The Impact of Deposit Insurance Coverage on Total Number of Accounts Deposited in Nigerian Banks

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Abstract

One of the problems that confront the banking sector (both in under-developed and developed countries) is the phenomenon of bank distress. No matter the cause or origin, once a bank starts showing signs of distress, the confidence of the customers of such bank gradually starts being eroded. There might even be a run on such bank (which worsens matters and) which eventually leads to total failure and liquidation. A run on a bank is a situation whereby most of the bank customers who deposited money with such a bank suddenly rush at a time to withdraw very substantial part (if not all) of their deposit. Since the bank operates on the principle that not all who deposited money with it will come to withdraw their deposit at the same time, a run on a bank creates a situation in which the bank will be unable to redeem its obligation to its customers, at other times, it might be that the fraud in the bank has reached such an alarming rate that the bank becomes insolvent. Even loan default in form of doubtful debt in such an alarming dimension is sufficient to generate "cracks" in the "walls" of the stability of a bank. There is therefore an acceptable need for an independent body like Nigeria Deposit Insurance Corporation (NDIC) to protect the interest of depositors and promote sound banking habit in which the confidence of depositors in the banking system is not shaky. This is because in the event of any bank failure, the depositors' fund is at stake. The entrepreneurs (in form of the directors and shareholders of the bank) are seriously affected. There is a setback in the economy as productivity is affected. The purpose of this research work is to look at the causes of bank failure in developing economy which Nigeria is one and to critically study the impact of the Nigeria Deposit Insurance Corporation (NDIC) in the Nigeria financial institution. The data used for this study was secondary data set which was collated from the Nigeria Deposit Insurance Corporation (NDIC) Annual Report and Statement of Accounts between 2014 and 2019. This research work also highlights the variables on which the data was collected, descriptive statistics, graphs or plots for individual variable of interest, model specification, parameters estimation techniques, correlation analysis and test of significance or contributions of the selected variables of interest.

1.0 Introduction

It is not uncommon to find in the economic history of many countries recorded experiences of bank failures. Nigeria had her own fair share of this disturbing experience in the 1930's and early 1950's. Between 1929 and 1959, not less than 33 different commercial banks were registered in Nigeria. By 1959, however, only seven banks, three expatriates and four indigenous with a total of 160 branches were operating (Awosika, 1984). The others had either failed or surrendered their licences. This resulted in the loss of funds by the depositors and crisis of confidence in the banks. Many reasons, including under-capitalization, poor management, (Nyong, 1989), hostile and unfair competition from alien banks, have been given for these failures (Ejiofor, 1977). However, the fact that the period between 1892 and 1952 (when the first Banking Ordinance was passed) can be very actually described as a period of unregulated banking activity is probably the best pointer to the causes of bank failures in Nigeria (Ojo and Adewunmi, 1982).

Following Paton's Repot of 1948, came the Banking Ordinance of 1952 which stipulated as conditions for entry into the commercial banking industry: (i) a banking licence and (ii) a minimum paid-up capital (N25,000) for banks incorporated in Nigeria: and N200,000 for banks incorporated outside Nigeria. In 1958 this ordinance was repealed and replaced by the Banking Ordinance of 1958 consequent upon the establishment of the Central Bank of Nigeria in that year. The Banking Act of 1969 updated and enlarged the regulation of the banking system and thus contained regulatory features such as a system or licencing. bank Supervision and examination, minimum capital requirements, and observance of liquidity ratios and the maintenance of reserves. The banking Act, 1969 was amended in September, 1979 by the Banking (Amendment) Act 1979 with the main purpose, inter alia, of extending the application of its provisions to the operations of merchant banks. Nigeria is today once again witnessing a proliferation of new banks reminiscent of the late 1930's to early 1950's.

The number of bank branches in the country has increased phenomenally, rising from a total of 190 in 1960 to1,171 in 1988. At the end of 1988, there were a total of 42 commercial banks, 24 merchant banks and 5 development banks (Central Banks of Nigeria, 1988). However, at the end of March 1989, there were 85 licensed banks in Nigeria, made up of 48 commercial banks, 32 merchant banks, and 5 development banks. And new volume applications are being considered for licencing. The rate at which these banks are springing

up in recent times increases the competitiveness in the financial sector implying that in the near future it will be that of survival of the fittest, following the Darwinian theory.

Despite some arguments to the contrary, there are grounds to anticipate large bank failures in the near future unless we take adequate precautionary measures now to avert such an occurrence. The panic in financial circles, following the Central Bank's (vide Monetary Policy Circular No. 2. Amendment and Extension to Amendment No. 3, 1989) prohibition of financial institutions from accepting foreign guarantees and/or foreign currency deposits as collaterals for domestic loans denominated in naira, as well as the Attorney-General's directive that all Ministries and Parastatals withdraw their accounts from commercial and merchant banks and transfer same to the Central Bank, is a pointer to this direction.

Moreover, one must note that some of the existing banks are today Surviving and declaring huge profits (which have been declared as "unearned income akin to petroleum profits tax levied by the Federal Government) due to their foreign exchange operations. Most of the banks have abandoned their traditional roles and now engage in mere trading in the foreign exchange market hence their indictment recently by the Federal Minister of Finance and Economic Development. Any restructuring of the foreign exchange market operations to discourage such trading operations will result in some banks finding themselves in serous financial quagmire.

Like any other business Organization, various problems are associated with the failure of some banking Institution. It is therefore necessary to highlight those problems in order to find solution to them. Also, there have been varying debates on the real impact of Nigeria Deposit Insurance Corporation without any conclusive answer. As stated in the introduction that the concept of Nigeria Deposit Insurance Corporation (NDIC) was an area brought by the Federal Government to see the subject of bank facture and their inability to meet depositor demand brings no doubt that the initial problem was on some of the institution financial liquidation in Nigeria which pattered in the British.

Moreover, in spite of the details about the function of the Nigeria Deposit Insurance Corporation (NDIC) it has been spotted that a number of every area it ranges of operation, what deposit means and the investment of the corporation with respect to joint and simple account holder has also been creating controversy for proper clarification.

1.2   Aim and Objectives

The main aim of this study is to examine the Impact of Deposit Insurance Coverage and Insurance Funds on Total Number of Accounts for Deposit Money Banks (DBMs) in Nigeria. The specific objectives of the study are to:

1.   determine the linear relationship that exists between the Total number of accounts for Deposit Money Banks (DBMs), Deposit Insurance Coverage (DIC), Premium Rates applied to Deposit Money Banks (DMBs) and the Insurance Funds.

2.   determine the contribution of Deposit Insurance Coverage to total number of accounts for Deposit Money Banks (DBMs).

3.   build the appropriate Simple Linear Regression models for the study.

4.   examine the degree of association between the total number of accounts for Deposit Money Banks (DBMs) and Deposit Insurance Coverage in Nigerian banking industry.

5.   determine the degree of association between the total number of accounts for Deposit Money Banks (DBMs) and Premium Rates applied to Deposit Money Banks (DMBs) in Nigerian banking industry.

6.   determine the degree of association between the Total Number of Accounts for Deposit Money Banks (DBMs) and Insurance Funds in Nigerian banking industry.

7.   evaluate or examine the effect of Deposit Insurance Coverage (DIC) levels for Deposit Money Banks (DBMs) on the Total Number of Accounts for Deposit Money Banks (DBMs) in Nigerian banking industry.

8.   determine the effect of Premium Rates applied to Deposit Money Banks (DMBs) on the total number of accounts for Deposit Money Banks (DBMs) in Nigerian banking industry.

9.   determine the effect of Insurance Funds on the total number of accounts for Deposit Money Banks (DBMs) in Nigerian banking industry.

1.4   Purpose of the Study

The purpose of this research work is to look at the causes of bank failure in developing economy which Nigeria is one and to critically study the impact of the Nigeria Deposit Insurance Corporation (NDIC) in the Nigeria financial institution.

1.6   Scope and Limitations of the Study

The scope of the research work is limited to Nigeria Deposit Insurance Corporation (NDIC) and banking industry in Lagos area for various reasons among which are:

i.   Lagos is a state where most banks have their head office and more so, it is one of the commercial centres in the country.

ii.   The population of depositors in the State is greater than anywhere else in the country. Most of the relevant statistical data available on the industry are in the State.

2.0   Literature Review

2.1   Review of Empirical Studies

Babarinde, Gidigbi, Yole and Kazeem (2020) conducted a study in Nigeria to investigate the implication of deposit insurance in the Nigerian financial system. They found out that consumer protection and promotion of financial stability is the premise of the deposit insurance. They recommended that government should encourage hybrid deposit insurance system, a system where both governments permit the financial system to operate explicit deposit insurance scheme without abandoning the vibrant role of the implicit system of deposit insurance. However, the study was a content analysis and purely theoretical.

Obim, Owui and Ekanem, (2020) conducted a study in Nigeria using Secondary data from Central Bank of Nigeria (CBN), NDIC, and the World Bank to investigate the effect of loan recovery, dividend paid, broad money, inflation on total deposit. The study found Loan recover, Liquidity and Inflation had positive effects on the level of banking system stability in Nigeria and thus recommended the urgent strategizing of loan recover by NDIC. However, other control variables can be introduced in the study to establish robustness of results.

