DEPOSIT INSURANCE AND CREDIT RISK OF
NIGERIA BANKING SYSTEM: A TIME SERIES ANALYSIS

Elizabeth Ihuoma IGWE,

Rivers State University, Department of Banking and Finance, Port Harcourt, Nigeria

Lizyken2014@gmail.com

&

Adolphus Joseph TOBY, (CA)

Rivers State University, Department of Banking and Finance, Port Harcourt, Nigeria

toby.adolphus@ust.edu.ng

Abstract

This study examined the relationship between deposit insurance and nonperforming loans ratio of Nigeria banking system. Time series data were sourced from the publications of Nigeria deposit Insurance Corporation, Central Bank of Nigeria, and Stock Exchange Factsheet. Nonperforming loan ratio was measure for dependent variable while deposit in insurance was proxied by insured deposits and risk based premium. Ordinary Least Square (OLS), Augmented Dickey Fuller Test, Johansen Co-integration test, normalized Co-integrating equations, parsimonious vector error correction model and pair-wise causality tests were used to conduct the investigations and analysis. The study found that 63.5 percent of variation in the level of nonperforming loan ratio is explained by variations in insured deposits and risk-based premium. Insured deposits and risk-based premium have a negative relationship with the level of bank distress. From the findings, we conclude that Nigeria deposit insurance has a moderate relationship with commercial banks stability. From the findings, we recommend that role of deposit insurance in eliminating costly bank runs should be is widely recognized. Nigeria Deposit Insurance Corporation should adopt the more sophisticated differential premium assessment system (DPAS) where risk is explicitly considered in assessing premium payable by insured institutions, and Nigeria Deposit Insurance Corporation should protect bank deposits in Nigeria and improve to a large extent insured deposit of the deposit money banks deposit in the short run and long run to avert the cases of bank failure.

Keywords: Deposit Insurance, Nonperforming Loans Ratio, Nigeria Banking System, Risk Premium.

1. Introduction

The standard arguments for government intervention in the banking sector are broadly classified into four groups which are maintaining the safety and soundness of the banking system; mitigating market failures due to the presence of costly and asymmetric information and promoting financial development and giving access to competitive banking services to residents of isolated areas (Ghosh, 2010). One of the strategies for government intervention in the banking sector is by establishing deposit insurance scheme. Regulation in banking is classified into two types such as preventive regulation and protective regulation. Preventive category is such measures taken by the authorities to restrict entry into banking business by licensing; the restriction of the types of business in which banks can engage; capital adequacy requirements; control of liquidity and statutory reserves; limits to which banks can lend or invest; and finally bank examination. Protective regulation in banking includes such measures as deposit insurance schemes and central bank assumption of control of banks. These measures also help to minimize ex-ante loss of control of banking operations and maximize ex-post damage mitigation (Giannetti and Simonov, 2013).

The deposit insurance scheme complements support and strengthens the protective functions of the other system elements, just as these complements and support the deposit insurance scheme in fulfilling its function. Deposit insurance scheme fulfills five key functions, which are confidence function, deposit insurance creates, through its existence and its credibly communicated mechanisms for dealing with a financial crisis, confidence among the depositors of the insured institutions in the stability of those institutions and of the whole financial system. It protects depositors in case of crisis against the loss of their covered deposits in insured institutions. Indirectly it shelters the insured institutions against a run on them, and thus the affiliated institutions against instability.

Deposit insurance secures covered deposits from the grasp of other stakeholders in the bank. By virtue of its authority it asserts the entitlements of depositors on the basis of the insured deposits (Nwokoji, 2011). It ensures that there is adequate financing of the capital base necessary to carry out the protection and security functions and for a risk-free administration of an increase in the accumulated fund size. It makes available sufficient liquidity to cover the insured deposits credibly in the case of a claim. Deposit insurance supports the other financial safety net institutions concerned with the task of securing and improving the stability of the financial system (Opala, 2014). Deposit insurance plays a role, along with other elements of

the financial safety net, in creating an environment of confidence and thus contribute to the overall stability of a financial system. The existence of deposit insurance can help promote competition and may be associated with the increased use of savings deposits and facilitate greater access to lending services.

However, a key dilemma faced by policy makers in evaluating deposit insurance role in providing such safety net arrangements is the risk of triggering imprudent lending behaviour by the covered banks. Financial safety nets are a source of moral hazard, as the ability of protected banks to attract deposits no longer depends upon the risk of their asset portfolio and these institutions are encouraged to finance high-risk, high return projects (Demirguc-Kunt & Detragiache, 2002). Thus, financial safety net arrangements may lead unintentionally to more bank failures and if banks take on risks that are correlated, systemic banking crises may become more frequent (Demirguc-Kunt and Detragiache, 2002). Therefore, a key challenge in the design of financial safety nets is mitigating the risk of moral hazard. This study examined the effect of deposit insurance on credit risk of banking system in Nigeria.

