihood	-78.61457	Hannan-Quinn criter.		5.924085
F-statistic	7.548245	Durbin-Watson stat		1.395925
Prob(F-statistic)	0.000254			

Null Hypothesis: CRR has a unit root				
Exogenous: Constant				
Lag Length: 4 (Automatic - based on SIC, maxlag=6)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-4.142957	0.0039
Test critical values:	1% level		-3.737853	
	5% level		-2.991878	
	10% level		-2.635542	
*MacKinnon (1996) one-sided p-values.				
Augmented Dickey-Fuller Test Equation				

Dependent Variable: D(CRR)				
Method: Least Squares				
Date: 09/11/21 Time: 12:55				
Sample (adjusted): 1995 2018				
Included observations: 24 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
CRR(-1)	-0.616621	0.148836	-4.142957	0.0006
D(CRR(-1))	0.359523	0.188313	1.909179	0.0723
D(CRR(-2))	0.500394	0.205581	2.434046	0.0256
D(CRR(-3))	0.849524	0.212692	3.994146	0.0009
D(CRR(-4))	0.772734	0.245425	3.148549	0.0056
C	4.917219	1.215541	4.045292	0.0008
R-squared	0.555451	Mean dependent var		0.700000
Adjusted R-squared	0.431965	S.D. dependent var		3.022129
S.E. of regression	2.277722	Akaike info criterion		4.696546
Sum squared resid	93.38428	Schwarz criterion		4.991060
Log likelihood	-50.35855	Hannan-Quinn criter.		4.774681
F-statistic	4.498087	Durbin-Watson stat		1.749225
Prob(F-statistic)	0.007785			

Null Hypothesis: D(GDCR) has a unit root
Exogenous: Constant
Lag Length: 0 (Automatic - based on SIC, maxlag=6)

	t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic	-4.515803	0.0014

Test critical values:	1% level	-3.699871
	5% level	-2.976263
	10% level	-2.627420

*MacKinnon (1996) one-sided p-values.

Augmented Dickey-Fuller Test Equation

Dependent Variable: D(GDCR,2)				
Method: Least Squares				
Date: 09/11/21 Time: 12:58				
Sample (adjusted): 1992 2018				
Included observations: 27 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(GDCR(-1))	-0.908461	0.201174	-4.515803	0.0001
C	0.216150	0.810508	0.266684	0.7919
R-squared	0.449248	Mean dependent var		-0.189630
Adjusted R-squared	0.427218	S.D. dependent var		5.530427
S.E. of regression	4.185559	Akaike info criterion		5.772345
Sum squared resid	437.9725	Schwarz criterion		5.868332
Log likelihood	-75.92665	Hannan-Quinn criter.		5.800887
F-statistic	20.39248	Durbin-Watson stat		1.952160
Prob(F-statistic)	0.000131			

Null Hypothesis: LDR has a unit root				
Exogenous: Constant				
Lag Length: 1 (Automatic - based on SIC, maxlag=6)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-4.016787	0.0047
Test critical values:	1% level		-3.699871	
	5% level		-2.976263	
	10% level		-2.627420	
*MacKinnon (1996) one-sided p-values.				
Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(LDR)				
Method: Least Squares				
Date: 09/11/21 Time: 13:04				
Sample (adjusted): 1992 2018				
Included observations: 27 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
LDR(-1)	-0.658498	0.163937	-4.016787	0.0005
D(LDR(-1))	0.523387	0.180812	2.894653	0.0080
C	42.46278	10.70121	3.968035	0.0006
R-squared	0.419836	Mean dependent var		0.168148
Adjusted R-squared	0.371489	S.D. dependent var		11.79846
S.E. of regression	9.353665	Akaike info criterion		7.413853
Sum squared resid	2099.785	Schwarz criterion		7.557835
Log likelihood	-	Hannan-Quinn		7.45666

	97.08701	criter.		6
F-statistic	8.683812	Durbin-Watson stat		2.337791
Prob(F-statistic)	0.001454			

Null Hypothesis: D(LQR) has a unit root				
Exogenous: Constant				
Lag Length: 0 (Automatic - based on SIC, maxlag=6)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-5.588718	0.0001
Test critical values:	1% level		-3.699871	
	5% level		-2.976263	
	10% level		-2.627420	
*MacKinnon (1996) one-sided p-values.				
Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(LQR,2)				
Method: Least Squares				
Date: 09/11/21 Time: 13:07				
Sample (adjusted): 1992 2018				
Included observations: 27 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
D(LQR(-1))	-1.129759	0.202150	-5.588718	0.0000
C	0.850606	1.897610	0.448251	0.6578
R-squared	0.555427	Mean dependent var		0.651852
Adjusted R-squared	0.537644	S.D. dependent var		14.49855