The impact of the 2008 global financial crisis on many economies re-affirmed the need to protect the financial system from shocks, both endogenous and exogenous. Consequently, policymakers and regulators in many countries implemented various drastic regulatory measures to rescue their financial systems from meltdowns, and to avert deep economic downturns (Demirguc-Kunt and Kane, 2003; Cobbinah & Okpalaobieri, 2009; Massa & Willem te Velde, 2008; Berkmen et al, 2012). Measures adopted include government takeover of banks or capital injections, interest rate cuts, subsidies to ailing sectors, and bank deposit guarantees. Among all these, the deposit insurance scheme has generated great

interest among scholars and policy makers (Campbell et al, 2009; Mbarek & Dorra, 2011; Chu, 2011).

Depositors typically do not have in-depth information about the operations of their banks, thus, Diamond and Dyvbig (1983) assert that during a bank run, depositors besiege their banks in a bid to withdraw their deposits as they fear the bank will fail. This action may however turn into a self-fulfilling prophecy as such sudden withdrawals can force the bank to liquidate many of its assets at a loss and consequently, fail. It has been argued therefore, that government provision of deposit insurance is justified on the grounds that deposit insurance provides a cushion for uninformed individuals, as well as providing financial and monetary stability (Pennacchi, 2009; Ogunleye, 2010). Nevertheless, some researchers have argued that explicit Deposit Insurance Schemes (hereafter DIS) encourage excessive risk-taking or financial recklessness on the part of financial institutions, which could ultimately lead to instability in the banking industry despite the huge deposits mobilised by such banks (Brock, 2003; Garcia, 2000; Demirgüç-Kunt & Kane, 2003; Dowd, 1993; Ketcha, 1999).

2.1.1 Theoretical Framework

The economic theory explaining the potential value of liability insurance begins with Diamond and Dybvig (1983). In their model, "banks" raise funds, which they invest in productive activities. Those productive activities have high payoffs if investment lasts for the full two periods, but investments yield lower payoffs if terminated prematurely. Some bank "depositors" unpredictably will need to consume early, which motivates banks to fund themselves with demandable debts (debts that can be redeemed early, at the option of the depositor). If too many depositors request early withdrawal, banks will have to liquidate their investments prematurely and inefficiently. The reduction in to investments that are liquidated prematurely is the source of liquidity risk in the banking system. Depositors' payoffs in this setting depend on what other depositors do. If one expects all other depositors to run on the bank but does not run, then his/her expected payoffs are lower than if he/she also runs. For that reason, the Diamond-Dybvig contract generates a bad Nash equilibrium in which everyone runs on the bank because everyone expects others to run on the bank.

The financial intermediation activities of banks and other deposit-taking institutions involve various risks. For instance, the hard-earned savings of depositors with banks may be lost in case of financial crisis and distress of a bank as well as the entire banking system. To counter this phenomenon, a system, called Deposit Insurance System (DIS) has been put in place by

the government to avert this financial loss, instil public confidence in the financial system by promoting financial soundness and stability. It has been noted (Nolte and Khan, 2017; Bretschneider and Benna, 2017), that an effective DIS constitutes a vital element of the financial sector. This is because it ensures the safety of the entire banking system and its deposits as well as inspires confidence in the system by providing safeguards against any shock in the system. According to Nolte (2016), a DIS is an integral part of the financial safety net designed to protect depositors against the loss of their insured deposits in the event that a bank is unable to meet its obligations to its depositors, and also promotes financial stability by preventing bank runs. Bank runs, being a feature of banking crisis, refers to situations which arise when a large number of banks' customers voluntarily and hurriedly withdraw their deposits with the banks, with the conviction that the banks will fail (Igoni, 2013).

Various studies have revealed the positive impact of deposit insurance scheme on bank stability (Nwakoby, Onwumere, Ibe and Okanya, 2016; Wilson and Ogar, 2018). However, in real life, there are still cases of bank runs/ distress and instability. There may be many reasons that account for this ugly scenario. But looking at from the perspective of regulatory tool employed, especially as relating to Deposit Insurance (DI), do we say the issues arise from the design or implementation or understanding by the public? It can be said that if there is a knowledge gap on the part of the general public on the designed, proper implementation and clear understanding of DIS, definitely, the DIS may not be able to achieve the objectives of its creation. Hence, the scheme, which plays an important role in the framework for managing bank failures (Baudino, Defina, Real, Hajra, and Walters, 2019), needs to be properly understood, digested and applied by the financial community, most especially the general public. An attempt in demystifying deposit insurance is considered necessary so to educate the financial community, especially the public in a bid to closing any knowledge gap.

A deposit insurance scheme has been defined as a financial guarantee to protect depositors in the event of a bank failure and also to offer a measure of safety for the banking system (Ebhodaghe, 1997). In most economies where the scheme exists, it serves as one of the complementary supervisory agencies employed by the monetary authorities for effective management and orderly resolution of problems associated with both failed and failing depository institutions. In addition, the scheme also offers some form of deposit guarantee to depositors such that their confidence in the banking system is not eroded in situations where deposit-taking financial institutions fail. Also, the scheme provides government with a framework for intervention and sterilization of disruptive effects on the economy following the failure of the depository institutions. Policymakers have many choices regarding how

they can protect depositors. Two alternative approaches have been adopted in implementing a deposit insurance scheme. One is the Implicit Deposit Protection Scheme (IDPS) and the other is the Explicit Deposit Protection Scheme.

2.1.2 Deposit Guarantee

Provided deposit insurance cover to twenty-four (24) Deposit Money Banks (DMBs), 882 Micro Finance Banks (MFBs) and 100 Primary Mortgage Institute (PMIs). The insured amount had remained at level set in 2010 at #500,000 and #200,000 for DMBs and MFBs/PMIs respectively. All insured depositor of the closed MFBs were reimbursed using the new coverage level of #200,000.

2.1.3 Bank Liquidation

1. The cumulative recovery for the banks is liquidation since 1994 rose from about # 27.756 billion in 2010 to about # 22.158 billion in 2011, representing an increase of about 2%.

2. The sum of # 8.33 million had been recovered to date in respect or the closed micro finance banks (MFBs).

3. In order to enhance the place of debt recovery and license payment of unsecured deposits the corporation, among other steps had packaged all outstanding but secured non-performing loans of banks in liquidation to the tune on #9 billion for disposal of AMCON.

2.1.4 Deposit Insurance Fund

1. The Deposit Insurance Fund (DIF) or Deposit Mortgage Banks (DMBs grew by about 7% from about #295.7 billion in 2010 to about #347 billion in 2011.

2. The self-gear by about 39% from about #2.3 billion in 2011 to about #3.2 billion in 2011.

2.1.5 Extension of Deposit Insurance System to now Interest Bearing Banks

The corporation during the year continued to five tune the development frame work that would enable it extend Deposit Insurance System (DIS) to non-interest bearing financial institution that would be license in due course by the CBN.

2.1.6 How the Banking Industry pay their Premium and to what Extent

Deposit Insurance and Credit Guarantee Corporation (DLCGC) is subsidiary of reserve bank of India. It was established on 15th July, 1978 under DLCGC act 1961 for the purpose of providing insurance of deposit guaranteeing of credit facilities DICG insures all bank of deposits such as saving fixing current recuing deposits for up to the limit for Rs 100,000 of each deposit in a bank deposit insurance. Bank covered by Deposit Insurance Scheme are:

i. All commercial banks including the branches of foreign bank functioning in India local area bank and regional rural banks.

ii. Cooperative bank all eligible cooperative banks as defined in section 2 (9g) of the DICGC Act are covered by the deposit Insurance Scheme.

All state central and primary cooperative banks functioning in the state central and primary cooperative banks functioning in the state union the territories which have amended their cooperative societies act as required under the DISGC Act 1961 empowering RBI to order the registrar of co-operative Societies of the respective states union/territories to win up a co-operative banks or to supersede its committee of management in requiring the register not to take any action for winding up amalgamation or reconstructive of cooperative bank without prior sanction in writing from the RBI are treated as eligible banks. At present all cooperative banks are covered by the scheme.

2.1.7 Insurance Coverage

Unitarily under the provision of section 16 (1) of the DICGC act the insurance cover was limited to 1,500/only per depositors for deposits held by him (them) of the lark taken together. Source capacity in the branches of the bank taken together. However, the act also empowers the corporation to raise this limit the insurance limit was enhance from time to time. Types of deposit covered DICGC insures all bank deposits such as saving fixed current recurring etc. except the following types of deposits:

i. Deposits of foreign government

ii. Deposits of central/state government

iii. Inter Bank Deposits

iv. Deposit of the state land development banks with state cooperative Bank.

v. Any amount which has been specifically exempted by the corporate with the previous approval of the RBI.

vi. Any amount due on account of and deposit received outside.

2.1.8 Insurance Premium

The rate insurance premium was initially fixed at 0.05 or $\left(\frac{1}{20}\right)^{th}$ or of percent per annum it was reduced to 0.04 or $\left(\frac{1}{25}\right)^{th}$ of 1 percent per annum will effect from 1st October, 1971. The premium paid by involved banks to the corporations is require to be absorbed by the banks themselves so that the benefit of deposit insurance protection 10 made available to the depositors free of cost. In other words, the financial burden on accident of payment of premium should be borne by the banks themselves and should not be passed on to the depositors. The formula for working out the half yearly premium is as follow:

- **Deposits in Rupees rounded to thousand** $\times \frac{0.05}{100}$

- The deposits should be rounded off to the nearest thousand rupees

2.1.9 Interest

An insured bank is required to remit premium not later than or before May and November each year. If it does not pay on or before the stipulated date at premium payable by it or and portion there of it liable to pay interest rate of 8% above the bank rate on the amount of such premium or on the unpaid portion there of as the case may be form the beginning of the half years' date of payment interest is calculated on this basis for the actual number of day of default taking 1 year as 265 days.

