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Deposit insurance fund and the quality of risk assets of Nigerian deposit money banks

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A B S T R A C T

This paper empirically assesses the relationship between Deposit Insurance Funds (DIF) and the quality of risk assets of listed Deposit Money Banks (DMBs) in Nigeria. The entire fifteen listed DMBs in the country as of 31st December, 2017 were focused on and the secondary data were subsequently sourced from the yearly financials of the Nigeria Deposit Insurance Corporation (NDIC) for a 29-year period covering from 1989 to 2017. The Auto-Regressive Distributed Lag (ARDL) and the Vector Error Correction (VEC) estimation techniques were the basis of estimating the relationship between the variables of interest in this study. Evidence from our analyses indicates that the volume of total deposits and total loans and advances of DMBs have long run negative and statistically significant relationship with DIF. Conversely, the quality of risk assets of DMBs exhibits a positive and insignificant relationship with the target reserve ratio of DMBs. The study thus recommends that regulatory agencies in the banking sector (CBN and NDIC), amongst others, collaborate with listed DMBs to diversify and manage their risk assets by strategically intensifying the implementation of existing measures aimed at minimising incidences of loan default and the alarming levels of non-performing loans in the portfolio of Nigerian DMBs.

1. Introduction

The dire consequences of the 2007/2008 financial meltdown on global economies necessitated the urgent need to institute improved sectorial reforms and policies geared towards insulating financial systems from external and internal shocks. Nigeria, through the central bank responded in this direction by reinforcing the existing Deposit Insurance Scheme (DIS) and putting in place, support programs for banks that made provisions for liquidity, government guarantees of all deposits, inter-bank lending and the recapitalization of ailing banks through the Asset Management Corporation of Nigeria (AMCON). DIS, also referred to as deposit guarantee system (Alyeksyeyev & Mazur, 2018) is a mutual insurance system funded by insured banks and administered either through privately held agencies or through government-controlled agencies that guarantees depositors funds that are held in the insured financial institutions/banks (Ume, Oleka & Obasikene, 2017; Ani & Ogar, 2018). Usually, in the event of total collapse or failure on the part of any insured bank, depositors are promptly reimbursed where the DIS in place is effective and efficient. DIS is evolved as a result of the need to offer some form of protection to depositors who stood the risk of losing their hard-earned money in the event of bank failures. Alford (2010, 2012); averred that a well-designed DIS should possess proper mechanisms to ensure the availability of sufficient funds to promptly reimburse depositors in the event of failure and equally defray operating expenses of the system as evidenced by the experiences of other countries. Where the existing DIS is not sufficiently funded, there might be problems relating to delays in reimbursing depositors and/or resolving the aftermaths of bank failures which certainly has grave consequence on the confidence and credibility of the system (Demirgüç-Kunt & Kane, 2002; Nijskens & Wagner, 2011).

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Countries can either operate DIS implicitly or may decide to explicitly establish the scheme (Bernet & Walter, 2009). Nigeria for instance, established an explicit DIS in 1988, and was administered by the NDIC as a financial safety-net set up to mitigate systemic crises. From the onset, Nigeria, through the NDIC adopted an ex-ante funding arrangement for the scheme. Available statistics from the records of NDIC indicates that the accumulated Deposit Insurance Fund (herein after - DIF) under the scheme (DIS) exhibits an increasing growth trends over the years but arguably, this growth may not have significantly staunched the tide of distress and failures in the Nigerian banking industry. For instance, the country witnessed a number of bank failures between 1994 and 2006 (in what is now referred to as the pre consolidation banking crises). A total of 49 banks failed with the highest occurring in the year 1998 which witnessed a total of 26 bank failures. According to NDIC (2006), evidence from the 2004 on-site audit revealed that the aggregate volume of assets in the balance sheets of failed banks amounted to ₦165.90 billion, whereas, the balance for liabilities stood at ₦198.01 billion. The higher balance for total liabilities as compared to total assets is indicative of imminent insolvency (World Bank, 2016; Mbarek & Hmaied, 2011; Chu, 2011), thereby raising stern concerns on the safety of depositors' funds.

The presumed imminent failure looming around the banking sector in Nigeria far back in 2004 necessitated the idea of consolidation of banks in 2005. Despite efforts at consolidating banks in Nigeria, the crises of distress in the industry occasioned by the continuous and consistent build-up of toxic assets in the portfolio of banks still persisted. The setting up of AMCON was to prevent systemic failure in the industry. AMCON was therefore designed to serve as a multi-purpose resolution vehicle which was set up to buy up toxic assets of troubled banks through the infusion of additional capital into such banks to boost their respective capital base and enhance economic and related activities (Obienusi & Obienusi, 2015; Ebiaghan, Ojugbeli, & Okoye, 2017). In the light of these developments, the NDIC is under constant pressure to deliver on its core mandate of ensuring financial systems stability but the question as to the effectiveness or otherwise in discharging this onerous responsibility remains largely a subject of debate among scholars, analysts and industry stakeholders across different divides. No doubt, reactions and sentiments have largely been mixed or inconclusive in this direction.

Equally, it is disheartening to observe that given the plethora of studies conducted on DIF, majority of prior researches concentrated mostly on developed economies of Latin America, the United States of America (USA), Great Britain, and the European Union (McCoy, 2006; Eisenbeis & Kaufman, 2006; Bernet & Walter, 2009; Khundadze, 2009; Jalan & Pradhan, 2012; Hogan & Luther, 2014; Glonti & Vashakmadze, 2018; Alyeksyeyev & Mazur, 2018; Jameaba, 2018;) with very few empirical researches on economies in sub-Saharan Africa (Ani & Ogar, 2018; Cheng & Ellyne, 2011; Anyanwu, 1997). This scenario is somewhat regrettable bearing in mind that a substantial number of African countries established some form of explicit DIS often arising from policy recommendations of international renowned financial experts (Demirgüç-Kunt & Kane, 2002).

Nevertheless, studies from developed and emerging economies outside Africa on DIS have proved that while several factors account for its effectiveness, deposit insurance in several economies has improved risk sharing while simultaneously preventing bank runs; yet given its constructs and the level of governments' intervention, it succeeded in discouraging banks from taking prudential business decisions (Niinimäki, 2003; Febrian & Herwany, 2011; Calomiris & Jaremski, 2019; Ahmad et al., 2019). This situation has so far made most depositors to be less sensitive to bank fundamentals and the risk exposure of banks (Calomiris & Jaremski, 2019). No doubt, where depositors become insensitive to bank risks, the management and operators of banks become more induced to embark on very risky operations and become more exposed to defaults (Demirgüç-Kunt & Huizinga, 2013; Ahmad et al., 2019). It is therefore necessary for an empirical study to ascertain the relationship between DIF and the quality of risk assets of banks over time for a developing country like Nigeria where a good amount of funds have been accumulated through the DIS in operation amidst incessant cases of bank failures over the years.