2. Literature Review

Deposit Insurance

Deposit insurance is a financial guarantee to depositors, particularly the small ones, in the event of a bank failure. Deposit insurance was developed out of the need to protect depositors, especially the uninformed class of depositors, from the risk of loss and to also protect the banking system from instability occasioned by runs and loss of confidence (NDIC, 2002). Deposit insurance promotes the stability of the banking system. It assures the depositors that his funds are safe and that the failure of one bank does not mean that all banks are in danger of failing (Demirguc-Kunt & Detragiache, 2002). The Nigeria banking system has been singled out for the special protection because of its vital role in the economy.

For deposit insurance to be effective and functional in achieving the objectives of protesting depositors and the entire banking system, it must be properly designed and adequately implemented by the agency established to execute the scheme and well understood by members of the public, (Financial Stability Forum, 2001). This is because a well-designed deposit insurance scheme contributes to the stability of a country's banking system by reducing the incentives for depositors to withdraw their insured deposits from banks following rumors about their financial conditions (Ogunleye, 2010).

The establishment of NDIC in 1988 and the consequent introduction of deposit insurance scheme in Nigeria, the scheme has been augmenting the existing safety-net by protecting depositors, thereby boosting confidence of the banking public, reducing the pains of bank failure and inevitability of the market environment to minimum level while moral hazard associated with direct government support was eliminated (Demirguc-Kunt & Detragiache, 2002). Consequently, as part of efforts to ensure the stability of the Nigeria banking system and in response to the incessant problem of bank runs in the country, the apex regulatory authorities have swing into action by applying various failure measures depending on the severity and peculiarity of the distress (Ani and Ogar, 2018).

Bank deposit insurance scheme was developed out of the need to protect depositors, especially the uninformed, from the risk of loss, and to also protect the banking system from instability occasioned by runs and loss of confidence. The practice of the deposit insurance scheme in Nigeria commenced with the promulgation of decree 22 of 1988, which established the Nigeria responsibility of implementing the scheme in the country.

Nigerian Deposit Insurance Corporation commenced operations in March 1989, it is a statutory body established under the NDIC Act No 16, 2006 (NDIC, 2010). The scheme was introduced to provide a further layer of protection to depositors and complement the role of prudent bank management as well as the Central Bank of Nigeria's (CNB's) supervisory activities in ensuring a safe and sound banking system. It was also considered as an additional framework to serve as a vehicle for addressing some of the challenges that followed the deregulation of the financial system under the structural adjustment programme (SAP) which was introduced in 1986. Deposit insurance is a financial guarantee instituted as a measure of safety for the banking system to protect depositors. Deposit insurance promotes the stability of the banking system. It assures the saver that his funds are safe and that the failure of one bank does not mean that all banks are in danger of failing (Demirguc-Kunt & Detragiache, 2002).

Furthermore, as part of efforts to ensure the stability of the banking industry and in response to the lingering problem of distress in the sub-sector, the regulatory/supervision authorities have been applying various failure measures since the late 1990s. Hence depending on the severity and peculiarity of the distress, Nigerian Deposit Insurance Corporation NDIC in collaboration with the CBN, has over the years, successfully adopted such measures as the provision of liquidity support through accommodation bill, imposition of prompt corrective actions,

assumption control and management, restructuring and sale of some distressed banks as well as liquidation of the terminally distressed banks as a last but unavoidable option (Sanusi, 2010).

Insured Deposits

Insured deposits are deposits that are covered by deposit insurance corporations. Deposit insurance systems are designed to minimize or eliminate the risk that depositors placing funds with a bank will suffer a loss. Deposit insurance thus offers protection to the deposits of households and small business enterprises, which may represent life savings or vital transactions balances. With a deposit insurance system in place, these households and businesses can "go about their business with some assurance that their funds are secure. This in turn supports the stability and smooth operations of the economy (NDIC, 2017). Deposit insurance programmes can help to maintain financial stability, thereby enabling banks to intermediate effectively and support economic growth. As with other components of the safety net, however, deposit insurance can create perverse effects, the potential for moral hazard, misallocation of resources, and excessive regulatory burden point to the need for appropriate balance in designing deposit insurance systems.

While deposit insurance systems, as well as the other elements of a financial safety net arrangement, contribute to stability and thereby promote economic growth, they can also generate perverse effects. By providing protection to market participants, costs of pursuing riskier strategies are reduced and excessive risk-taking might be incentivized – the moral hazard problem. With their deposits protected against loss, insured depositors have little incentive to monitor bank risk-taking, and may simply seek the highest return possible on their deposits. Thus, deposits may tend to flow away from conservatively managed institutions towards those willing to pay higher returns by assuming more risk (Bonfim and Santos, 2017).