2.2.0 Types of Deposit Insurance

Basically, there are two kinds of Deposit Insurance Schemes a country can embrace, namely, Explicit Deposit Insurance and Implicit Deposit Insurance.

- **(i) Explicit Deposit Insurance:** More so, Izaguirre, Lyman, McGuire and Dave (2016), explain that explicit deposit insurance is a system, where the cost of protecting deposits is largely borne by the financial industry and its customers. The government gives only back-up guarantee to make such protection credible and reliable. As asserted by Financial Stability Board (FSB, 2001), the law formally specifies explicit deposit insurance systems and there are specific rules governing insurance coverage limits, the types of instruments covered, the methods for calculating depositor claims, funding arrangements and other related issues.

(ii) Implicit Deposit Insurance: Implicit Deposit Insurance on the other hand, refers to a system where there is an implicit expectation that the government will step in to protect all depositors or even all creditors of a depository institution (Izaguirre et al, 2016). Implicit protection that arises when the public, including depositors and even other creditors expect some form of protection in the event of a bank failure. Implicit protection is not formally specified but is expected by the public as a result of the government's past behaviour or statements made its officials (FSB, 2001).

Differentiating between the two, Bernet and Walters (2009) explained that, an explicit deposit Insurance scheme is formal deposit insurance scheme where the guarantee promise is always explicit, usually secured by contract, and guarantee promises are often based on governmental declarations unlike in implicit deposit insurance where guarantee promises are based on the public assumption, without any formal codification and explicitly stated terms of contract.

2.2.1 Deposit Insurance Fund (DIF) in Nigeria

A remarkable feature and approaches to building a DIF include a steady premium assessed over an extended period as well as a premium system designed to achieve and maintain a target reserve ratio of range. The task of generating a DIF for the deposit insurance system in the country started with the first premium assessment carried out in 1989 when a total of 82 insured banks were assessed for premium on their deposit liabilities for 1988 and 1989. Since then, the DIF has continued to grow as more banks were established in the country and as bank deposits grew. There were 27 DMBs (21 Commercial Banks, 5 Merchant Banks and one Non-Interest Bank), 888 MFBs and 38 PMBs as at 31st December, 2018. Table 1 presents annual Deposit Insurance Fund in Nigeria from 2014 to 2018.

2.2.2 The Problem of Facing National Deposit Insurance Cooperation

A Deposit Insurance Scheme is a financial guarantee to protect depositors in the event of a bank facture and also to offer a measure of safety for the banking system. A proper financial safety not even simple rumours of problem regarding solvency or liquidity of a financial institution have the potential become fulfilling and turning into a full financial crisis. Deposit insurance has faced numerous challenges such as:

1. The menace of liquidation related litigations which make it difficult for the Corporation to completely wind up failed banks in accordance with the law and settle depositors and other creditors with a reasonable time. This is further compounded by the complex and after slow pace of litigations an or esteemed counts. Execution of counts Judgment against the assets of the of Corporation for the liability of failed banks lack of proper understanding of the legal status legal status of National Deposit Insurance Corporate (NDIC) as liquidator depositor insurer by legal practitioner the court and the public at large.

2. Difficulty on the part of the corporation is recovering debt Owed to and other related challenges. Valuable finding base of the corporation which if not protection and systematically boosted will gravely affect the in the Nigeria banking sector.

3. Poor public awareness on the vision, mandates and the function of the NDIC.

4. Most members of the public assume the national Deposit Insurance Corporation is a conventional Insurance company.

3.0   Methodology

3.1   Introduction

This section will discuss the techniques used in carrying out this research work. Every research work conducts, significantly has a specific frame work for controlling data collected. This frame work is known as research design. It ensures that data collected are reliable and valid as it gives room for the investigator to exercise scientific judgment. It also gives explanation on the procedure followed in arriving at logical conclusion. Therefore, to successfully conclude this study, this chapter contains how this research is designed to achieve the best results. In addition, it highlights the sources of data, variables on which the data was collected, descriptive statistics, graphs or plots for individual variable of interest, model specification, parameters estimation techniques and test of significance or contributions of the selected variables of interest.

3.2   Source of Data for the Study

The data used for this study was secondary data set which was collated from the Nigeria Deposit Insurance Corporation (NDIC) Annual Report and Statement of Accounts between 2014 and 2019.

3.3 Research Design

The simple regression analysis will be employed for the analysis of the data collected. The Total Number of Accounts for Deposit Money Banks (DBMs) was employed as the dependent variable (**Y**) while Total Number of Accounts Fully Covered at N500,000 (TNAFC), Total Number of Accounts Partially Covered at N500,000 (TNAPC), Total Deposits Fully Covered at N500,000 (TDFC), Total Deposits Partially Covered at N500,000 (TDPC), Mean Premium Rate Paid (MPRP), Deposit Insurance Fund (DIF), Special Insured Institutions Fund (SIIF) and Non-Interest Deposit Insurance Fund (NIDIF) were all employed as the independent variables.

3.4 Interpretation of Correlation Coefficient 'r'

The population correlation coefficient is denoted by p (rho), while the sample correlation coefficient is denoted by r. the value of correlation coefficient can be:

(a) **r = +1**. This implies perfect direct association between the variables, which means a fitted line is able to explain all the variations in the observed value of Y.

(b) **r = -1**. This suggests perfect negative or indirect (inverse) association between the variables. This situation occurs when a given change in X produces an opposite equal change in Y.

(c) **r = 0**. This means there is no association between the variables, that is, the variables are uncorrelated. The regression line did not give any explanation as regards the variation in the observed values of Y.

(d) **r < 1**. This means that there exists a direct but not perfect relationship. This can either be:

    i. **0 < r < 0.5**, which means that the two variables are weakly and positively correlated.

    ii. **0.5 < r < 1**, then the two variables are strongly positively correlated.

(e) **r < -1.** This also means there exists an indirect but not perfect association. Also, this can either be of:

    i. **0 < r < -0.5**, which means that the two variables are weakly and negatively correlated

ii. **-0.5 < r < -1**, which means that the two variables (X and Y) are said to be strongly negatively correlated.

3.5 Methods of Calculating Correlation Coefficient

The methods of calculating the correlation coefficients are:

1. Karl Pearson's Product Moment Correlation method which is obtained by

$$r = \frac{n\Sigma XY - (\Sigma X)(\Sigma Y)}{\sqrt{[n\Sigma X^2 - (\Sigma X)^2][n\Sigma Y^2 - (\Sigma Y)^2]}}$$

2. Spearman's Rank Correlation Method. This method is particularly useful when the data is of the nominal or ordinal type.

Firstly, it involves ranking the values of the two variables (X and Y) in an ascending order of magnitude, then subtracting the rank of X and Y and take the square of the difference. Therefore, the spearman's rank correlation coefficient "*r*" is given by

$$r = 1 - \frac{6\,\Sigma d_i^2}{n\,(n^2 - 1)}$$

Where:

n is the number of observations.

$d = R_X - R_Y$

R_X = Rank of the independent variables X

R_Y = Rank of the dependent variables Y

3.6 Steps in Calculating Spearman's rank correlation "r"

1. Rank X and Y independently.
2. If there is a tie in ranks then, the average of the ranks is assigned to each item.
3. Find d, where $d = R_X - R_Y$
4. Find d^2 and Σd^2
5. Use the formula

$$r = 1 - \frac{6\,\Sigma d^2}{n\,(n^2 - 1)}.$$

3.7 Model Specification/The adopted Model for the Study

Model specification involves the determination of the dependent and independent variables based on specified theoretical sign and size of the parameters. The analytical technique employed in this study is the Ordinary Least Square (OLS) model. This study adopted Simple Linear Regression Model or equation as

$$\text{TNADMB} = f(DICDMB) \tag{3.1}$$

Therefore, the modified model (3.1) for this study is stated as

$$\text{TNADMB} = \delta_0 + \delta_1(DICDMB) + U_i \tag{3.2}$$

$$Y_i = \delta_0 + \delta_1 X_1 + U_i \tag{3.3}$$

Where:

$Y_i = \text{TNADMB}$ = Total Number of Accounts for Deposit Money Banks (DBMs)

$X_1 = DICDMB$ = (TNAFC, TNAPC, TDFC & TDPC) = Deposit Insurance Coverage levels for Deposit Money Banks

δ_1 = The regression parameters or contributions

U_i = The stochastic term and it absorbs the influence of omitted variables.

$$\text{TNADMB} = f(MPRP) \tag{3.4}$$

Therefore, the modified model (3.4) for this study is stated as

$$\text{TNADMB} = \delta_0 + \delta_1(MPRP) + U_i \tag{3.5}$$

$$Y_i = \delta_0 + \delta_1 X_1 + U_i \tag{3.6}$$

Where:

$Y_i = \text{TNADMB}$ = Total Number of Accounts for Deposit Money Banks (DBMs)

$X_1 = MPRP$ = Mean Premium Rate Paid

δ_1 = The regression parameters or contributions

U_i = The stochastic term and it absorbs the influence of omitted variables.

$$\text{TNADMB} = f(INSF) \tag{3.7}$$

Therefore, the modified model (3.7) for this study is stated as

$$\text{TNADMB} = \delta_0 + \delta_1(INSF) + U_i \tag{3.8}$$

$$Y_i = \delta_0 + \delta_1 X_1 + U_i \tag{3.9}$$

Where:

$Y_i = \text{TNADMB} =$ Total Number of Accounts for Deposit Money Banks (DBMs)

$X_1 = INSF =$ Insurance Funds (DIF, SIIF & NIDIF)

$\delta_1 =$ The regression parameters or contributions

$U_i =$ The stochastic term and it absorbs the influence of omitted variables.