Importantly, the few studies on DIS and DIF in Nigeria have not specifically bothered on ascertaining the supposedly relationship between DIF and the quality of the risk assets of deposit taking institutions; yet a study on such would have been necessary to establish how well the DIS in Nigeria has performed in practical terms in addressing issues concerning the quality of the risk assets of banks generally, while instilling confidence on the teeming depositors. This study therefore aims to bridge this knowledge gap by empirically assessing the relationship between DIF and the quality of risk assets of DMBs in Nigeria. Specifically, this paper:

- ascertains if the growth trend in DIF has any significant relationship with the quantum of total deposits of DMBs,
- examines whether the growth trend in DIF has increased bank's risk appetite by influencing the volume of total loans and advances,
- ascertains if there is any significant relationship between the Target Reserve Ratio (ratio of balance of the DIF to total insured deposits) and the quality of the risk assets of DMBs.

2. Literature review/Conceptual Clarifications

2.1 Deposit Insurance Fund (DIF) – Meaning and Funding Options

DIF is an accumulated fund built over time by designated deposit insurers arising from premium collection from insured financial institutions. Principally, the fund is employed in the process of resolving the challenge of failing and failed financial institutions and for the timely and prompt reimbursement of depositors' claims (Alyeksyeyev & Mazur, 2018). According to

Anginer and Demirgüç-Kunt (2018), deposit insurance has a widespread global adoption and has become an integral element of the financial safety-net offered by most governments to salvage their respective banking systems. In the views of Ani and Ogar (2018), deposit insurance refers to that financial guarantee specifically instituted by appropriate authorities to protect depositors by promoting the stability of, and guaranteeing the safety of the entire banking system in the country. Thus, with instituted DIS, depositors are assured of the safety of their funds and are guaranteed that the failure of a particular bank does not necessitate the failure of all other banks in the system (Demirgüç-Kunt & Detragiache, 2002; Ani & Ogar, 2018).

The sources of funding for DIF could either be private or public or a combination of both. In keeping with global best practices, the International Association of Deposit Insurers (IADI) stipulates in its core principles (CP 11) that the most appropriate technique to determine the adequacy of any given DIF is the target fund ratio (or reserve ratio) and further posit that adequate funding is germane to the seamless implementation of a DIS so as to meet its obligations as and when they fall due (IADI, 2014).

Noteworthy, sufficient funding for any given DIS has implications for the credibility and confidence it elicits from stakeholders. It is important to note that there are several methods of funding instituted DIF depending on the variant and level of crises confronting the banking system. According to IADI (2009, 2011), DIS is funded either through ex-ante premium revenue or via ex-post collections or by a combination of ex-ante and ex-post techniques – the hybrid funding method.

- **Ex-ante Funding Method**: this is a scenario in which the deposit insurer generates revenues prior to bank failure. These funds are generated periodically via premium contributions made by participating institutions; however, the frequency of premium collection by the deposit insurer can either be on an annual or biannual basis.
- **Ex Post Funding Method:** under this method the deposit insurer assesses participating institutions for payment of premium after the failure of the banks it is less popular as a funding mechanism when compared to the ex-ante method (IADI 2011).
- **Hybrid Funding Method** this method incorporates characteristics of both ex-ante and ex-post funding mechanisms. It combines ex-ante revenue financed by premiums contributions and includes a technique to obtain funds ex-post from participating institutions, through levies or loans and special premiums as and when required.

In the Nigerian context, the Nigerian Deposit Insurance Corporation (hereinafter – NDIC) maintains three Insurance Funds, namely: Deposit Insurance Fund (DIF); Special Insured Institutions Fund (SIIF); and Non-Interest Deposit Insurance Fund (NIDIF) for Deposit Money Banks, Micro Finance Banks/Primary Mortgage Banks and Non-Interest Banks respectively. Since this research centres on DMBs, our concern will be tailored at DIF.

2.2 Conceptual Review of growth trend of DIF in Nigeria and Hypotheses Development

The Nigerian Deposit Insurance Scheme was established as an explicit financial safety net with specific funding arrangements clearly spelt out in its enabling Act. Accordingly, Section 10(1) of the NDIC Act No.16 of 2006 identified four distinct funding sources for DIS in Nigeria and comprises of: (a) capital contributions and periodic recapitalization provided by government through the shareholders (CBN and Federal Ministry of Finance) (b) premium contribution by participating institutions; (c) borrowing from CBN, and (d) special contribution by participating institutions.

With regards to capitalization, statistics from the NDIC indicates that the authorized capital at inception in 1988 was fixed at ₦100million; out of which ₦50million was paid –up. This capital structure prevailed up to 1996 when the authorized and paid-up capital was increased to ₦2.3billion and ₦1billion respectively. Subsequently, both the authorized and paid- up capital remained constant at ₦2.3 billion and ₦2.1billion respectively up to 2005 fiscal year. Following the amendment to the NDIC Act in 2006, the authorised capital of the corporation was pegged at ₦5billion with the paid-up capital rising to ₦2.3 billion, to reflect the prevailing economic realities at that time and equally enable the corporation address its increasing capital expenditure requirements.

In Nigeria, the premium contribution by insured institutions is usually derived through the application of an assessment rate. From inception in 1988 up till 2007, NDIC charged a flat rate of 15/16 of 1% per annum (which is about 0.9% or 94 basis point) against the total deposits (less exemptions) of a deposit money bank for its premiums as provided in section 16 of the NDIC Act, 2006. Under that provision, it also charged other deposit taking financial institutions a rate of 8/16 of 1% per annum (which is 0.5 % or 50 basis point) of the total deposit liabilities of the institutions as at 31st December of the preceding year.

Effective January 2008, NDIC implemented a Differential risk adjusted Premium Assessment System (DPAS) on DMBs (NDIC, 2009). Data gleaned from the 2017 NDIC annual report reveals that instead of applying the 40 basis points used between 2014 – 2016 fiscal years, NDIC applied 35 basis points as the base rate plus add-ons of not more than 30 basis points derived for each bank based on its risk profile in calculating the premium payable by DMBs under the DPAS for 2017. Notably the reduction in the base rate from 40 basis points to 35 in the past 3 years had led to reduction in the premium paid by banks by ₦26.57 billion (₦9.01 billion savings in 2017). The growth trend of DIF in Nigeria is presented in Fig.1 and Fig 2.