S.E. of regression	9.858539	Akaike info criterion	7.485740
Sum squared resid	2429.770	Schwarz criterion	7.581728
Log likelihood	-99.05749	Hannan-Quinn criter.	7.514282
F-statistic	31.23377	Durbin-Watson stat	2.006046
Prob(F-statistic)	0.000008		

Null Hypothesis: MPR has a unit root				
Exogenous: Constant				
Lag Length: 0 (Automatic - based on SIC, maxlag=6)				
			t-Statistic	Prob.*
Augmented Dickey-Fuller test statistic			-2.996502	0.0475
Test critical values:	1% level		-3.689194	
	5% level		-2.971853	
	10% level		-2.625121	
*MacKinnon (1996) one-sided p-values.				
Augmented Dickey-Fuller Test Equation				
Dependent Variable: D(MPR)				
Method: Least Squares				
Date: 09/11/21 Time: 13:13				
Sample (adjusted): 1991 2018				
Included observations: 28 after adjustments				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
MPR(-1)	-0.162370		-2.996502	0.0059

	0.486541			
C	6.555290	2.333244	2.809517	0.0093
R-squared	0.256697	Mean dependent var		-0.160714
Adjusted R-squared	0.228109	S.D. dependent var		3.906437
S.E. of regression	3.432092	Akaike info criterion		5.372966
Sum squared resid	306.2606	Schwarz criterion		5.468123
Log likelihood	-73.22152	Hannan-Quinn criter.		5.402057
F-statistic	8.979024	Durbin-Watson stat		2.211173
Prob(F-statistic)	0.005936			

Date: 09/11/21 Time: 13:17						
Sample (adjusted): 1992 2018						
Included observations: 27 after adjustments						
Trend assumption: Linear deterministic trend						
Series: GDCR CRR INT LDR LQR MPR						
Lags interval (in first differences): 1 to 1						
Unrestricted Cointegration Rank Test (Trace)						
Hypothesized		Trace	0.05			
No. of CE(s)	Eigenvalue	Statistic	Critical Value	Prob.**		
None *	0.716114	101.9613	95.75366	0.0174		
At most 1	0.602007	67.96338	69.81889	0.0697		
At most 2	0.558700	43.08771	47.85613	0.1305		
At most 3	0.377818	21.00091	29.79707	0.3576		
At most 4	0.198988	8.188801	15.49471	0.4454		

At most 5	0.078184	2.198057	3.841466	0.1382		
Trace test indicates 1 cointegrating eqn(s) at the 0.05 level						
* denotes rejection of the hypothesis at the 0.05 level						
**MacKinnon-Haug-Michelis (1999) p-values						
Unrestricted Cointegration Rank Test (Maximum Eigenvalue)						
Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**		
None	0.716114	33.99794	40.07757	0.2062		
At most 1	0.602007	24.87567	33.87687	0.3935		
At most 2	0.558700	22.08680	27.58434	0.2160		
At most 3	0.377818	12.81211	21.13162	0.4697		
At most 4	0.198988	5.990744	14.26460	0.6144		
At most 5	0.078184	2.198057	3.841466	0.1382		
Max-eigenvalue test indicates no cointegration at the 0.05 level						
* denotes rejection of the hypothesis at the 0.05 level						
**MacKinnon-Haug-Michelis (1999) p-values						
Unrestricted Cointegrating Coefficients (normalized by b'*S11*b=I):						
GDCR	CRR	INT	LDR	LQR	MPR	
0.156823	-0.131345	-0.790130	0.027658	0.032689	0.530317	
0.308787	-0.307324	0.316857	0.137075	0.271786	-0.080509	
0.070155	-0.057417	0.082765	-0.063945	0.097784	-0.103537	
0.140512	-0.038052	0.007185	-0.039147	-0.057303	-0.101446	
0.008941	0.092011	0.148467	0.004820	-0.027560	0.184064	
-0.085792	-0.123686	-0.100411	-0.024485	-0.079944	0.171309	
Unrestricted Adjustment Coefficients (alpha):						
D(GDCR)	-1.087973	-2.080664	0.304815	-0.329514	-0.832957	0.314310
D(CRR)	0.295484	-0.648516	0.533494	1.234425	-0.600636	-0.018973