Remarks:

TNADMB = Total Number of Accounts for Deposit Money Banks (DBMs)

TNAFC = Total Number of Accounts Fully Covered at N500,000

TNAPC = Total Number of Accounts Partially Covered at N500,000

TDFC = Total Deposits Fully Covered at N500,000

TDPC = Total Deposits Partially Covered at N500,000

MPRP = Mean Premium Rate Paid

DIF = Deposit Insurance Fund

SIIF = Special Insured Institutions Fund

NIDIF = Non-Interest Deposit Insurance Fund

3.8   Research Methodology

The study applied modern Simple Regression and Correlation analyses techniques with the secondary data obtained from the Nigeria Deposit Insurance Corporation (NDIC) Annual Report and Statement of Accounts between 2014 and 2019. However, this paper makes use of the Ordinary Least Square (OLS) method for estimating the parameters/contributions of Deposit Insurance Coverage for Deposit Money Banks (DMBs), Premium Rates applied to Deposit Money Banks (DMBs) and the Insurance Funds to Total Number of Accounts for Deposit Money Banks (DBMs). Hence, the adopted Simple Linear Regression Models in equations (3.2, 3.5 & 3.8) will be used to determine the linear relationship that exists between the Total Number of Accounts for Deposit Money Banks (DBMs), Deposit Insurance Coverage (DIC), Premium Rates applied to Deposit Money Banks (DMBs) and the Insurance Funds. This research work use correlation analysis to examine the degree of association between pairs the total number of accounts for Deposit Money Banks (DBMs) in Nigerian banking industry and the selected variables of interest (Independent variables). T-test will also be used to test for the significance or effect of Deposit Insurance Coverage (DIC) levels for Deposit Money Banks (DBMs); Premium Rates applied to Deposit Money Banks (DMBs); and Insurance Funds on the Total Number of Accounts for Deposit Money Banks (DBMs) in Nigerian banking industry. The predictive power for the adopted or fitted model shall not be left out. Finally, the R-Studio Statistical Software (Version 3.6.1) will be used to analyse the data set in this study.

3.9 Hypothesis Testing

This is an inferential statistics approach that allows the researcher to use characteristics derived from sample data to make inferences about population characteristics. In other words, the methodology that enables a decision-maker to draw inferences about population characteristics by analysing the difference between the value of sample statistic and the corresponding hypothesized parameter value is called *Hypothesis testing*.

3.10 Test for the Significance of Individual Parameter-Using T-test

Step (1) **Hypotheses**

$$H_0: \delta_i = 0 \; Vs \; H_1: \delta_i \neq 0$$

Step (2) **Test Statistic:**

$$t_{cal} = \frac{\hat{\delta}_i - \delta_i}{SE(\hat{\delta}_i)} \tag{3.10}$$

Where:

$$SE(\hat{\delta}_i) = Standard\ error\ for\ individual\ regression\ coefficient$$

$$SE(\hat{\delta}_i) = \sqrt{Var(\hat{\delta}_i)} \tag{3.11}$$

But,

$$Var(\hat{\delta}_i) = (X^1 X)^{-1} \sigma^2\ (using\ matrix\ method)$$

$$\sigma^2 = \frac{Y'Y - \hat{\delta}' X'Y}{n-2} \tag{3.12}$$

Step (3)   **Tabulated Value:**

$$t_{tab} = t_{\frac{\alpha}{2},(n-1)df}$$

Step (4)   <u>**Decision Rule:**</u>

Reject $H_0\ if\ |t_{cal}| > t_{tab}. Otherwise\ do\ not\ reject\ it.$

Step (5)   Write your conclusion based on step 4.

4.1   Analysis of Statistical Data

4.2   Graphical Representation of the Original Data Set
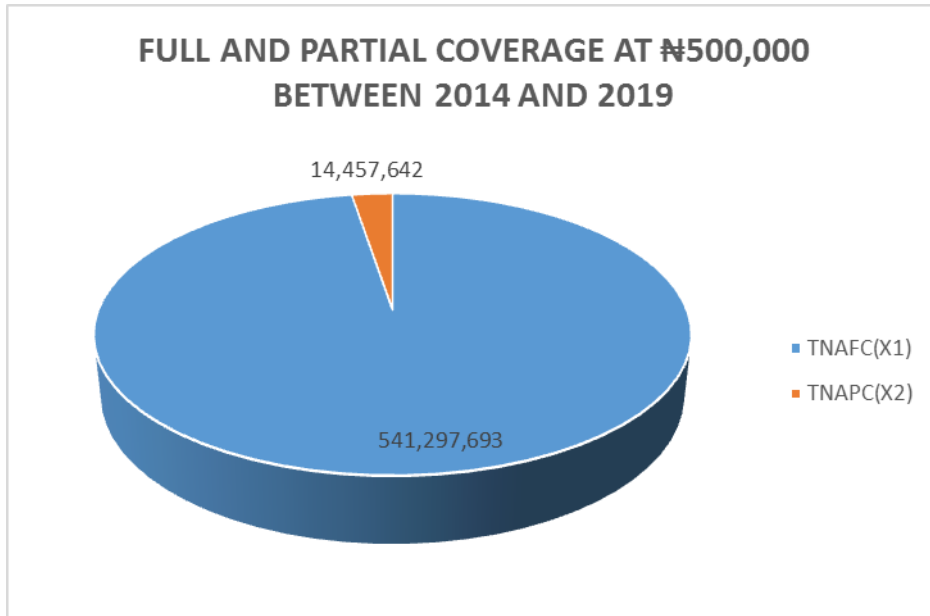
GROWTH IN NUMBER OF ACCOUNTS OF DMBs
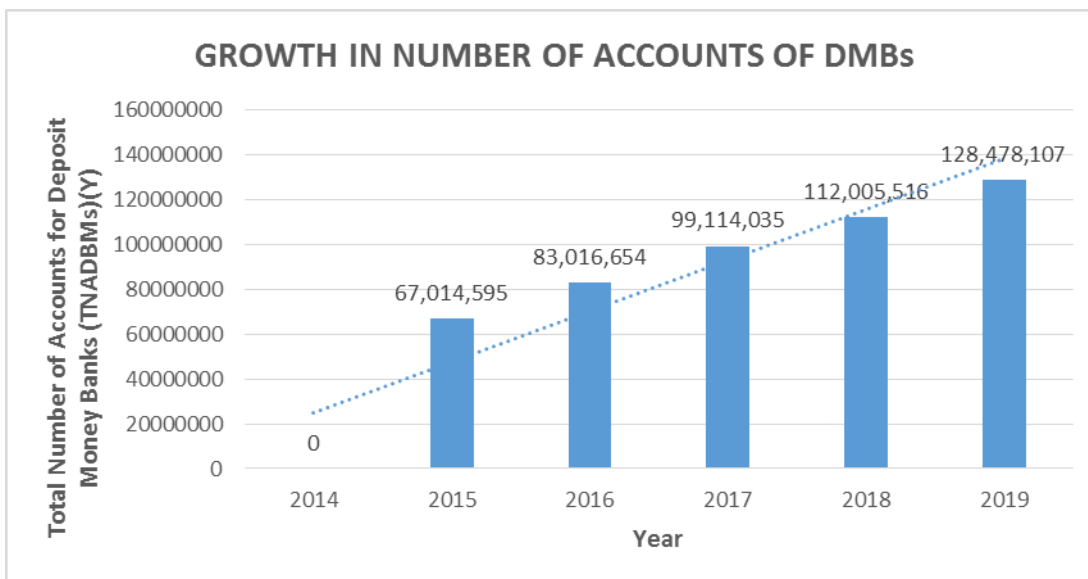
Figure 4.1: **GROWTH IN NUMBER OF ACCOUNTS OF DMBs**

FULL AND PARTIAL COVERAGE AT ₦500,000 BETWEEN 2014 AND 2019

14,457,642

541,297,693

- ■ TNAFC(X1)
- ■ TNAPC(X2)

Figure 4.2: **FULL AND PARTIAL COVERAGE AT ₦500,000 BETWEEN 2014 AND 2019**

PERCENTAGE OF FULLY AND PARTIALY COVERED ACCOUNTS AT ₦500,000 IN THE YEAR 2019

2.36

97.64

- ■ FULLY COVERED DEPOSITORS IN 2019(97.64%)
- ■ PARTIALLY COVERED DEPOSITORS IN 2019 (2.36%)
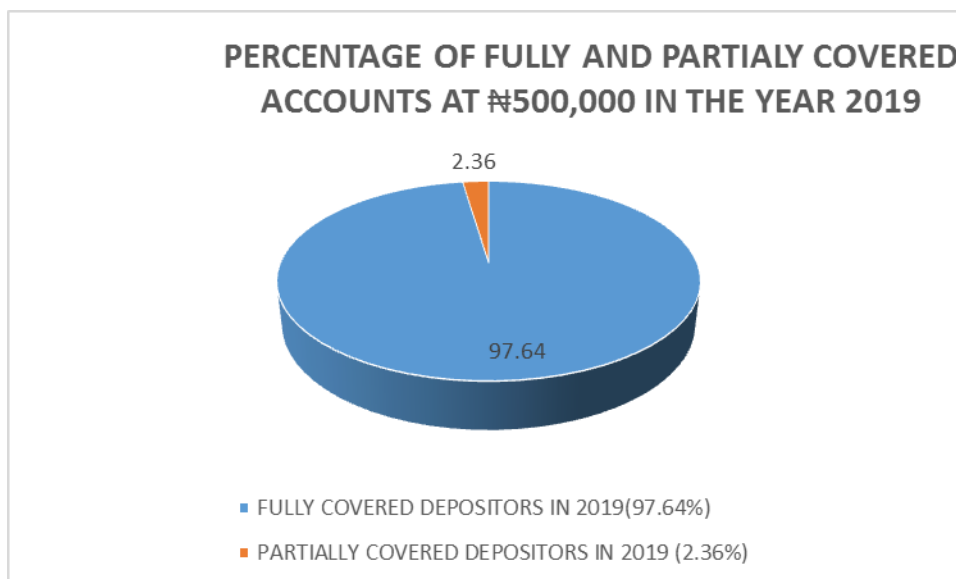
Figure 4.3: **FULL AND PARTIAL COVERAGE AT ₦500,000 IN 2019**