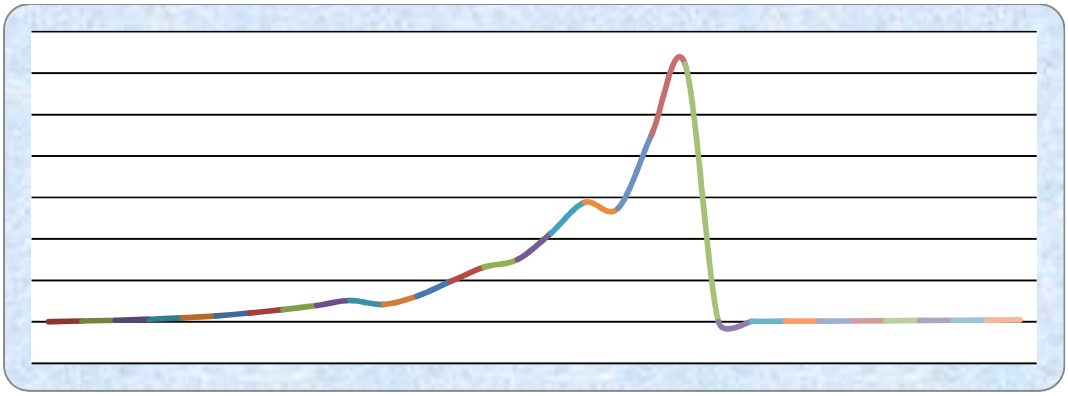

Fig. 1. Graph showing the growth trend of DIF between 1988 -2017
Source: Authors' Computation, 2019.

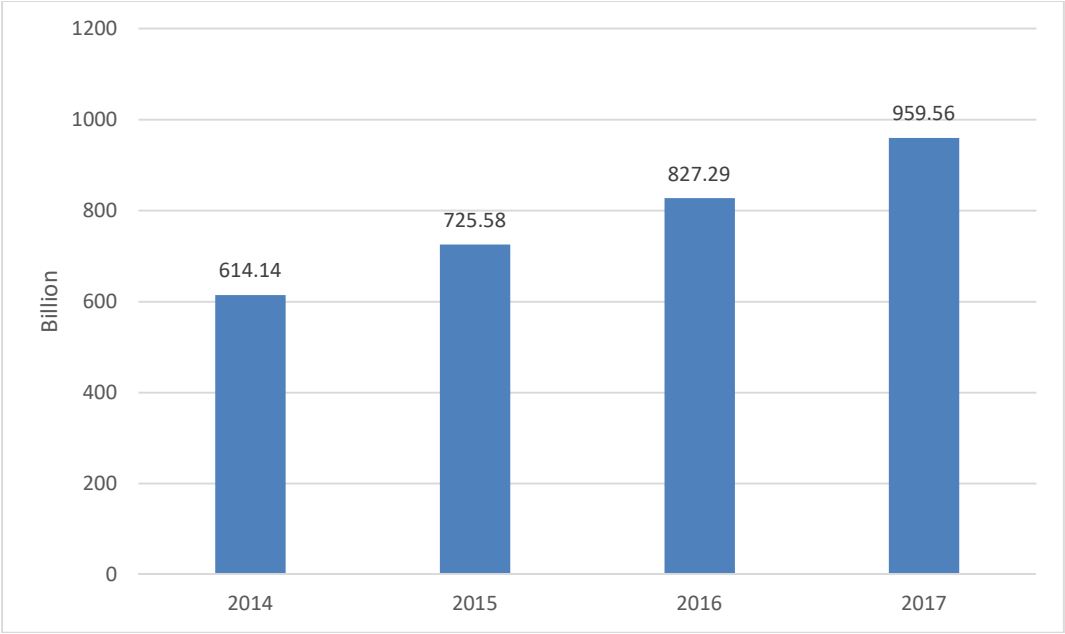

Fig. 2. Chart Showing the Growth trend of DIF between 2014 -2017
Source: NDIC Annual Report 2017.

A cursory analysis of Fig.1 indicates that DIF in Nigeria exhibits a progressive growth trend from its inception 1988. Specifically, from 2000 to 2007, a very sharp and remarkable increase in DIF was observed. The increase in DIF between 2005 and 2007 is as expected given that this period marked the beginning of a new reform era in the history of Nigeria's banking industry. The sharp drop in DIF in 2008 could be accounted for by the worse hit of the global financial meltdown of 2007/2008. Notably, beginning from 2009, there have been a steady and progressive growth in Nigeria's DIF. Fig.2 however shows in clearer terms, the growth trend of DIF in recent time (between 2014 -2017).

Despite the renewed growth recorded for DIF in recent time, Adekanmbi (2017) reported that the distress syndrome in Nigeria's banking industry has not been totally eroded; yet, with increase in the totals of aggregate loans and advances of banks in Nigeria, the levels of NPLs have not been encouraging. This however, maybe attributed to the arguments of prior studies that the constructs of existing DIS have so far encouraged banks to embark of more risky operations. In a bid to ascertain the relationship between DIF and measures of the quality of risk assets of Nigerian banks, this study therefore hypothesize as follows:

H_{01}: There is no significant relationship between growth trend in DIF and the value of aggregate insured deposits and total loans and advances of DMBs operating in Nigeria

H_{02}: There is no significant relationship between the target reserve ratio and the asset quality of DMBs operating in Nigeria

2.4 Review of Prior Studies

The extant literature abounds with empirical studies on deposit insurance, asset quality, banks performance and risk assets with findings either mixed or inconclusive. Demirgüç-Kunt and Detragiache (2002) studied the behaviour of banks cutting across 61 countries and discovered that the adoption of DIS had the tendency to considerably increase the probability of systemic banking crises. In the same vein studies like those of Wheelok (1992) and Thies and Gerlowski (1989) revealed that a significant and positive correlation exists between excessive risk taking by DMBs and the implementation of DIS. Karabulut and Bilgin (2007) estimated the relationship between instituted deposit insurance and risk assets' quality in the context of the Turkish banking industry. Their study provides empirical evidence that despite the fact that deposit insurance significantly reduced incidences of bank runs, DMBs had resorted to excessive acquisition of risk assets beyond reasonable limits; thus, increasing the volume of non-performing loans among Turkish banks. Davis and Obasi (2009) examined data from 914 banks cutting across 64 countries and discovered that there was no correlation between increase in risk assets acquisition by banks and adjusted collateral requests; hence they concluded that DIS can only thrive in countries with stable institutional environment. Towing the same line of arguments of extant studies, Forssbæck (2011), in his study posit that the implementation of DIS to a large extent, incentivised banks to acquire more risks assets rather than acting as a financial safety net. Chernykh and Cole (2011) conducted an exhaustive study of 800 banking institutions in Russia and observed marked decline in the quality of bank assets arising from the implementation of DIS. Equally, an increase in the ratio of loans to total assets coupled with a corresponding decrease in the ratio of equity to total assets was observed. The study therefore concluded that deposit insurance negatively impacted on bank deposits and assets.

However, despite the above research outcomes, some theorists still disagree with the generally held notion that the implementation of deposit insurance is inimical to the health of a country's banking industry. For instance, Gueyie and Lai (2003) in their study found no empirical evidence that deposit insurance predisposed banks to increased risks and thus advocated risk based deposit insurance. Similarly, Gropp and Vesala (2001, 2004) in their study of 73 area banks in Europe discovered a significantly positive relationship between bank profitability and deposit insurance and concluded that the risk appetite of DMBs actually reduces with the adoption of deposit insurance. These findings corroborates the result of an earlier study by Karels and McClatchey's (1999) who examined data relating to credit unions in the United States.