D(INT)	1.837873	-0.496047	-0.196345	-0.697465	-0.561847	-0.173705
D(LDR)	-2.124645	-0.394973	6.348130	-0.987217	0.733823	0.313937
D(LQR)	1.346933	-1.269303	-4.109256	1.405217	1.572468	0.007675
D(MPR)	-0.887308	-1.194791	-0.263502	0.406588	-0.396829	-0.528008
1 Cointegrating Equation(s):		Log likelihood	-424.6418			
Normalized cointegrating coefficients (standard error in parentheses)						
GDCR	CRR	INT	LDR	LQR	MPR	
1.000000	-0.837538	-5.038347	0.176365	0.208444	3.381620	
	(0.21714)	(0.80464)	(0.11609)	(0.17533)	(0.55894)	
Adjustment coefficients (standard error in parentheses)						
D(GDCR)	-0.170620					
	(0.12904)					
D(CRR)	0.046339					
	(0.09582)					
D(INT)	0.288221					
	(0.08106)					
D(LDR)	-0.333194					
	(0.32325)					
D(LQR)	0.211231					
	(0.25762)					
D(MPR)	-0.139151					
	(0.09920)					
2 Cointegrating Equation(s):		Log likelihood	-412.2040			
Normalized cointegrating coefficients (standard error in parentheses)						
GDCR	CRR	INT	LDR	LQR	MPR	
1.000000	0.000000	-37.24196	-1.244373	-3.358569	22.72322	
		(5.77060)	(0.80456)	(1.20587)	(3.98215)	
0.000000	1.000000	-38.45035	-1.696328	-4.258928	23.09341	

		(6.07063)	(0.84639)	(1.26856)	(4.18919)	
Adjustment coefficients (standard error in parentheses)						
D(GDCR)	-0.813102	0.782338				
	(0.23212)	(0.22400)				
D(CRR)	-0.153915	0.160494				
	(0.20524)	(0.19806)				
D(INT)	0.135048	-0.088949				
	(0.17463)	(0.16852)				
D(LDR)	-0.455157	0.400447				
	(0.71317)	(0.68823)				
D(LQR)	-0.180714	0.213173				
	(0.55991)	(0.54033)				
D(MPR)	-0.508087	0.483731				
	(0.19744)	(0.19053)				
3 Cointegrating Equation(s):		Log likelihood	-401.1606			
Normalized cointegrating coefficients (standard error in parentheses)						
GDCR	CRR	INT	LDR	LQR	MPR	
1.000000	0.000000	0.000000	-6.897929	3.426815	-5.659039	
			(1.86475)	(2.44899)	(5.25350)	
0.000000	1.000000	0.000000	-7.533325	2.746621	-6.209768	
			(1.93681)	(2.54363)	(5.45652)	
0.000000	0.000000	1.000000	-0.151806	0.182197	-0.762104	
			(0.05230)	(0.06868)	(0.14733)	
Adjustment coefficients (standard error in parentheses)						
D(GDCR)	-0.791718	0.764836	0.225597			
	(0.23555)	(0.22605)	(0.57014)			
D(CRR)	-0.116487	0.129862	-0.394803			
	(0.20490)	(0.19663)	(0.49595)			
D(INT)	0.121274	-0.077676	-1.625585			
	(0.17746)	(0.17030)	(0.42954)			

D(LDR)	-0.009804	0.035955	2.078997			
	(0.51444)	(0.49369)	(1.24519)			
D(LQR)	-0.468998	0.449115	-1.806541			
	(0.46411)	(0.44539)	(1.12336)			
D(MPR)	-0.526573	0.498861	0.300703			
	(0.20031)	(0.19223)	(0.48485)			
4 Cointegrating Equation(s):		Log likelihood	-394.7545			
Normalized cointegrating coefficients (standard error in parentheses)						
GDCR	CRR	INT	LDR	LQR	MPR	
1.000000	0.000000	0.000000	0.000000	-1.235173	-0.704964	
				(0.48652)	(1.03909)	
0.000000	1.000000	0.000000	0.000000	-2.344801	-0.799353	
				(0.59809)	(1.27738)	
0.000000	0.000000	1.000000	0.000000	0.079599	-0.653078	
				(0.02726)	(0.05822)	
0.000000	0.000000	0.000000	1.000000	-0.675853	0.718197	
				(0.35928)	(0.76734)	
Adjustment coefficients (standard error in parentheses)						
D(GDCR)	-0.838019	0.777375	0.223229	-0.321891		
	(0.25185)	(0.22600)	(0.56648)	(0.10508)		
D(CRR)	0.056965	0.082889	-0.385934	-0.163161		
	(0.19241)	(0.17266)	(0.43279)	(0.08028)		
D(INT)	0.023271	-0.051136	-1.630596	0.022695		
	(0.18102)	(0.16244)	(0.40717)	(0.07553)		
D(LDR)	-0.148520	0.073521	2.071904	-0.480193		
	(0.54688)	(0.49074)	(1.23007)	(0.22818)		
D(LQR)	-0.271548	0.395643	-1.796444	0.071023		
	(0.48417)	(0.43447)	(1.08904)	(0.20202)		
D(MPR)	-0.469442	0.483389	0.303624	-0.187384		
	(0.21263)	(0.19080)	(0.47826)	(0.08872)		
5 Cointegrating		Log	-391.7592			