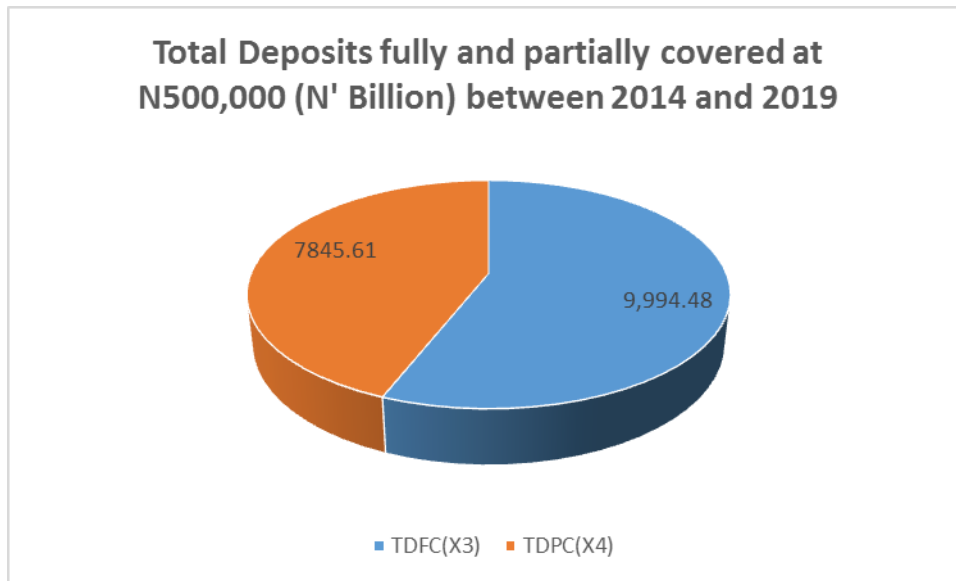**Total Deposits fully and partially covered at N500,000 (N' Billion) between 2014 and 2019**

Figure 4.4: *Total Deposits fully and partially covered at N500,000 (N' Billion) between 2014 and 2019*

Figure 4.1 show that the total number of accounts in DMBs increased by over 16 million (16,472,591) or 14.71% from 112,005,516 reported in 2018 to 128,478,107 in 2019. Also, the number of fully covered accounts at ₦500,000 in DMBs increased by 14.77% from 109,305,169 in 2018 to 125,452,260 in 2019). However, the proportion of total accounts that were fully covered at ₦500,000 slightly increased from 97.59% in 2018 to 97.64% in 2019, while the proportion of partially covered accounts at ₦500, 000 reduced from 2.41% in 2018 to 2.36% in 2019. It also showed that 97.64% of the account holders are fully protected by the NDIC in 2019.

In the same vein, Total Deposits Fully Covered (TDFC) at ₦500,000 increased from ₦1,968.60 billion in 2018 to ₦2,105.98 billion in 2019, while Total Deposits Partially Covered (TDPC) at ₦500,000 increased from ₦1,350.17 billion in 2018 to ₦1,980 billion in 2019. Total number of account fully and partially covered at ₦500,000 between 2014 and 2019 were 541,297,693 and 14,457,642 respectively**.** The percentage of fully and partially covered depositors in 2019 were 97.64% and 2.36% respectively. Total Deposits fully and partially covered at N500,000 (N' Billion) between 2014 and 2019 were 9,994.48 and 7,845.61 respectively. These statistics are depicted in Figure 4.2, 4.3 and 4.4.
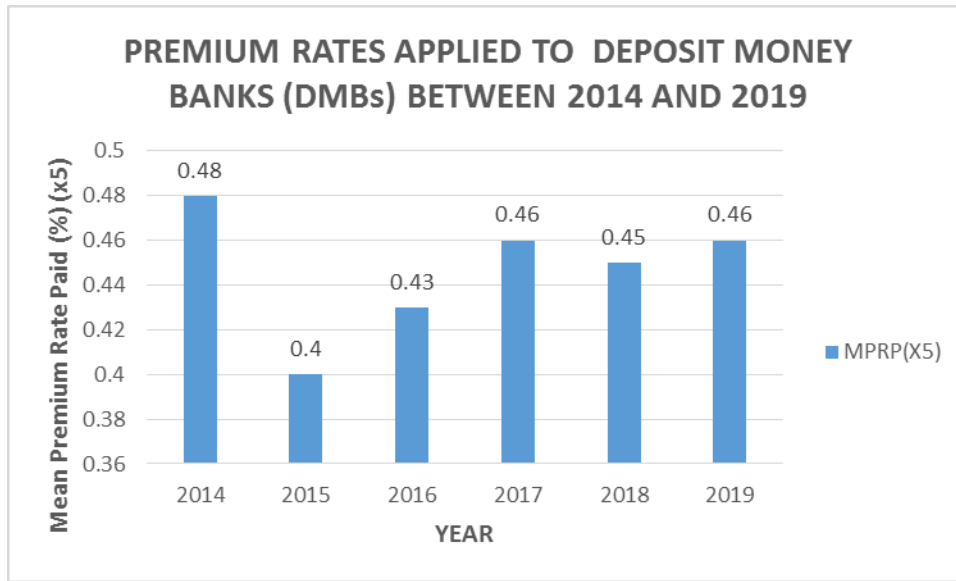
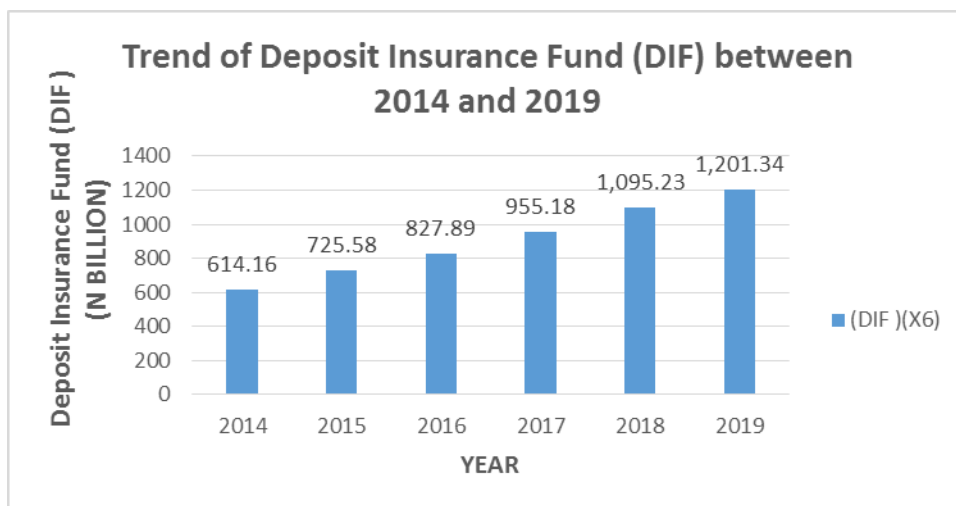*Figure 4.5:* **Premium Rates Applied to Deposit Money BANKS (DMBs)**

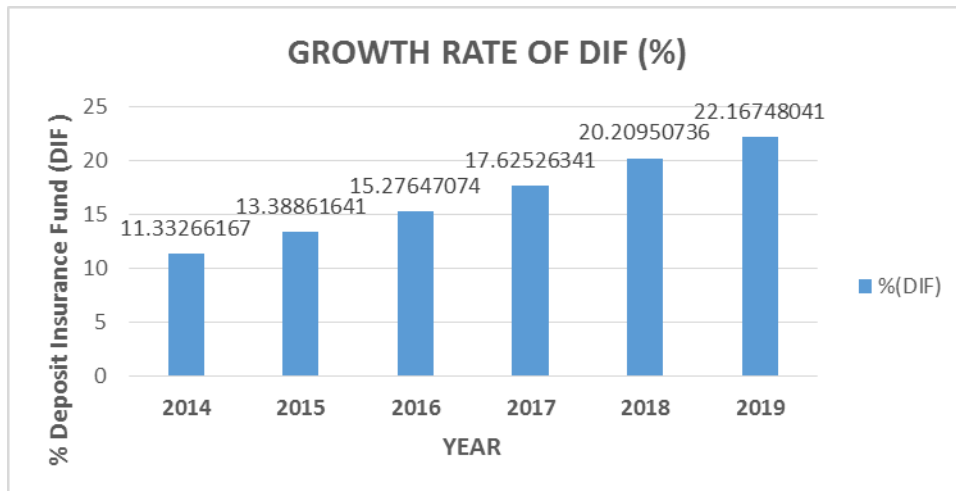*Figure 4.6:* **Trend of Deposit Insurance Fund (DIF)**