Additionally, Enkhbold & Otgonshar (2013) in their research cutting across 31 Asian countries obtained and analysed data from a sample of 401 banks. Findings from the study revealed that banks exhibited increased market discipline arising from the implementation of DIS. Conclusively, Demirgüç-Kunt and Huizinga (1999, 2013) posits that the well-being of a nation's banking sector is principally driven by the design and faithful implementation of its DIS. But no doubt, it is believed that the effectiveness of such scheme largely depends on stable institutional environment *vis a vis* other economic factors like bank capitalization, interest rates management, and effective regulatory oversight which enhances financial systems stability and simultaneously facilitate seamless financial intermediation.

3. Data and methods

The study adopts the *ex-post facto* research design and the population of interest comprised all fifteen (15) listed DMBs operating in Nigeria as at 31st December, 2017. Secondary data were sourced from the NDIC annual reports and accounts for periods covering 1989 to 2017. The study period covers the pre and post consolidation banking era in the country. The data collected for the study were analysed by running a multiple regression analysis using the Autoregressive Distributed Lag estimation technique to test the formulated hypothesis. Additional cointegration and diagnostic tests were conducted to confirm and/or provide a good estimate of the specified models.

3.1 Operationalization of Variables and Model Specification:

3.1.1 Operationalisation and Description of Variables

Table 1
Variables description and operationalisation

Variables	Description	Labels	Operationalisation
	Deposit Insurance Fund	DIF	Total aggregate deposit insurance funds
Dependent Variable	Target Reserve Ratio	TRR	Ratio of DIF to total insured deposit
Independent Variable (Asset Quality)	Total Loans and Advances	TLA	Total loans & advances grated by insured banks for the relevant years
	Total Insured Deposit	TID	Total deposit of insured banks for the relevant years
	Ratio of Non Performing Loans To Total Loans	NPL/TL	Aggregate value of non-performing loan divided by total loans & advances granted by the insured banks in a given year

Source: Authors' compilation, 2019.

3.1.2 Model Specification

The dependent variable for model 1 (Eq. (1)) is DIF while the independent variables comprise of measures of the risk asset quality of banks - total insured deposits of banks and total loans and advances while for model 2 (Eq.(2)), the dependent variable is the target reserve ratio (ratio of DIF to total insured deposits of banks) and the independent variable is the risk asset quality of banks as measured by NPL/TL. The empirical model is specified below:

$$DIF_t = \alpha 0+\alpha_1 TID_t+\alpha_2 TLA_t+\mu \quad (1)$$

where:

DIF_t = Deposit Insurance Fund of DMBs in year t
TID_t = Total Insured Deposit of DMBs in year t
TLA_t = Total Loans and Advances of DMBs in year t
μ = The Error term

$$TRR_t = \alpha 0+\alpha_1 AQ_t+\mu \quad (2)$$

where:
TRR_t= Target Reserve Ratio of DMBs in year t
AQ_t= Assets Quality of DMBs in year t
μ = The Error term

4. Results and discussion

4.1 Data presentation and analysis

Table 2 presents data on the growth trajectory of DIF for the last thirty years (1988-2017).

Table 2
Growth trend of DIF and some selected Asset Quality indicators of Nigerian DMBs (1988-2017)

YEAR	DEPOSIT INSURANCE FUND (DIF) (₦ Billion)	TOTAL DEPOSITS OF INSURED BANKS (₦ Billion)	TARGET RESERVE RATIO (RATIO OF DIF TO TOTAL INSURED DEPOSITS) (%)*	TOTAL LOANS & ADVANCES (₦ Billion)	RATIO OF NPL to TOTAL LOANS (%)*
1988	33.5	33,949.20	0.12		
1989	382.5	30,802.00	1.24	23.10	40.80
1990	706.7	43,856.80	1.61	27.00	44.10
1991	1,205.50	59,477.10	2.03	32.90	39.00
1992	1,890.90	87,737.10	2.16	41.40	45.50
1993	2,829.50	144,971.60	1.95	80.40	41.00
1994	4,229.50	177,373.80	2.38	109.00	43.00
1995	5,909.10	210,945.60	2.80	175.90	32.90
1996	7,811.01	258,968.10	3.02	213.60	33.90
1997	10,265.40	314,185.50	3.27	290.40	25.81
1998	8,384.80	392,478.24	2.14	327.20	19.30
1999	12,338.01	569,798.52	2.17	370.20	25.60
2000	19,416.30	838,592.56	2.32	519.00	21.50
2001	26,337.40	1,017,195.72	2.59	803.00	16.90
2002	30,049.60	1,226,624.12	2.45	932.63	21.27
2003	42,773.40	1,415,785.86	3.02	1205.03	21.59
2004	57,595.10	1,814,745.44	3.17	1519.76	23.08
2005	54,726.60	2,469,069.71	2.22	1,832.18	18.10
2006	90,179.09	3,412,273.30	2.64	2,840.10	8.80
2007	124,423.40	5,337,174.33	2.33	4,676.34	8.30
2008	175.629.6	8,702,996.20	2.02	7,411.43	6.30
2009	224.39	9,990.000	22.42	8,912.14	32.80
2010	295.72	10,840.000	27.21	7,166.76	15.04
2011	356.88	12,330.000	28.95	7,273.75	4.95
2012	425.21	14,390.000	29.53	8,150.03	3.51
2013	508.06	16,770.000	30.29	10,042.73	3.20
2014	614.16	18,020.000	34.07	12.626.96	2.81
2015	725.58	17,510.000	41.40	13,328.77	4.87
2016	827.89	18,540.000	44.61	16,260.000	12.80
2017	959.56	19,380.000	49.48	15,910.000	14.84

Source: NDIC Annual Report (Several Editions) and Insurance & Surveillance Department for the relevant years; *Authors' computation, 2019.

As indicated, the premium contribution of the scheme on commencement in 1989 amounted to a total sum of ₦382.5 million. This amount grew to about ₦10.2billion in 1997, but declined to about ₦8.3 billion in 1998 due to the failure of 26 banks whose insured depositors were re-reimbursed by the NDIC. From that period, DIF rose steadily from about ₦12.3 billion in 1999 to about ₦57.5 billion in 2004. Another decline in the value of the DIF was experienced in 2005. This decline could be attributable to the provisions made for the possible re-imbursement of the claims of the depositors' of peak merchant bank and Savannah Bank, whose cases were pending in court coupled with the 14 banks whose licences were revoked arising from their inability to meet up with the CBN recapitalization requirements (NDIC, 2005). By 2008, the DIF had grown to about ₦175.6 billion. Following the resolution of the post consolidation banking crises and the setting up of AMCON, it is observed that DIF further increased to ₦614.16, ₦725.58, ₦827.89 and ₦959.56 billion in 2014, 2015, 2016 and 2017 respectively.