Equation(s):		likelihood				
Normalized cointegrating coefficients (standard error in parentheses)						
GDCR	CRR	INT	LDR	LQR	MPR	
1.000000	0.000000	0.000000	0.000000	0.000000	1.610382	
					(0.92861)	
0.000000	1.000000	0.000000	0.000000	0.000000	3.596004	
					(1.72142)	
0.000000	0.000000	1.000000	0.000000	0.000000	-0.802286	
					(0.10452)	
0.000000	0.000000	0.000000	1.000000	0.000000	1.985092	
					(0.73972)	
0.000000	0.000000	0.000000	0.000000	1.000000	1.874512	
					(0.98612)	
Adjustment coefficients (standard error in parentheses)						
D(GDCR)	-0.845466	0.700734	0.099562	-0.325906	-0.529415	
	(0.24120)	(0.22411)	(0.55049)	(0.10066)	(0.18869)	
D(CRR)	0.051594	0.027624	-0.475109	-0.166056	-0.168613	
	(0.18519)	(0.17207)	(0.42266)	(0.07729)	(0.14487)	
D(INT)	0.018248	-0.102832	-1.714012	0.019987	-0.038489	
	(0.17431)	(0.16196)	(0.39782)	(0.07274)	(0.13636)	
D(LDR)	-0.141959	0.141041	2.180853	-0.476656	0.480292	
	(0.54327)	(0.50477)	(1.23988)	(0.22672)	(0.42498)	
D(LQR)	-0.257488	0.540328	-1.562984	0.078602	-0.826629	
	(0.46446)	(0.43155)	(1.06003)	(0.19383)	(0.36333)	
D(MPR)	-0.472990	0.446877	0.244708	-0.189297	-0.391860	
	(0.20985)	(0.19498)	(0.47893)	(0.08758)	(0.16416)	

Pairwise Granger Causality Tests			
Date: 09/11/21 Time: 13:25			
Sample: 1990 2018			
Lags: 2			
Null Hypothesis:	Obs	F-Statistic	Prob.

CRR does not Granger Cause GDCR	27	0.02339	0.9769
GDCR does not Granger Cause CRR		1.00312	0.3829
INT does not Granger Cause GDCR	27	0.43101	0.6552
GDCR does not Granger Cause INT		1.30915	0.2903
LDR does not Granger Cause GDCR	27	0.30044	0.7435
GDCR does not Granger Cause LDR		0.31122	0.7357
LQR does not Granger Cause GDCR	27	0.33237	0.7208
GDCR does not Granger Cause LQR		0.32552	0.7256
MPR does not Granger Cause GDCR	27	0.66193	0.5258
GDCR does not Granger Cause MPR		0.02377	0.9765
INT does not Granger Cause CRR	27	0.40617	0.6711
CRR does not Granger Cause INT		0.07540	0.9276
LDR does not Granger Cause CRR	27	0.30093	0.7431
CRR does not Granger Cause LDR		0.63824	0.5377
LQR does not Granger Cause CRR	27	0.77539	0.4727
CRR does not Granger Cause LQR		2.10931	0.1452
MPR does not Granger Cause CRR	27	1.11849	0.3447
CRR does not Granger Cause MPR		0.09642	0.9085
LDR does not Granger Cause INT	27	0.30663	0.7390
INT does not Granger Cause LDR		2.50369	0.1048
LQR does not Granger Cause INT	27	0.94046	0.4056
INT does not Granger Cause LQR		0.31964	0.7297
MPR does not Granger Cause INT	27	2.04377	0.1534

INT does not Granger Cause MPR		3.76782	0.0392
LQR does not Granger Cause LDR	27	3.05779	0.0673
LDR does not Granger Cause LQR		0.83341	0.4478
MPR does not Granger Cause LDR	27	0.14930	0.8622
LDR does not Granger Cause MPR		0.55092	0.5842
MPR does not Granger Cause LQR	27	2.53175	0.1024
LQR does not Granger Cause MPR		0.25500	0.7772