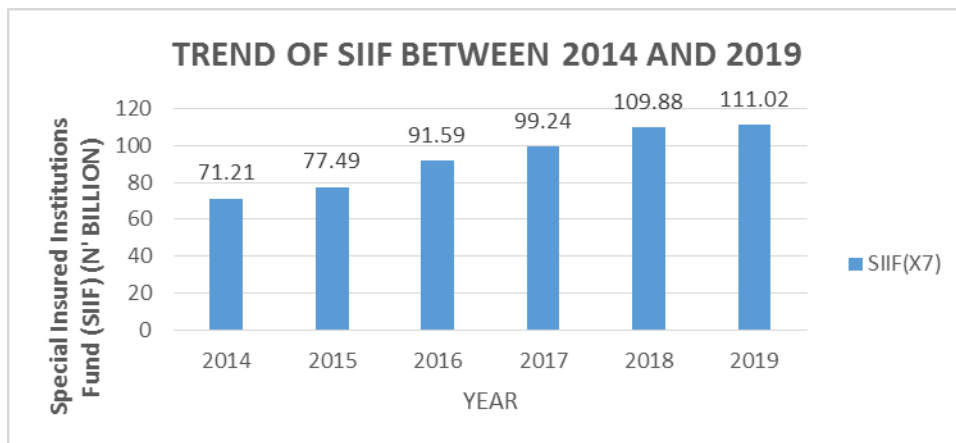*Figure 4.7: Growth Rate of DIF (%) between 2014 and 2019*
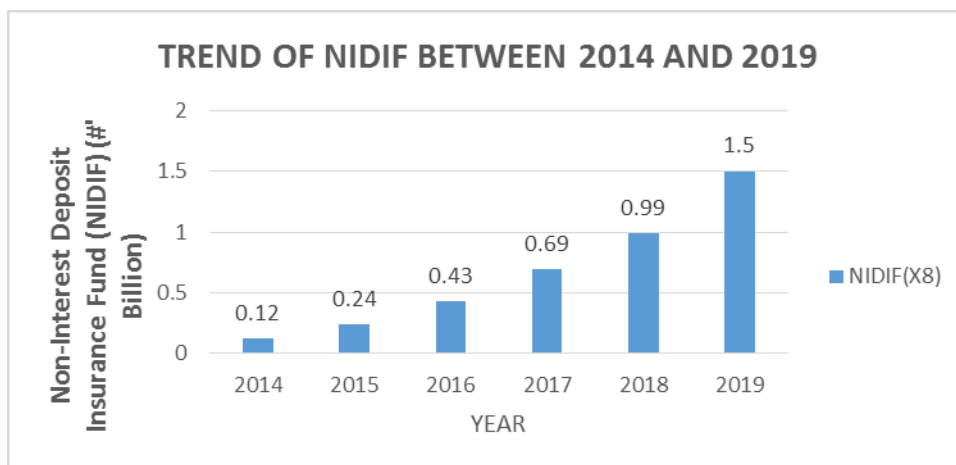

Figure 4.8: Trend of SIIF

Figure 4.9: Trend of NIDIF

The balance in the DMB's Deposit Insurance Fund segment (DIF, SIIF and NIDF) managed by the NDIC stood at N1,201.34 billion, compared to N1,095.23 billion as at 31st December, 2018, representing a growth rate of 9.69%. The Special Insured Institutions Fund (SIIF) and Non-Interest Deposit Insurance Fund (NIDIF) grew by 1.04% and 51.21% from N109.88 billion and N999.94 million as at 31st December, 2018, to N111.02 billion and N1.50 billion, respectively as at 31st December, 2019. Figure 4.7 shows an increment in the growth rate of DIF from 20.21% in 2018 to 22.17% in 2019.
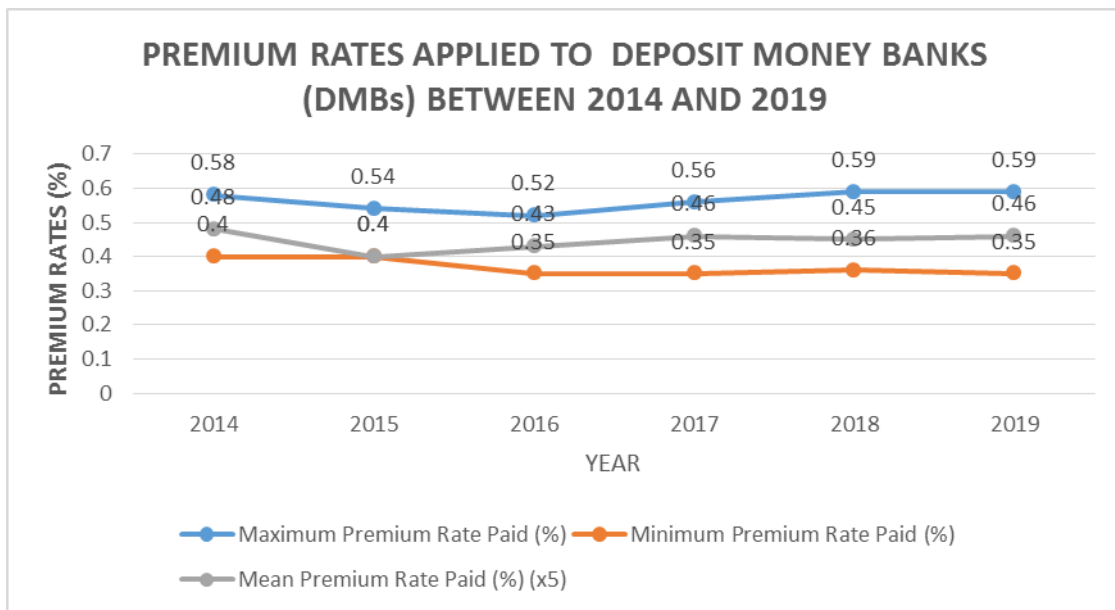

Figure 4.10: Premium Rates Applied on Deposit Money Banks (DMBs)

Figure 4.10 showed that the maximum rate paid by the bank with highest risk profile remained unchanged at 0.59% i.e. 59 basis points (bps) in 2019 as in 2018. The minimum rate paid by the bank with least risk profile reduced by 1 basis point from 0.36% (i.e. 36 bps) in 2018 to 0.35% (i.e. 35 bps) in 2019 as shown in Table 4.2. The mean rate paid by DMBs increased by 1 basis point from 0.45% in 2018 to 0.46% in 2019. The premium rate charged by the NDIC continues to reflect prevailing economic realities in a bid to reduce premium burden on insured financial institutions.

4.3.2 The Fitted Model for Deposit Insurance Coverage Levels for Deposit Money Banks (DMBs)

```
> ### MODEL_2: FOR COMBINATION OF (TNAFC, TNAPC, TDFC AND TDPC) AS
> ### Deposit Insurance Coverage for Deposit Money Banks (DICDMB)
```

```
Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept) -7.092e+05  1.376e+06  -0.516    0.633
DICDMB       1.004e+00  1.441e-02  69.714 2.54e-07 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
Multiple R-squared:  0.9992,     Adjusted R-squared:  0.999
```

Source: RStudio Output 1. The impact of **Deposit Insurance Coverage for Deposit Money Banks on TNADMB**

$$\text{TNADMB} = f(DICDMB) \tag{3.1}$$

Therefore, the modified model (3.1) for this study is stated as

$$\text{TNADMB} = \delta_0 + \delta_1(DICDMB) + U_i \tag{3.2}$$

$$Y_i = \delta_0 + \delta_1 X_1 + U_i \tag{3.3}$$

Where:

$Y_i = \text{TNADMB} =$ Total Number of Accounts for Deposit Money Banks (DBMs)

$X_1 = DICDMB =$ Deposit Insurance Coverage levels for Deposit Money Banks

$\delta_1 =$ The regression parameters or contributions

$U_i =$ The stochastic term and it absorbs the influence of omitted variables.

From R-Studio Output 1 above, we have

$\delta_0 = intercept = -709,200 \ and \ \delta_1 = 1.004.$

Hence,

The Fitted Model for the impact of Deposit Insurance Coverage for Deposit Money Banks (DMBs) on Total Number of Accounts for Deposit Money Banks (DBMs) is

$$\text{TNADMB} = -709,200 + 1.004(DICDMB) \tag{3.10}$$

The Predictive Power (PP) of the model (4.8) above is obtain thus,

$$PP = Multiple\ R\ Squared \times 100 \equiv R^2 \times 100\% = 0.9992 \times 100 = 99.92\%.$$

Therefore, the Predictive Power (PP) of the model (3.10) above is about 99.92%.

Interpretation:

Deposit Insurance Coverage levels for Deposit Money Banks (DICDMB) has positive contribution or impacts on the Total Number of Accounts for Deposit Money Banks (TNADMBs). The Total Number of Accounts for Deposit Money Banks (TNADMBs) increased at the rate of 1.004 been the contribution value of DICDMB. The contribution of Deposit Insurance Coverage levels for Deposit Money Banks (DICDMB) on the Total Number of Accounts for Deposit Money Banks (TNADMBs) is 1.004. Hence, The Predictive Power (PP) of the model (3.10) above is about 99.92%.