Table 2 also reveals the ratio of DIF to total deposits of insured banks in Nigeria. As evidenced, the ratio of DIF to total deposits increased from 0.12% in 1989 to 3.27% in 1997. This ratio however declined to 2.14% and 2.45% in 1998 and 2002 respectively. The depletion in the value of DIF could be explained by the multiplicity of bank liquidation between 1998 and 2000. Records also indicate that the ratio also rose to 3.17% in 2004 and then fell to 2.02% in 2008 owing to the liquidation of the banks closed under purchase and assumption transactions adopted since 2006. However, there has been a steady increase in the ratio from 27.21% in 2010 to 44.61% and 49.48% in 2016 and 2017 respectively which is indicative of steady and improved industry dynamics.

It can equally be deduced from Table 2 that the volume of the total deposits of insured banks has been on a steady increase, growing from about ₦33,949.2 billion in 1988 to about ₦392,478.24 in 1998 and further rose to ₦18.54trillion and 19.38trillion in 2016 and 2017 respectively. These are clear indications of economic expansion largely triggered by deposit mobilization in the banking sector. Additionally, the data in Table 2 further reveal that the portfolio of loans and advances in the industry has increased steadily over the years. This trend partially supports the argument that the existence of DIS encouraged risk taking among DMBs. Specifically, records shown in Table 2 indicates that the level of loans and advances increased from ₦23.1 billion in 1989 to ₦1205.03 and ₦1519.76 in 2003 and 2004 respectively. This astronomical increase may have triggered the pre-consolidation banking crisis given that a substantial percentage of the loan portfolio of banks in Nigeria became toxic; thus orchestrating liquidity squeeze which adversely affected the health of DMBs in operation in the country. Notably, indications also show that the loan portfolio of banks further increased from ₦12.626.96 billion in 2014 to ₦16.24 and ₦15.91 trillion in 2016 and 2017 respectively. Also, Table 2 shows that DIF experienced increasing value from ₦382.5 billion in 1989 to ₦57,595.10billion in 2004; a period characterized as the pre consolidation era. In 2009, when the worse hit of the global financial crisis was felt in Nigeria, the value of DIF fell drastically to about ₦224.39billion, but subsequently increased marginally throughout the period to about ₦959billion by 2017. Additional evidence from Table 2 reveals that Total insured deposits (TID) increased from ₦30,802billion in 1989 to about ₦19,380trillion in the year 2017. This reflects the increasing concern on the performance of DMBs regarding the progressive increase in the cumulative deposits of depositors as a whole.

The ratio of non- performing loans to total loans (NPL/TL) was found to have increased from 40.8% in 1989 to a peak of 45.5% in 1992, but fell to 43.0% in 1994. Interestingly, this period according to Adekanmbi (2017) witnessed series of failed and distressed banks in the industry. Following the consolidation exercise based on the reform agenda of CBN with a deadline of December, 2005 for banks to have a minimum capital base of ₦25bilion, one would observe that the asset quality as measured by the ratio of NPL/TL improved from a record of 23.08% and 18.1% of 2004 and 2005 respectively to 8.3% and 6.3% in 2007 and 2008 respectively. The aftermath of the global financial crisis of 2007/2008 saw an era where NPL/TL deteriorated to 32.8% in 2009. Again, this trend improved in subsequent years with a record of 4.95%, 3.51%, 3.2% and 2.81% in 2011, 2012, 2013 and 2014 respectively. By 2015 and 2016, NPL/TL increased slightly to 4.87% and 12.8% respectively and stood at 14.84% in 2017.

4.2 Regression Results and Test of Hypotheses

This section presents the results for the regression analysis along with the test of the study's hypotheses.

4.2.1 Summary Statistics

Table 3 presents the summary statistics for NPL/TL, DIF, TID, TLA and TRR for the period 1989 to 2017.

Table 3
Summary Statistics of Variables

	N	Mean	Std. Dev.	Min.	Max.	Jarque- Bera	Prob.
Panel A: Summary Statistics (Without Log)							
NPL/TL	29	21.778	13.860	2.810	45.500	1.971	0.373
Deposit Insurance Fund (DIF)	29	23517.96	41830.22	224.390	175629.6	57.375	0.000
Total Insured deposits (TID)	29	988373.2	1917364	9990.00	8702996	112.083	0.000
Total Loans & Advances (TLA)	29	4244.887	5268.601	23.100	16260.00	5.232	0.073
Target Reserve Ratio (TRR)	29	12.258	15.748	1.240	49.480	6.254	0.043
Panel A: Summary Statistics (With Log)							
NPL/TL	29	2.799	0.856	1.033	3.817	2.964	0.227
Deposit Insurance Fund (DIF)	29	8.370	2.073	5.413	12.076	2.285	0.318
Total Insured deposits (TID)	29	12.023	2.122	9.209	15.979	2.161	0.339
Total Loans & Advances (TLA)	29	6.933	2.145	3.139	9.696	2.213	0.330
Target Reserve Ratio (TRR)	29	1.667	1.275	0.215	3.901	4.739	0.093

The regression output as indicated in Table 3 indicates that NPL/TL of DMBs have experienced series of fluctuating trends over the period under study. As indicated, asset quality when measured by NPL/TL on the average ranged from a minimum of 2.810% to 45.5%. The minimum NPL/TL was recorded in 2014 whereas; the maximum NPL/TL was recorded in 1992. Comparing the results in Table 3 and Table 2, it is clear that periods before the 2005 consolidation of banks, there were records of very high NPL/TL an indication of poor asset quality. However, apart from 2009, records between year 2005 to 2017 evidenced lower ratios of NPL/TL. The mean value of NPL/TL as shown in Table 3 is 21.778%. Additionally, Table 3 presents data for DIF with a record of a minimum value of ₦224.390billion and a maximum value of ₦175,629.6billion during the period. On the average, the DIF with mean value of ₦988,373.2billion suggests that the accumulated deposit

insurance funds for the period under study exhibited a moderately high trend occasioned by economic activities in the country's capital market, and of course, the performance trend in Nigeria's banking industry as a whole. According to IADI (2014) the pattern of movement in the country's DIF could be attributed to the principle of fairness in deposit insurance pricing and the commitment to the reduction in the overall premium burden on banks. Furthermore, the result of the summary statistics for TID as presented in table 3 indicates that the minimum value recorded was ₦9990.00trillion, whereas, the maximum recorded TID was ₦8,702996trillion. This suggests that there is an increasing percent of DMBs' deposit kept with the NDIC. Further indications revealed that there was subsequent increase in insured deposits from ₦30,802billion in 1989 to ₦19,380trillion in 2017. This to some extent is a clear reflection of the increasing concern regarding the performance of Nigerian DMBs' deposit as a whole. The mean value of TID for the period amounted to ₦988,373.2billion. Total loans and advances on the average, shows an increasing demand and supply of loans and advances for short and long run period by DMBs, while the target reserve ratio with mean value of 12.258 is an indication that on the average, DIF was about 12.258% of the TID during the period. Impliedly, the period exhibits an era of expansionary monetary policy which may have been in play leading to increasing loans which largely may have contributed to the boosting of economic activities in the country.