Deposit insurance can thus exacerbate moral hazard by altering the normal risk-return trade-off for banks, reducing the costs associated with riskier investment strategies. These incentives are inherent to some degree in the nature of all insurance, and even the best structural designs for deposit insurance systems cannot be expected to eliminate moral hazard (Schich, 2008). As will be discussed later in this paper, supervision and regulation of insured institutions, as well as some degree of market oversight, are essential for controlling moral hazard in order to maintain safety and soundness.

Deposit Insurance is only as Strong as the Safety Net in which it Operates

One of the most important preconditions for setting up a deposit insurance scheme is the existence of a robust financial sector safety net that supports financial stability and reduces the risk of severe financial crises. A financial safety net usually includes the functions of prudential regulation and supervision, a lender of last resort, a bank resolution framework, and deposit insurance (Ogunleye, 2010). Deposit insurance scheme is not intended to deal with, by itself, systemically significant bank failures or a systemic crisis. To function effectively, the overall safety net must include well-established elements that work efficiently together (Nolte and Rawlins, 2017). For example, a strong and effective supervisory system can prevent bank failure by allowing early detection and supervisory intervention in problem banks, followed by the use of recovery measures or enforcement tools. Similarly, a bank resolution framework may provide for more cost-effective resolution measures than the closure of a bank followed by a deposit insurance payout.

An effective Deposit Insurance System is not Free

The costs of managing deposit insurance scheme are primarily borne by member institutions of deposit insurance scheme, the banks and other deposit-taking institutions. Deposit insurance scheme needs start-up funding, ongoing funding, and emergency funding. Adequate funding allows for the prompt settlement of depositor claims and is critical for the effectiveness and credibility of the scheme and its role as a supporter of financial stability (McCoy, 2007). To determine the adequacy of its deposit insurance fund and the sufficiency of the premiums contributed by the banks, deposit insurance scheme should establish a target fund ratio (reserve ratio) based on "clear, consistent and well-developed criteria. In addition to the ex-ante funding provided by banks, emergency or contingency funding or liquidity arrangement must be established to cover any shortfalls. These arrangements are usually provided by the government or the central bank with a government guarantee and should be paid back over a reasonable period (Ogunleye, 2010).

Effective Payout

The most complex task that many deposit insurance system struggle with, even experienced ones is the issue of effective payout in case of bank failure. A good and effective deposit insurance system is mandated to make timely reimbursements to depositors when a bank is closed and the deposit insurance system is triggered (McCoy, 2007). Setting up a depositor

reimbursement system requires strong technical expertise, capacity building, access to information at member banks, systems development, and cooperation and coordination with member institutions and other authorities. Achieving accurate, prompt payouts to depositors should be the primary goal of every deposit insurance system, and it should be attained before a deposit insurance system considers an expanded mandate (McCoy, 2007).

Public Awareness

In order for a deposit insurance system to be effective, it is essential that the public be informed about its benefits and limitations. Experience has shown that the characteristics of a deposit insurance system need to be publicized regularly so that its credibility can be maintained and strengthened (NDIC report, 2017). A well-designed public-awareness program can achieve several goals, including the dissemination of information that promotes and facilitates an understanding of the deposit insurance system and its main features. Also, a public-awareness program can build or help restore confidence in the banking sector. Additionally, such a program can help to disseminate vital information when failures occur, such as guidance regarding how to file claims and receive reimbursements (Ogunleye, 2010).

Deposit Insurance versus Banking System Stability in Nigeria

In Nigeria and elsewhere in the world, the banking system is built and develops as an open system, which enables it to organize its activity through mobilizing its own resources and to continuously adapting to market signals and economic developments, of which it is a cause (Constantinescu, 2015). Analyzing the literature, one can identify that banking bankruptcy distorts capital allocation and, in most cases, lead to a decrease in the real economy (Iwedi 2018). There are several mechanisms that allow the banking system to cope with the phenomenon of massive withdrawals from banks. The most effective of these is the deposit insurance. Deposit insurance ensures that the depositor does not lose all his/her money in the event of a bank failure. It also engenders public confidence in, and promotes the stability of, the banking system by assuring savers of the safety of their funds. Deposit insurance makes bank failure an isolated event; hence it eliminates the danger that unfounded rumours will start a contagious bank run (Ogunleye 2002).