4.3.4 The Fitted Model for the Impacts of MPRP on TNADMB

```
> ##### MODEL_4: FOR Y=f(MPRP)
Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept) -25864155  194612592  -0.133    0.901
MPRP         264599995  434985778   0.608    0.576
Multiple R-squared:  0.08467,    Adjusted R-squared:  -0.1442
```

Source: RStudio Output 2. **The Fitted Model for the Impacts of MPRP on TNADMB**

$$\text{TNADMB} = f(MPRP) \tag{3.4}$$

Therefore, the modified model (3.4) for this study is stated as

$$\text{TNADMB} = \delta_0 + \delta_1(MPRP) + U_i \tag{3.5}$$

$$Y_i = \delta_0 + \delta_1 X_1 + U_i \tag{3.6}$$

Where:

$Y_i = \text{TNADMB} =$ Total Number of Accounts for Deposit Money Banks (DBMs)

$X_1 = MPRP =$ Mean Premium Rate Paid

$\delta_1 =$ The regression parameters or contributions

$U_i =$ The stochastic term and it absorbs the influence of omitted variables.

From R-Studio Output 4 above, we have

$\delta_0 = intercept = -25,864,155 \; and \; \delta_1 = 264,599,995.$

Now,

The Fitted Model for the impact of Mean Premium Rate Paid (MPRP) on Total Number of Accounts for Deposit Money Banks (DBMs) is

$$\text{TNADMB} = -25{,}864{,}155 + 264{,}599{,}995(MPRP) \tag{3.11}$$

The Predictive Power (PP) of the model (4.16) above is obtain thus,

$$PP = Multiple\ R\ Squared \times 100 \equiv R^2 \times 100\% = 0.08467 \times 100 = 8.47\%.$$

Hence, The Predictive Power (PP) of the model (3.11) above is about 8.47%.

Interpretation:

Mean Premium Rate Paid (MPRP) has positive contribution or impacts on the Total Number of Accounts for Deposit Money Banks (TNADMBs). The Total Number of Accounts for Deposit Money Banks (TNADMBs) increased at the rate of 264,599,995 been the contribution value of MPRP. The contribution of Mean Premium Rate Paid (MPRP) on the Total Number of Accounts for Deposit Money Banks (TNADMBs) is 264,599,995. Hence, The Predictive Power (PP) of the model (3.11) above is about 8.47%.

4.3.5 The Fitted Model for the Impacts of INSF on TNADMB

```
> ##### MODEL_5: FOR Y=f(INSF)

Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept) -12616150    7483358  -1.686 0.167096
INSF           105230       7329  14.358 0.000137 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
Multiple R-squared:  0.981,     Adjusted R-squared:  0.9762
```

Source: RStudio Output 3. The Fitted Model for the Impacts of INSF on TNADMB

$$\text{TNADMB} = f(INSF) \tag{3.7}$$

Therefore, the modified model (3.7) for this study is stated as

$$\text{TNADMB} = \delta_0 + \delta_1(INSF) + U_i \tag{3.8}$$

$$Y_i = \delta_0 + \delta_1 X_1 + U_i \tag{3.9}$$

Where:

$Y_i = \text{TNADMB} =$ Total Number of Accounts for Deposit Money Banks (DBMs)

$X_1 = INSF =$ Insurance Funds

$\delta_1 =$ The regression parameters or contributions

$U_i =$ The stochastic term and it absorbs the influence of omitted variables.

From R-Studio Output 5 above, we have

$\delta_0 = intercept = -12,616,150 \ and \ \delta_1 = 105,230.$

Hence,

The Fitted Model for the impact of Insurance Funds (INSF) on Total Number of Accounts for Deposit Money Banks (DBMs) is

$$\text{TNADMB} = -12,616,150 + 105,230(INSF) \tag{3.12}$$

The Predictive Power (PP) of the model (4.20) above is obtain thus,

$PP = Multiple \ R \ Squared \times 100 \equiv R^2 \times 100\% = 0.981 \times 100 = 98.1\%.$

Therefore, the Predictive Power (PP) of the model (3.12) above is about 98.1%.

Interpretation:

Insurance Funds (INSF) has positive contribution or impacts on the Total Number of Accounts for Deposit Money Banks (TNADMBs). The Total Number of Accounts for Deposit Money Banks (TNADMBs) increased at the rate of $105,230$ been the contribution value of INSF. The contribution of Insurance Funds (INSF) on the Total Number of Accounts for Deposit Money Banks (TNADMBs) is $105,230.$ Hence, The Predictive Power (PP) of the model (3.12) above is about 98.1%.

4.4   Correlation Analysis

4.4.1   Karl-Pearson Correlation Coefficients between TNADMB and (TNAFC, TNAPC, TNDFC and TNAPC)

The correlation matrix in R-Studio output 7 below examine the degree of association between the total number of accounts for Deposit Money Banks (DBMs) and Deposit Insurance Coverage (TNAFC, TNAPC, TNDFC and TNAPC) in Nigerian banking industry.

```
> cor(DATA_NDIC.1)
              TNADMB     TNAFC     TNAPC      TDFC      TDPC
TNADMB 1.0000000 0.9995527 0.9388962 0.9144302 0.8644968
TNAFC  0.9995527 1.0000000 0.9360680 0.9049808 0.8656525
TNAPC  0.9388962 0.9360680 1.0000000 0.9529774 0.9272466
TDFC   0.9144302 0.9049808 0.9529774 1.0000000 0.8416302
TDPC   0.8644968 0.8656525 0.9272466 0.8416302 1.0000000
```

Source: RStudio Output 4. **Karl-Pearson Correlation Coefficients between TNADMB and (TNAFC, TNAPC, TNDFC and TNAPC)**

i.   The degree of association between the total number of accounts for Deposit Money Banks (TNADMBs) and the Total Number of Accounts Fully Covered (TNAFC) at N500,000 is 0.9996 (i.e. about 99.96%).

ii.   The degree of association between the total number of accounts for Deposit Money Banks (TNADMBs) and the Total Number of Accounts Partially Covered (TNAPC) at N500,000 is 0.9389 (i.e. about 93.89%).

iii.   The degree of association between the total number of accounts for Deposit Money Banks (TNADMBs) and the Total Deposits Fully Covered (TDFC) at N500,000 is 0.9144 (i.e. about 91.44%).

iv.   The degree of association between the total number of accounts for Deposit Money Banks (TNADMBs) and the Total Deposits Partially Covered (TDFC) at N500,000 is 0.8645 (i.e. about 86.45%).

Therefore, there were very strong association between the total number of accounts for Deposit Money Banks (TNADMBs) and Deposit Insurance Coverage (TNAFC, TNAPC, TNDFC and TNAPC) in Nigerian banking industry.

4.4.2   Karl-Pearson Correlation Coefficients between TNADMB and DICDMB

```
> cor(DATA_NDIC.2)
              TNADMB    DICDMB
TNADMB 1.0000000 0.9995887
DICDMB 0.9995887 1.0000000
```

Source: RStudio Output 5. **Karl-Pearson Correlation Coefficients between TNADMB and DICDMB**

The R-Studio output 5 above revealed that, the degree of association between the total number of accounts for Deposit Money Banks (TNADMBs) and the Deposit Insurance Coverage for Deposit Money Banks (DICDMB) was 0.9996 (i.e. about 99.96%). Hence, we have a very strong correlation-degree of association between TNADMBs and DICDMB.

4.4.4 Karl-Pearson Correlation Coefficients between TNADMB and MPRP

```
> cor(DATA_NDIC.4)
                    TNADMB      MPRP
        TNADMB 1.0000000 0.2909865
        MPRP   0.2909865 1.0000000
```

Source: RStudio Output 6. **Karl-Pearson Correlation Coefficients between TNADMB and MPRP**

The degree of association between the Total Number of Accounts for Deposit Money Banks (TNADMBs) and the Mean Premium Rate Paid (MPRP) is 0.2910 (i.e. about 29.1%).

4.4.5 Karl-Pearson Correlation Coefficients between TNADMB and INSF

```
> cor(DATA_NDIC.5)
                   TNADMB      INSF
       TNADMB 1.0000000 0.9904369
       INSF   0.9904369 1.0000000
```

Source: RStudio Output 7. **Karl-Pearson Correlation Coefficients between TNADMB and INSF**

The degree of association between the Total Number of Accounts for Deposit Money Banks (TNADMBs) and Insurance Funds (INSF) is 0.9904 (i.e. about 99.04%). So, very strong association exists between (TNADMBs) and (INSF).

4.5 Test of Significance for the individual Contribution/Parameter-Using t – test

4.5.1 Test for the Significance of Deposit Insurance Coverage levels for Deposit Money Banks (DICDMBs)

```
Coefficients:
            Estimate Std. Error t value Pr(>|t|)
(Intercept) -7.092e+05  1.376e+06  -0.516    0.633
DICDMB       1.004e+00  1.441e-02  69.714 2.54e-07 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
Residual standard error: 817700 on 4 degrees of freedom
Multiple R-squared:  0.9992,     Adjusted R-squared:  0.999
F-statistic:  4860 on 1 and 4 DF,  p-value: 2.537e-07
```

Source: RStudio Output 9. **Test of Significance for the Contribution of DICCMB-Using t – test**

Hypotheses One:

$H_0: \delta_1 = 0$ (*Contribution of DICDMB is not significant to the fitted model* 3.10)

$H_1: \delta_1 \neq 0$ (*Contribution of DICDMB is significant to the fitted model* 3.10)

The R-studio output 9 (contribution of DICDMB) revealed that p-value for DICDMB is 0.000000254.