4.2.2 Test of Hypotheses and Discussion

Hypothesis One

Table 4 reports the ARDL bounds test for cointegration of the selected variables of concern. A critical examination of the results displayed by Table 4 shows that the calculated F-statistics [$F_{DIF}(F_{DIF}|TID, TLA)$= 4.052] is higher than the upper and lower bound critical value of 3.17 at 10 percent significance level. Also, using total deposits of insured banks and total loans and advances as dependent variables, their respective F-statistics ($F_{TID}(F_{TID}|DIF, TLA)$= 3.967 and $F_{TLA}(F_{TLA}|DIF, TID)$= 5.106) are higher than the lower bound critical value of 3.17 at 10 percent significance level. This supports the assertion that there exists a long run cointegrating relationship between the measures of the quality of the risk assets of DMBs; thereby necessitating the estimation of a long run Vector Error Correction (VEC) model. Conversely, in relation to model 2 which shows the relationship between target reserve ratio and asset quality when measured by NPL/TL alone, the F-statistics [$F_{TRR}(F_{TRR}|NPL, TL)$ = 0.104] is lower than the upper and lower bound critical values, implying that only a short run causal relationship exists between target reserve ratio and asset quality. Furtherance of the above, the result of the VECM is thus presented in Table 5.

Table 4
Results of Bound Tests

	S/N	Models	F-Statistics	Decision
Model 1	1	$F_{DIF}(F_{DIF}\|TID, TLA)$	4.052***	Cointegration
	2	$F_{TID}(F_{TID}\|DIF, TLA)$	3.967***	Cointegration
	3	$F_{TLA}(F_{TLA}\|DIF, TID)$	5.106***	Cointegration
Model 2	1	$F_{TRR}(F_{TRR}\|NPL, TL)$	0.104	No cointegration
	2	$F_{AQ}(F_{AQ}\|TRR)$	2.139	No cointegration

N.B: (* significant at 1%, ** significant at 5%, *** significant at 10%)

Table 5
Vector Error Correction (VEC) Summary Statistics

Cointegrating Equation	CointEq1		
D(LNDIF(-1))	1.000		
D(LNTID(-1))	-1.023		
	(0.034)		
	[-29.933]**		
D(LNTLA(-1))	-0.086		
	(0.028)		
	[-3.070]**		
C	4.536		
	$ECT = 1.000 - 1.023\times LNTID_{t-1} - 0.086\times LNTLA_{t-1} + 4.536$		
Error Correction	D(LNDIF)	D(LNTID)	D(LNTLA
CointEq1	2.968	3.198	-0.171
	(1.456)	(1.454)	(0.176)
	[2.037]	[2.198]	[-0.971
D(LNDIF(-1))	-0.362	-0.452	0.061
	(1.776)	(1.773)	(0.214)
	[-0.204]	[-0.255]	[0.287]
D(LNTID(-1))	0.221	0.323	0.013
	(1.743)	(1.740)	(0.210)
	[0.126]	[0.185]	[0.063]
D(LNTLA(-1)	-1.085	-0.956	0.258
	(1.460)	(1.457)	(0.176)
	[-0.743]	[-0.656]	[1.463]
C	0.289	0.221	0.172
	(0.441)	(0.441)	(0.053)
	[0.655]	[0.501]	[3.224]
	$LNDIF = 0.289 - 0.362LNDIF_{t-1} + 0.221LNTID_{t-1} - 1.085TLA_{t-1} + 2.968$		

The results in Table 5 reflect the long run and short run relationship between the volume of loans and advances and DIF. Accordingly, from the result of the short run estimation, the lagged value of DIF suggests a negative and insignificant relationship on itself, implying that any 1 percent variation in DIF in the previous period will trigger a decrease in itself in the current period. TLA on its part was found to have exerted a negative and insignificant relationship on DIF. Impliedly, an increase in the disbursement of loans and advances by Nigerian DMBs will possibly increase the pool of DIF by at least 1.085 percent. Noteworthy, a different effect is reflected in the lagged coefficient value of total deposits of insured banks, as its effect is found to be directly related to DIF. Basically, the results of the above estimations in the short run supports the null hypothesis of no significant relationship between TLA and DIF in Nigeria.

Interestingly, given by the coefficient value of -1.023, the long run results indicate that the aggregate value of TID of insured banks is negatively and significantly related to DIF in the previous period. Similarly, TLA exerts a negative and significant effect on DIF with coefficient value of -0.086 (p-value = 0.028). The implication of these results is that in the long run, the aggregate value of TID and the volume of TLA of insured Nigerian banks have significant influence on changes in the value of DIF over the study period. Based on the aforementioned results, the null hypothesis of the existence of no significant relationship between TLA and DIF is rejected.

However, from the adjustment coefficient which produced a coefficient value of 2.968, the obvious is that the previous period deviation from the long run equilibrium is corrected in the current period at an adjustment speed of 296.8 percent, *ceteris paribus.*

The implication of the above finding is that the increasing access and granting of loans and advances by Nigerian DMBs had a negative and significant effect on DIF. The essence of a DIF is to guarantee fulfilment of the insurance requirements of the deposit insurer and to safeguard depositors' funds. Such fulfilment may take the form of cash, cheque or remittances/payments to depositors. As such, with the increased approvals and disbursements of loans and advances depletes the pool of reserve funds which leads to a gradual build-up of non-performing loans. This ultimately defeats the overriding principle of deposit insurance as a financial safety net. Our findings agree with that of Demirgüç-Kunt, Kane and Laeven (2015), and are in line with our *apriori* expectations.

Hypothesis Two

Table 6
Summary of Short-run Estimates

	Dependent Variable (TRR)				
	Variable	Coefficient	Std. Error	t-Statistics	Probability
Model 2	D(lnTRR(-1))	-0.020	0.282	-0.071	0.943
	D(lnTRR(-2))	-0.293	0.330	-0.889	0.383
	D(lnNPL/TL(-1))	-0.067	0.283	-0.238	0.813
	C	0.181	0.123	1.475	0.155
	R-Squared	0.041			
	Adj. R-Squared	-0.140			
	D.W Stat.	1.830			

N.B: (* significant at 1%, ** significant at 5%, *** significant at 10%)

Indications with regards to Model 2 as shown in Table 6 reveals that in the short run, the first and second lagged values of target reserve ratio of DMBs exhibits a negative and insignificant relationship with itself. As indicated, a 1 percent change in the previous period of target reserve ratio of DMBs will trigger negative effect on the current performance of target reserve ratio. The ratio of NPL/TL was found to have evidenced a negative and insignificant relationship with TRR having obtained a coefficient value of -0.067 in the first period. As shown in the result, a 1 percent change in NPL/TL will trigger a downward growth trajectory in the level of TRR of DMBs. Additionally; one would observe that in the second lagged period, NPL/TL had a positive and insignificant relation the TRR of DMBs.