Deposit Insurance and Moral Hazard

Government insurance scheme have been provided to protect banks from runs, but at a cost leading to moral hazard. The scheme maintains that when depositors are protected and other deposits guaranteed by government insurance they are not subject to loss. By this, it means that the insurance scheme borne the risk their depositors could have bear. As a result, the issue of monitoring banks is eliminated. The scheme further opined that if bank is charge a flat rate premium that the bank does not need internalize the full cost of risk and therefore it has no incentive to take or more risk. Merton (1977) used the arbitrate pricing method for option of common stock to analyzed the deposit insurance as a put option on the value of its debt. The scheme concludes that the deposit insurance rule out bank runs at the expense of moral hazard.

Deposit Insurance and the Market Discipline of Bank Risk

Moral hazards, engendered by the safety net of government-provided deposit insurance, tend to increase the probability and cost of bank failures. Uninsured depositors, by far the largest group of bank creditors, can bring market discipline to banks that should reduce their propensity to take excessive risks. However, three important objections to reliance on depositors for this purpose have been raised: (1) uninsured depositors may be unable to monitor banks or to do so in a timely fashion; (2) even if they could evaluate bank performance, the additional interest rate they could charge would be insufficient to affect bank behaviour materially; and (3) in any event, uninsured depositors are likely to withdraw their funds rapidly (run) rather than monitor banks, thereby causing costly disruptions to other banks and the economy. Each of these objections is evaluated here, including a review of relevant empirical studies. The conclusion of this analysis is that the objections to allowing uninsured depositors to serve as market disciplinarians may not be valid.

Moral Hazard and the Need for Market Discipline

Moral hazard refers to the adverse incentive engendered by a guarantee or' contract that does not account for all contingencies, or by a safety net that fully or partially compensates people for some outcomes. The adverse incentive is that people take actions or risks that they would not otherwise have taken, had they expected to bear the full cost as well as the benefit from their actions. Debtors to limited liability firms are subject to the moral hazard that equity holders will act more differently than they promised, once the debt holders have committed their resources to the firm. In particular, equity holders might assume greater risks and remove

assets from the firm that the debt holders could attach. In effect, corporate equity holders have an option that they can put to the debt holders if losses from risky firm activities exceed the assets remaining in the firm (Black and Scholes, 1973).

Deposit Insurance and the Market Discipline of Bank Risk

This situation would not present a problem if it could be assumed that the FOIC had the same incentives and ability as private debt holders do in dealing with bankers' moral hazard incentives to take greater risks. However, such an assumption must be questioned, for two important reasons. First, government officials have incentives to over restrain banks, because the officials do not get the full benefit of risks that bankers take but are criticized for the bankers' failures. Customers and bankers who lose when banks fail might blame the officials, but those who are well served are not likely to praise them. Bankers who are conservative, though, tend to praise officials for "reining in" their more adventurous brethren, particularly when these often more imaginative bankers take away some of the conservative bankers' customers.

Second, government officials have incentives to put off closing down banks that are in danger of failing. As Kane (1988, 1992) has pointed out, these officials can maximize their own welfare by permitting insolvent or weak banks to continue operations in the hope that the banks' fortunes will improve. Or, at the least, the banks' closings will be put off until after the officials have moved on to other opportunities. This forbearance is particularly desirable for bank regulators when a troubled bank is large, because many people might be hurt should it be closed. An exception to this expectation occurs with a change in regime. Then the new regulators tend to "clean out" the mistakes of those they displace. The initial forbearance by the Federal Home Loan Bank Board and the zealous cleanup by its successors, the Office of Thrift Supervision and the Resolution Trust Corporation, are illustrative.

Market Discipline by Uninsured Depositors

The general argument in favour of using uninsured depositors to impose market discipline on banks is fairly straightforward. These debt holders are expected to act like the holders of the debt of other corporations, which is not government-insured. As described above, they are subject to moral hazard costs imposed by equity holders, and should act accordingly Benston, Hunter and Wall (1995) and Macey and Garrett (1988) for extended discussions and additional

references. The major difference between banks and non-depository corporations is those demand deposits, most banks' major liability, are redeemable on demand.

Although this situation can result in rapid withdrawal (runs), which might give rise to externalities (as discussed below), it is also seen as a benefit for reducing the costs of moral hazard. As Flannery (1994) points out, banks can change the risk structure of their assets by rapidly, thereby changing the conditions under which they obtained funds from debt holders. Banks' offer of liabilities repayable on demand is an effective means for assuring these debt holders that the banks will not change their risk structure.

Runs by Uninsured Depositors

Demands depositors can almost immediately remove their funds from a bank they fear might have insufficient assets to repay their balances. The direct cost to uninsured depositors of withdrawals is very small, as demand depositors with accounts over $100,000 usually have accounts in several banks and can transfer funds among these accounts. However, these depositors also tend to have borrowing and other financial relationship with their depositories. Hence, they bear the cost of disrupting and possibly severing these relationships, should they mistakenly run when their bank actually is solvent.