Decision rule:

Reject H_0 if P-value $\leq \alpha(Alpha = 0.05)$. Otherwise do not reject H_0.

Conclusion:

Since p-value is 0.000000254 which is less than $\alpha(Alpha = 0.05)$ then, we strongly reject H_0 and conclude that contribution of Deposit Insurance Coverage levels for Deposit Money Banks (DICDMBs) in Nigerian banking industry is really significant to the fitted model (3.10).

4.5.2   Test for the Significance of effect of Premium Rates applied to Deposit Money Banks (DMBs)

```
              Estimate Std. Error t value Pr(>|t|)
(Intercept) -25864155  194612592  -0.133    0.901
MPRP         264599995  434985778   0.608    0.576


Residual standard error: 27280000 on 4 degrees of freedom
Multiple R-squared:  0.08467,    Adjusted R-squared:  -0.1442
F-statistic:  0.37 on 1 and 4 DF,  p-value: 0.5758
```

Source: RStudio Output 10 . Test of Significance for the Contribution of MPRP -Using t – test

Hypotheses Two:

$H_0: \delta_1 = 0$ (*Contribution of MPRP is not significant to the fitted model* 3.11) .

$H_1: \delta_1 \neq 0$ (*Contribution of MPRP is significant to the fitted model* 3.11).

The R-studio output 10 (contribution of MPRP) revealed that p-value for MPRP is 0.576.

Decision rule:

Reject H_0 if P-value $\leq \alpha(Alpha = 0.05)$. Otherwise do not reject H_0.

Conclusion:

Since p-value is 0.576 which is greater than $\alpha(Alpha = 0.05)$ then, we do not reject H_0 and conclude that contribution or effect of Premium Rates applied to Deposit Money Banks (DMBs) in Nigerian banking industry is not significant to the fitted model (3.11) at 5% level of significance.

4.5.3   Test for the Significance of effect of Insurance Funds (INSF)

```
Coefficients:
             Estimate Std. Error t value Pr(>|t|)
(Intercept) -12616150    7483358  -1.686 0.167096
INSF           105230       7329  14.358 0.000137 ***
---
Signif. codes:  0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1
Residual standard error: 3934000 on 4 degrees of freedom
Multiple R-squared:  0.981,    Adjusted R-squared:  0.9762
F-statistic: 206.1 on 1 and 4 DF,  p-value: 0.0001367
```

Source: RStudio Output 11 : **Test of Significance for the Contribution of INSF -Using t – test**

Hypotheses Three:

$H_0: \delta_1 = 0$ (Contribution of INSF is not significant to the fitted model 3.12).

$H_1: \delta_1 \neq 0$ (Contribution of INSF is significant to the fitted model 3.12).

The R-studio output 11 (contribution of INSF) revealed that p-value for MPRP is 0.000137.

Decision rule:

Reject H_0 if P-value $\leq \alpha(Alpha = 0.05)$. Otherwise do not reject H_0.

Conclusion:

Since p-value is 0.000137 which is less than $\alpha(Alpha = 0.05)$ then, we strongly reject H_0 and conclude that contribution or effect of Insurance Funds (INSF) in Nigerian banking industry is really significant to the fitted model (3.12) at 5% level of significance.

5.1 Summary of Findings

The main aim of this study to evaluate the roles of National Deposit Insurance Corporation to bank depositors in Nigeria and all the specific objectives were achieved. At the end of the analysis, this research work be able to formulate three (3) different Simple Linear Regression Models. The formulated models and their predictive power were as follows:

- The fitted Simple Linear Regression Model for the impact of Deposit Insurance Coverage for Deposit Money Banks (DMBs) on Total Number of Accounts for Deposit Money Banks (DBMs) is

$$TNADMB = -709,200 + 1.004(DICDMB)$$

  Hence, the Predictive Power (PP) of the model (3.10) above is about 99.92%.

- The Fitted Simple Linear Regression Model for the impact of Mean Premium Rate Paid (MPRP) on Total Number of Accounts for Deposit Money Banks (DBMs) is

$$TNADMB = -25,864,155 + 264,599,995(MPRP)$$

  Hence, the Predictive Power (PP) of the model (3.11) above is about 8.47%.

- The Fitted Simple Linear Regression Model for the impact of Insurance Funds (INSF) on Total Number of Accounts for Deposit Money Banks (DBMs) is

$$TNADMB = -12,616,150 + 105,230(INSF)$$

  Hence, the Predictive Power (PP) of the model (3.12) above is about 98.1%.

Therefore, the predictive power for all the fitted model were above 90% except model (3.11) that has the least predictive power of about 8.47% i.e. about 8.47% of the total variation in TNADMS is been explained by the Premium Rate Paid. However, model (3.10) has the highest predictive power of about 99.97% i.e. about 99.97% of the total variation in TNADMS is been explained by the total number of accounts/deposits fully and partially (TNAFC, TNAPC, TDFC and TDPC) covered at #500,000.

The correlation matrix in R-Studio output 4 below examine the degree of association between the total number of accounts for Deposit Money Banks (DBMs) and Deposit Insurance Coverage (TNAFC, TNAPC, TNDFC and TNAPC) in Nigerian banking industry. Therefore, there were very strong association between the total number of accounts for Deposit Money

Banks (TNADMBs) and Deposit Insurance Coverage (TNAFC, TNAPC, TNDFC and TNAPC) in Nigerian banking industry.

The R-Studio output 5 above revealed that, the degree of association between the total number of accounts for Deposit Money Banks (TNADMBs) and the Deposit Insurance Coverage for Deposit Money Banks (DICDMB) was 0.9996 (i.e. about 99.96%). Hence, we have a very strong correlation-degree of association between TNADMBs and DICDMB.

The degree of association between the Total Number of Accounts for Deposit Money Banks (TNADMBs) and the Mean Premium Rate Paid (MPRP) is 0.2910 (i.e. about 29.1%) which is very weak and the degree of association between the Total Number of Accounts for Deposit Money Banks (TNADMBs) and Insurance Funds (INSF) is 0.9904 (i.e. about 99.04%). So, very strong association exists between (TNADMBs) and (INSF).

Test of Significance for the individual Contribution/Parameter-Using t – test was carried out and the results were as follows:

- ✓ Test for the Significance of Deposit Insurance Coverage levels for Deposit Money Banks (DICDMBs) revealed that p-value is 0.000000254 which is less than $\alpha(Alpha = 0.05)$ then, we strongly reject H_0 and conclude that contribution of Deposit Insurance Coverage levels for Deposit Money Banks (DICDMBs) in Nigerian banking industry is really significant to the fitted model (3.10).

- ✓ Test for the Significance of effect of Premium Rates applied to Deposit Money Banks (DMBs) revealed that Since p-value is 0.576 which is greater than $\alpha(Alpha = 0.05)$ then, we do not reject H_0 and conclude that contribution or effect of Premium Rates applied to Deposit Money Banks (DMBs) in Nigerian banking industry is not significant to the fitted model (3.11) at 5% level of significance.

- ✓ R-studio output 16 (contribution of INSF) revealed that p-value for MPRP is $0.000137.$ Since p-value is 0.000137 which is less than $\alpha(Alpha = 0.05)$ then, we strongly reject H_0 and conclude that contribution or effect of Insurance Funds (INSF) in Nigerian banking industry is really significant to the fitted model (3.12) at 5% level of significance.

5.2 Conclusion

The main aim of this study is to examine the Impact of Deposit Insurance Coverage and Insurance Funds on Total Number of Accounts for Deposit Money Banks (DBMs) to Depositors in Nigeria. The purpose of this research work is to look at the causes of bank failure in developing economy which Nigeria is one and to critically study the impact of the Nigeria Deposit Insurance Corporation (NDIC) in the Nigeria financial institution. However, the decision to adopt a Deposit Insurance Scheme in Nigeria was clearly the product of several bank failures that unnecessarily exposed depositors to uncompensated loss in the aftermath of bank insolvencies. The need to provide some degree of protection to depositors irrespective of their degree of understanding and sophistication largely played a role. A key finding of this study is that the presence of a deposit insurance scheme has increased the confidence of the banking public. Explicit deposit insurance system, which is practiced in Nigeria, provides a faster, smoother and more consistent administrative process for extending protection to depositors and for protection against bank runs.

Finally, this study concludes that the presence of a Deposit Insurance Scheme in Nigeria is a major boost to financial institutions in Nigeria and should be supported by Government through the enhanced powers of the regulatory authorities. This will ensure increased confidence in the Nigerian banking sector by all stakeholders especially, depositors.

5.3 Recommendations

Based on the results and findings of this study, the following recommendations are suggested:

1. The government through the Central Banks should establish a separation Corporation that will assist the Nigeria Deposit Insurance Corporation (NDIC) in the proper monitoring of Banks.

2. The government should place premium and continue to intensify efforts at creating an enabling working conditions or environment not only for the deposit insurer to strive but for other elements of the financial safety net.

3. The Insure generally should design products which will cater more for bank's customers who may suffer from banks distress.

4. government should encourage hybrid deposit insurance system, a system where both governments permit the financial system to operate explicit deposit insurance

scheme without abandoning the vibrant role of the implicit system of deposit insurance.

5. Greater sanction or fines must be awarded against any bank that default the Nigeria Deposit Insurance Corporation (NDIC) provision.

6. The study hereby recommends that, management of banks in Nigeria should critically consider the Deposit Insurance Fund effectiveness to the deposit insurance system so as to maintain public confidence.

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