Overall, the result indicates that both in the first and second lagged periods, NPL/TL were found to exhibit an insignificant relationship with TRR, thereby necessitating the acceptance of the null hypothesis which suggests that DIF does not have any significant relationship with the ratio of NPL/TL of Nigerian DMBs. The Durbin Watson (Dw-Stat.) was 1.830, which could approximately be equal to the rule of thumb value of 2, indicating the absence of first order serial correlation.

The implication from the above analysis is that changes in the level of NPL/TL are accompanied by decrease in the target reserve ratio of DMBs. One of the nagging problems which can potentially have an impact on bank credit worthiness is the level of doubtful and non-performing loans. Loans are the most important component in a bank's balance sheet. As observed, high volumes of non-performing (loans bad loans/toxic assets) were accumulated by banks in the pre-consolidation era and this may have accounted for the pre-consolidation crisis which incapacitated the smooth operations of banks and the resultant erosion of the value of total assets/reserves.

4.3 Determining the Existence of Structural Break

In computing to determine if structural breaks exist for the period covered by the study, the Chow Breakpoint test is conducted. This is necessary to ascertain whether structural reforms have had any significant improvement in the study's variables contained in models one and two. The results are presented in Table 7.

Table 7
Breakpoint test

Model 1: Chow Breakpoint Period: 2005			
F-Statistics	67.309*	Prob. F(2,25)	0.000
Log Likelihood ratio	53.763*	Prob. Chi-Square(2)	0.000
Wald Statistic	134.619*	Prob. Chi-Square(2)	0.000
Model 2: Chow Breakpoint Period: 2005			
F-Statistics	26.601*	Prob. F(1,27)	0.000
Log Likelihood ratio	19.886*	Prob. Chi-Square(1)	0.000
Wald Statistic	26.601*	Prob. Chi-Square(1)	0.000

N.B: (* significant at 1%, ** significant at 5%, *** significant at 10%)

From the first period, the structural breaks (2005) are divided into two periods; pre-consolidation (1989-2004) and post consolidation era (2005-2017). From Table 7, it is clear that there was a significant policy shift between these periods. This is because the probability value of 0.000 respectively for both models (Model 1 and 2) are less than the significance level of 0.05 (5% significance level). This further suggests that there was a significant policy shift after liberalization period (consolidation era). This significant shift arose as a result of the policy reform of bank consolidation in 2005 which largely strengthened financial institutions and the entire financial system in Nigeria.

5. Conclusion and Recommendation

This paper empirically investigated the relationship between deposit insurance funds (DIF) and the quality of risk assets of DMBs in Nigeria. The ARDL and the VEC estimation techniques were used to estimate the relationship between DIF and the volume of total deposits and total loans and advances of DMBs on one hand; and the link between target reserve ratio and the level of NPL/TL on the other hand. The period covered is twenty-nine years, 1989 to 2017 and all data were generated from reliable secondary sources. From earlier estimated results, the volume of total deposits and total loans and advances were negatively and statistically significant to DIF in the long run. On the other hand, NPL/TL in the second lagged period was positive albeit statistically insignificant to target reserve ratio in Nigeria. This study therefore recommends that the banking sector regulatory agencies (CBN and NDIC) should collaborate with DMBs to diversify and manage other components of risk like minimising the incidences of loan defaults rather than over concentrating on credit risk management which invariably predisposes banks to other risks. This can be achieved by collaborative strategies to intensify the implementation of existing measures to reduce the alarming levels of NPL in the bank portfolio of Nigerian DMBs.

References

Adekanmbi, M. O. (2017). Causes and effects of banking distress in Nigeria banking industry. *International Academic Journal of Accounting and Financial Management, 4*(1), 100-105.

Ahmad, L. R., Febrian, E., Anwar, M. & Herwany, A. (2019). Market discipline and implicit deposit protection: Empirical study on the regional development bank in Indonesia. *Journal of Economics and Economic Education Research, 20*(2), 1-15.

Alford, D. (2010). Nigerian banking reform: Recent actions and future prospects. *Available at* https://ssrn.com/abstract=1592599. DOI: https://dx.doi.org/10.2139/ssrn.1592599.

Alford, D. (2012). Reform of the Nigerian banking system: Assessment of the Asset Management Corporation of Nigeria (AMCON) and recent developments. *Available at https://ssrn.com/abstract=2006057*. DOI: https://dx.doi.org/10.2139/ssrn.2006057.

Alyeksyeyev, I., & Mazur, A. (2018). Adapting international experience to the deposit guarantee system in Ukraine. *Financial Sciences, 23*(1), 9-21.

Anginer, D. & Demirgüç-Kunt, A. (2018). Bank runs and moral hazard: A review of deposit insurance. *Policy Research Working Paper 8589.* World Bank Group: Development Economics and Development Research Group.

Ani,W. & Ogar, A. (2018). Effect of deposit insurance fund on the safety of bank deposit in Nigeria *IIARD International Journal of Banking and Finance Research 4*(2), 65-72.

Anyanwu, J. (1997). Deposit insurance in Nigeria: benefits, costs and operational strategies. *Savings and Development*, 1, 67-77.

Bernet, B. & Walter, S. (2009). Design, structure and implementation of a modern deposit insurance scheme. *SUERF Studies 2009/5.* Vienna: SUERF-The European Money and Finance Forum.

Calomiris, C. W., & Jaremski, M. (2019). Stealing deposits: Deposit insurance, risk-taking, and the removal of market discipline in early 20th-century banks. *The Journal of Finance*, *74*(2), 711-754.

Cheng, R. & Ellyne, M. (2011). Valuation of deposit insurance in South Africa using an option-based model. *Paper presented at the Biennial Conference of the Economic Society of South Africa*, University of Stellenbosch, South Africa. 5th-7th September.

Chernykh, L., & Cole, R. A. (2011). Does deposit insurance improve financial intermediation? Evidence from the Russian experiment. *Journal of Banking and Finance, 35*(2), 388-340. DOI: doi:10.1016/j.jbankfin.2010.08.014

Chu, K. (2011). Deposit insurance and banking stability. *Cato Journal*, *31*(1), 34-46.

Davis, E. & Obasi, U. (2009). Deposit insurance systems and bank risk. *Department of Economics and Finance Working Paper No.19-26, Brunel University, West London.* Available at http://citeseerx.ist.psu.edu/viewdoc/download?doi=10.1.1.425.5373&rep=rep1&type=pdf

Demirgüç-Kunt, A. & Detragiache, E. (2002). Does deposit insurance increase banking system stability? An empirical investigation. *Journal of Monetary Economics*, *49*(7), 1373-1406. DOI: https://doi.org/10.1016/S0304-3932(02)00171-X

Demirgüç-Kunt, A. & Kane, E. J. (2002). Deposit insurance around the globe: Where does it work? *The Journal of Economic Perspectives 16*(2), 175–195.