Time depositors and holders of certificates of deposit (CD5) cannot remove their funds until the maturity dates without incurring a penalty charge. However, banks almost never prevent time and savings depositors from withdrawing their funds, for fear of starting a run by demand depositors. Most banks that issue large (over $100,000) CDs must roll them over almost continuously. Hence, banks can experience a slow run, should investors be unwilling to renew or newly purchased CDs that replace those that mature.

Nonperforming Ratio

Asset quality is used to assess the strength of a bank and is directly linked to capital adequacy because insolvency risk is accompanied by the deterioration of the bank's assets (IMF and World Bank 2005). Following prior studies, we use the ratio of loan loss provisions to total loans (LLPTL), the ratio of loan loss provisions to net interest income (LLPII), and the ratio of total loans to total assets (TLTA), LLPTL represents the proportion of risky loans to total loans that were granted to the borrowers. LLPII indicates the ability of a bank to use the received interest income in order to cover the expenses caused by provisions for impaired loans.

Accordingly, the lower value of LLPTL or LLPII, the better the quality of loans is. Also, a higher TLTA reflects the more sensitivity of assets structure to loan losses since loans represent the most important components of a bank's assets (Le 2016). Thus, the highest rank is attributed to a bank that has registered the lowest value of these indicators.

3. Theoretical Review

Deposit Insurance Theory

The deposit insurance theory was postulated by Flannery (1989) but was later developed by Cham, Greenbaum and Thakor (1992). According to the theory, banks are viewed as portfolio of risky claims. As insured banks increase their risk of failure without limit, there is an expected value transfer of wealth from government Deposit Insurance Corporation to bank owners. Regulators are concerned about bank's soundness, particularly with respect to solvency or the probability of bank failure. Therefore, regulation of bank risk is necessary to reduce the expected losses incurred by the deposit insurance corporation.

Deposits solicited from customers are not as dependable and reliable as the bank capital requirement. It cannot be used for long term planning. However, more deposit means banks can grant more loans and will not obviate the need for excessive capital. When bank loans and advances are given out to customers without due process, it might affect capital and liquidity position of a bank in the long term.

Williamsons Theory of Deposit Insurance

The principal cost of imposing regulation built around deposit insurance on the banking industry is inefficient allocation of risk assumption; that is, deposit insurance leads to some risk assumption which would not occur in the free market because the risk premium earned (before subsidization) is less than the disutility incurred from assuming the risk.

Williamson (1986) has proposed five theories for coping with the costs of deposit insurance. These are the hands-on, variable premium, market-based portfolio monitoring, regulatory restraint and segregation theories. Hands-on theory posits that the governance, as insurer, should protect its interests by forcing insured banks to maintain their portfolios at a given level of risk which is appropriate to the cost of deposit insurance. The hands-on theory underlies current bank regulating reforms. The variable premium theory borrows from "traditional"

moral hazard theory which posits that moral hazard can be counteracted by pricing insurance premiums differently for different insurers, depending on the risk to the insurer which each insured presents.

The market-based portfolio monitoring theory posits that securities markets can more effectively evaluate the riskiness of a bank's portfolio than can the government through hands-on regulation. This theory calls for a requirement that all banks over a given size be required to issue publicly traded long-term debt. The regulatory restraint theory argues that there should be no deposit insurance because the moral hazard costs of deposit insurance exceeds its benefits. The segregation theory underlies proposed to accept insured deposits only at separate institutions which do not accept uninsured deposits, and which maintains portfolios of government securities. This theory has considerable appeal, since it would eliminate deposit insurance moral hazard.

4. Empirical Review

Toby (2014) examined financial fragility and performance of Nigerian banking institutions. The study analyzes how balance sheet problems in the form of non-performing loans (NPLS) affect the liquidity, funding and profitability of selected Nigerian banks in two critical periods, the bank distress era (1999-2001) and the post- consolidation era (2007-2009). The data for this study were computed from the balance sheets of twenty-two universal banks in the first period, and twenty-two consolidated Deposit Money Banks in the second period. Three multiple regression models were estimated at the 5% level of significance. In the bank distress era (1999-2001), an average NPL ratio of 21.1% was accompanied by a Loan-to-Deposit Ratio (LTDR) of 53.9%, below the prudential maximum of 80.0%. However, in the post-consolidation era, the average NPL ratio fell drastically to 7.1% with an accompanying LTDR of 57.7%, still below the prudential maximum. The inferential results show that the explanatory powers of non-performing loans (NPLs) and Loan Loss Reserves (LLR) are high in causing variations in Loan-to-Total Assets (LTA) during the bank distress era (1999-2001). The deteriorating asset quality in the bank distress era constrained significantly bank liquidity, funding growth and profitability. In the post-consolidation era, the pursuit of consolidation and risk-based supervision (RBS) moderated NPLs without a corresponding impact on liquidity and funding growth (LTDR). Heavier regulation in the post-consolidation era must aim at keeping the banks safe, profitable and relevant, and not merely becoming a stringent response to market failures and cumulative risk concentrations.