Demirgüç-Kunt, A. & Huizinga, H. (1999). Market discipline and Financial Safety Net Design. *World Bank Policy Research Paper 2183*. World Bank Research Group

Demirgüç-Kunt, A., & Huizinga, H. (2013). Are banks too big to fail or too big to save? International evidence from equity prices and CDS spreads. *Journal of Banking & Finance*, *37*(3), 875-894.

Demirgüç-Kunt, A., Kane, E., & Laeven, L. (2015). Deposit insurance around the world: A comprehensive analysis and database. *Journal of Financial Stability*, *20*, 155-183.

Ebiaghan, F., Ojugbeli, C. & Okoye, E. (2017). Toxic assets dilemma and the health of deposit money banks: Assessing the performance of the Asset Management Company of Nigeria (AMCON). *Journal of Social and Management Sciences, 12*(1), 127-138.

Eisenbeis, R. & Kaufman, G. (2006). Cross-border banking: Challenges for deposit insurance and financial stability in the European Union. *Federal Reserve Bank of Atlanta Working Paper No. 2006-15.*

Enkhbold, E. & Otgonshar, B. (2013). The effect of deposit insurance on risk taking in Asian banks. *Asian Journal of Finance & Accounting, 5*(1), 104-126.

Febrian, E. & Herwany, A. (2011). Depositor sensitivity to risk of Islamic and conventional banks: Evidence from Indonesia. *The International Journal of Business and Finance Research*, *5*(3), 29-44.

Forssbæck, J. (2011). Ownership structure, market discipline, and banks' risk-taking incentives under deposit insurance. *Journal of Banking & Finance*, *35*(10), 2666–2678. DOI: https://doi.org/10.1016/j.jbankfin.2011.02.024.

Glonti, V. & Vashakmadze, I. (2018). Deposit insurance, as the basis for ensuring financial sustainability of the banking system. *Journal of Applied Finance & Banking, 8*(5), 43-52.

Gropp, R. & Vesala, J. (2001). Deposit insurance and moral hazard: Does the counterfactual matter? *ECB Working Paper 47,* Kaiserstrasse-Frankfurt: European Central Bank. Available at https://www.ecb.europa.eu/pub/pdf/scpwps/ecbwp047.pdf?ab523709522dfa413746ae661128300c

Gropp, R. & Vesala, J. (2004). Deposit insurance, moral hazard and market monitoring. *Review of Finance, 8*(4), 571-602. DOI: https://doi.org/10.1093/rof/8.4.571.

Gueyie, J. P. & Lai, V. S. (2003). Bank moral hazard and the introduction of official deposit insurance in Canada. *International Review of Economics & Finance*, *12*(2), 247-273. DOI: https://doi.org/10.1016/S1059-0560(02)00106-5.

Hogan, T. L. & Luther, W. J. (2014). The explicit costs of government deposit insurance. *Cato Journal, 34*(1), 145-170

IADI (2009). Funding of deposit insurance systems. *Guidance Paper – Research and Guidance Committee.* Basel, Switzerland: Bank for International Settlements.

IADI (2011) Funding mechanisms of deposit insurance systems in the Asia-Pacific region. *Research Paper- Research Subcommittee of the Asia-Pacific Regional Committee*. Basel, Switzerland: Bank for International Settlements

IADI (2014) Core principles for effective deposit insurance systems, November, 29. *Available at http://www.iadi.org/en/assets/File/Core%20Principles/cprevised2014nov.pdf.*

Jalan, M. & Pradhan, H. K. (2012). Risk based pricing of deposit insurance: Empirical estimation of commercial banks of India. *XI Capital Markets Conference, 21-22 December 2012, Indian Institute of Capital Markets (UTIICM)* DOI: https://dx.doi.org/10.2139/ssrn.2255474.

Jameaba, M. S. (2018). Deposit insurance and financial intermediation: The case of Indonesia Deposit Insurance Corporation. *Cogent Economics & Finance, 6,* 1-32. DOI: https://doi.org/10.1080/23322039.2018.1468231

Karabulut, G. & Bilgin, M. H. (2007). Sources of non-performing loans in Turkish banking system. *Journal of Business & Economics Research 5*(10), 91-96. DOI: https://doi.org/10.19030/jber.v5i10.2595

Karels, G. V. & McClatchey, C. A. (1999). Deposit insurance and risk-taking behaviour in the credit union industry. *Journal of Banking & Finance 23*(1), 105-134. DOI: https://doi.org/10.1016/S0378-4266(98)00074-0

Khundadze, S. (2009). The problem of moral hazard and effects of deposit insurance project. *IBSU Scientific Journal*, *2*(3), 89-114.

Mbarek, L. & Hmaied, D. M. (2011). Deposit insurance and bank risk-shifting incentives: Evidence from the Tunisian banking system. *Journal of Money, Investment and Banking, 20*(2011), 41-53.

McCoy, P. A. (2006). The moral hazard implications of deposit insurance: Theory and evidence. *Seminar on Current Developments in Monetary and Financial Law, Washington D.C., October 23-27.*

Nigeria Deposit Insurance Corporation (2005). *Annual Report and Statement of Accounts*. Abuja: NDIC.

Nigeria Deposit Insurance Corporation Act (2006), Abuja: Federal Government of Nigeria
Nigeria Deposit Insurance Corporation (2009). *Annual Report and Statement of Accounts*. Abuja: NDIC.
Nigeria Deposit Insurance Corporation (2012). *Annual Report and Statement of Accounts*. Abuja: NDIC.
Nigeria Deposit Insurance Corporation (2017). *Annual Report and Statement of Accounts*. Abuja: NDIC.
Nijskens, R., & Wagner, W. (2011). Credit risk transfer activities and systemic risk: How banks became less risky individually but posed greater risks to the financial system at the same time. *Journal of Banking & Finance, 35*(6), 1391-1398. DOI: https://doi.org/10.1016/j.jbankfin.2010.10.001.
Niinimäki, J. P. (2003). Maturity transformation without maturity mismatch and bank panics. *Journal of Institutional and Theoretical Economics*, *159*(3), 511-522.
Obienusi, I. & Obienusi, E. A. (2015). Banking reforms and the Nigerian economy, 1990 – 2007 *Historical Research Letter 21*, 27-31.
Thies, C. & Gerlowski, D. (1989). Deposit insurance: A history of failure. *Cato Journal*, *8*(3), 677-693.
Ume, K. E., Oleka, C. & Obasikene, A. C. (2017). Deposit insurance and moral hazards: A theoretical discourse. *Journal for Studies in Management and Planning, 3*(2), 38-43.
Wheelock, D. (1992) Deposit insurance and bank failures: New evidence from the 1920s. *Economic Inquiry 30*(3), pp. 530-543.
World Bank Group (2016) Nigeria: methodological approach for development of Target Deposit Insurance Fund model. *Technical Report*.