Chang (2018) employed a comprehensive data set covering 189 countries from 1960 to 2015, and a Heckman two-step selection model to investigate determinants of deposit insurance coverage. The study finds that macroeconomic status, bank structure and regulatory, political institutions, legal system, and deposit insurance design characteristics have a significant effect on deposit insurance coverage. Moreover, empirical results show that the impact factors are different between developing and developed countries, especially the design characteristics. Specifically, for developing countries, the scheme with the foreign currency will support a higher coverage. For developed countries, the interbank deposits will lead to a lower coverage, but no coinsurance shows the opposite effect. The result also suggests that there may be higher banks' risk-taking incentives in developing countries after setting up explicit deposit insurance system.

Chernykh and Cole (2011) found that banks entering the new deposit-insurance system increased both level of retail deposits and ratios of retail deposits to total assets relative to banks that did not enter the new deposit-insurance system. They utilize a multivariate panel-data analysis that controls for bank and time random effects in addition to a number of control variables. They also find that the longer period for a bank that enters into the deposit insurance policy system, it has the greater for both its level of retail deposits and the ratio of retail deposits to asset respectively.

Chu (2015) investigated the Canadian experience of banking consolidation over the period of 1867 – 1935. The evidence showed that out of the 27 banking failures examined, only one was an acquiring bank, while all the other acquiring banks grew substantially in both size and market share.

Cournede and Denk (2015) showed that the recent rise in lending to households (which largely consists of mortgage credit) is associated with a change in the relation between credit depth (bank credit relative to GDP) and economic growth. Contrary to the typical positive relationship between credit depth and GDP growth (King and Levine 1993, Levine 1997), the countries with the largest growth in government-subsidized mortgage lending actually saw a negative growth effect from incrementally more credit depth (which is driven by mortgage lending).

Cull, Senbet, Sorge (2005) find that generous deposit insurance negatively affected financial development and growth across countries, particularly in countries where the rule of law was

relatively weak and bank supervisors were not granted sufficient discretion and independence. Bergbrant, Campbell, Hunter, and Owers (2014) show that deposit insurance reduced the development of both the banking system and non-bank financial markets. This effect was less severe in the short run, and the reduction was at least partially offset in counties with strong rules and laws.

Dagher, Dell'Ariccia, Laeven, Ratnovski, and Tong (2016) examined how various levels of bank capital would have performed in past banking crises. They found that high capitalization can absorb losses during banking crises, but decline fast once capitalization attains 15 – 23 percent of risk-weighted assets. They suggested that protection against extreme crises requires significantly more loss absorption capacity; however, such crises are rare. Moreover, results are slightly different for emerging and low-income countries. Although banking crises in these countries have been historically associated with greater bank losses, banking systems are usually smaller than those in developed economies are. To that end, losses more than capital will likely represent only a small fraction of GDP and may as well have limited macroeconomic effects.

Das, Nigel and Richard (2003) explored the impact of regulatory governance on financial system stability; they used multi-cross-sectional data of developing and developed countries and applied Weighted Least-square Regression, found a significance influence of regulatory governance on financial system soundness. Using variables reflecting macroeconomic conditions, structure of the banking system and the quality of political institutions and public sector governance.

De Caux, McGroarty and Brede (2017) analyzed the long-term costs and benefits of bailout strategies in banking systems. They found that bailouts serve as effective tools that limit the occurrence of bank failures in the short-run. However, inappropriate intervention strategies hearten risk-taking, which renders bailouts inefficient and disadvantageous to long-term system stability. Hence, bailouts should be accompanied with strategies that enhance risk management practices. Bank bailouts have been granted to different banks and in various banking sectors. The evident benefit was that some of these banks were saved from collapse.

Deli & Hasan (2016) examined the effects of bank capital regulation on loan growth by using bank-level data from 125 countries within the period of 1998 to 2011. The results indicated that capital regulation only has a weak negative effect on loan growth. Moreover, the effect is

entirely offset when banks hold moderately high levels of capital. However, they found that the components of capital requirements that have the most significant negative effect on loan growth are those associated with the prevention of banks to utilize as capital borrowed funds and assets other than cash or government securities.

Dell'Aricca & Ratnovski (2012) revisited the link between bailouts and bank risk taking. They opined that government intervention in the form of bailouts creates moral hazards and encourages risk-taking. Though acknowledging that bailouts have moral hazard effects that encourage risk-taking, Dell'Aricca & Ratnovski showed that when there are risks externalities across banks, bailouts also protect prudent banks against contagion. To that end, bailouts are not in themselves bad. Hence, they suggested that bailouts should encourage adequate supervision and monitoring to reduce bank risk taking. DeLong and Saunders (2011) found out that Canadian banks compared to other large commercial banks in OECD countries were more resilient during the 2008 economic turmoil since they relied more on depository funding as compared to the other banks that relied more on wholesale funding.

Demirgüc-Kunt and Huizinga (2004) used cross-country information on DIS; investigate whether specific deposit insurance design features matter, since the various countries with explicit deposit insurance operate systems with vastly different coverage, funding and management. Among other findings, the study indicates that higher coverage, coverage of interbank funds, existence of ex-ante funding, government provision of funds, and public management reduce market discipline on banks by depositors. Their conclusions are based on evidence which suggests that the former design features of DIS lead to depositors requiring lower rates of return on their deposits, presumably due to a perceived increase in safety. On the other hand, their empirical results indicate that private/public joint management of the fund; co-insurance and coverage of foreign currency deposits is desirable since they lead to stronger market discipline with a negative or insignificant impact on interest rates.

Goodspeed (2015) founds that the banks covered under either the New York model or the Indiana model of liability insurance increased their leverage and relied more on short-term funding relative to surrounding uninsured banks. This is what one would expect irrespective of whether the systems created moral hazard; so long as protection was deemed credible, it reduced liquidity risk of member banks and thus allowed even prudently managed banks to increase their leverage. However, only banks under the New York insurance fund model saw an increased probability of failure, greater exposure to macroeconomic factors, and larger

contractions in lending during crises. That finding reflects the incentives to imprudently increase asset risk and leverage that banks faced under the New York model compared to Indiana's mutual system.

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

Hoggarth, Sorensen and Zicchino (2005) assessed how different types of DIS have an impact on the likelihood of banking crises. Their results indicate that explicit DIS with unlimited coverage increases the likelihood of banking crises. However, interestingly, the next group most likely to have a crisis is where there is no DIS exante and the protection (if any) is implicit. The authors justify the finding based on the assumption that most countries without an ex-ante deposit protection scheme introduce blanket government guarantees during a crisis to limit the political and social cost, and that this is therefore likely to be built into market expectations and to create moral hazard. Finally, jurisdictions with explicit DIS but limited coverage are least likely to experience a crisis and more so those countries that require depositors to coinsure. As such, this empirical study concludes that DIS with limited coverage appears effective in limiting moral hazard.

5. Methodology

This study used quasi experimental research design approach for the data analysis. It therefore implies an empirical study used to estimate the relationship and impact of explanatory variables. This means that the population of the study includes regulatory bank (Central Bank of Nigeria), development banks, primary mortgage banks, commercial banks, microfinance banks and merchant banks which are 1,101 banks in Nigeria. The researcher used random sampling procedure to 22 insured commercial banks, 43 primary mortgage banks, 923 microfinance banks and 6 merchant banks. Therefore, the sample size of the study is 994 banks in Nigeria. This study employed secondary data sourced from Nigerian Deposit Insurance

Corporate (NDIC), Central Bank of Nigeria (CBN) and The Nigerian Stock Exchange (NSE) publications from 1986 to 2019.

Methods of Data Analysis

The main tool of analysis is the Ordinary Least Squares (OLS) using the multiple regression method for a period of 34 years, annual data covering 1986– 2019. Statistical evaluation of the global utility of the analytical model, so as to determine the reliability of the results obtained were carried out using the coefficient of correlation (r) of the regression, the coefficient of determination (r^2), the student T-test and F-test.

(i) **Coefficient of Determination (r^2) Test:** This measure the explanatory power of the independent variables on the dependent variables. R^2 gives the proportion or percentage of the total variation in the dependent variable Y that is accounted for by the single explanatory variable X. The higher the R^2 value the better. For example, to determine the proportion of monetary policy to private sector funding in our model, we used the coefficient of determination. The coefficient of determination varies between 0.0 and 1.0. A coefficient of determination says 0.20 means that 20% of changes in the dependent variable is explained by the independent variable(s). Therefore, we shall use the R^2 to determine the extent to which variation in monetary policy variables are explained by variations in private sector funding variables over the periods covered in this study.

(ii) **Correlation Co-Efficient (R):** This measures the degree of the relationship between two variables x and y in a regression equation. That is, it tries to establish the nature and magnitude of the relationship when two variables are been analyzed. Thus correlation co-efficient show whether two variables are positively or negatively correlated. That is, it takes the value ranging from – 1, to + 1.

(iii) **F-Test:** This measures the overall significance. The extent to which the statistic of the coefficient of determination is statistically significant is measured by the F-test. The F-test can be done using the F-statistic or by the probability estimate. We use the F-statistic estimate for this analysis.

(iv) **Student T-test:** measures the individual statistical significance of the estimated independent variables. This is a test of significance used to test the significance of

regression coefficients (Gujurati, 2003). Generally speaking, the test of significance approach is one of the methods used to test statistical hypothesis. A test of significance is a procedure by sample results are used to verify the truth or falsity of a null hypothesis (Ho) at 5% level of significance.

(v) **Durbin Watson Statistics:** This measures the collinearity and autocorrelation between the variables in the time series. It is expected that a ratio of close to 2.00 is not auto correlated while ratio above 2.00 assumed the presence of autocorrelation.

(vi) **Regression coefficient:** This measures the extent in which the independent variables affect the dependent variables in the study.

(vii) **Probability ratio:** It measures also the extent in which the independent variables can explain change to the dependent variables given a percentage level of significant.

Unit Root Test

The study investigates the stationarity properties of the time series data using the Augmented Dickey Fuller (ADF) test. According to Gujarati (2003) there exists a unit root in most macroeconomic time series. Stationarity denotes the non-existence of unit root. We therefore subject all the variables to unit root test using the augmented Dickey Fuller (ADF) test specified in Gujarati (2003) as follows.

$$\Delta y_t = \beta_1 + \beta_2 + \delta y_{t-1} + \alpha i \sum_{i-1}^{m} \Delta y_{t-1} + Et \qquad (1)$$

Where:

Δy_t =   change time t

Δy_{t-1} =   the lagged value of the dependent variables

$\sum_i$ =   White noise error term

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

Decision Rule

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

Note that each variable have its own ADF test value, if the variables are stationary at level, then they are integrated of order zero i.e. 1(0). Note that the appropriate degree of freedom is used. If the variables are stationary at level, it means that even in the short run they move together. The unit root problem earlier mentioned can be explained using the model:

$$Y = Y_{t-1} + \mu_I \qquad (2)$$

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

$$Y = Y_{t-1} + \mu_I \qquad (3)$$

Where Y and I are found to be equal to 1 then the variable Yt has a unit root (random work in time series econometrics). If a time series has a unit root, the first difference of such time series are usually stationary. Therefore, to salve the problem, take the first difference of the time series. The first difference operation is shown in the following model:

$$\Delta Y = (L-1) Y_{t-1} + \mu_I \qquad (4)$$

$$\delta Y_{t-1} + \mu_I \qquad (5)$$

$$(\text{Note: } \delta = 1-1 = 0; \text{ where } L = 1; \Delta Y_t = Yt - Y_{t-i}) \qquad (6)$$

Integrated of Order 1 or I (I)

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

Integrated of Order 2 or I (2)

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

to be integrated of order Q or I (q). Hence, non-stationary time series are those that are integrated of order 1 or greater.

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

The alternative hypothesis is Hi: a < 1.

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

Co-integration Test (The Johansen' Test)

It has already been warned that the regression of a non-stationary time series on another non stationary time series may lead to a spurious regression. The important contribution of the concept of unit root and co-integration is to find out if the regression residual are stationary. If the residual is found to be stationary at level, we conclude that the variables are co-integrated and as such has long-run relationship exists among them.

$$NPLR_t = w_O + \sum_{i=1}^{i} \vartheta_t ID_{t-i} + \sum_{i=1}^{j} \varpi_i RBP_{jt-i} + \mu_{1t} \qquad (7)$$

Granger Causality Test

Granger causality test according to Granger (1969) is used to examine direction of causality between two variables. Causality means the impact of one variable on another, in other-words; causality is when an independent variable causes changes in a dependent variable. Therefore, in this study, we will carry out a granger causality between an independent variables deposit insurance and the dependent variables private sector funding in Nigeria from 1985 – 2019. The pair-wise granger causality test is mathematically expressed as:

$$Y_t \pi_o + \sum_{i=1}^{n} x_1^{y} Y_{t-1} \sum_{i=1}^{n} \pi_1^{x} x_{t-1} + u_1 \qquad (8)$$

and

$$x_t dp_o + \sum_{i=1}^{n} dp_1^{y} Yt-1 \sum_{i=1}^{n} dp1^{x} x_{y-1} + V_1 \qquad (9)$$

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

Vector Error Correction (VEC) Technique

The presence of co-integrating relationship forms the basis of the use of Vector Error Correction Model. E-views econometric software used for data analysis, implement vector Auto-regression (VAR)- based co-integration tests using the methodology developed by Johansen (1991,1995).

Model Specification

$$\text{NPLR} \quad = \quad \alpha + \beta_2\, ID_2 + \beta_3\, RBP_2 + \varepsilon_i \tag{10}$$

Where;

NPLR   =   Non performing loan ratio

ID   =   Insured deposits

RBP   =   Risk-Based Premium

εi =   Error term

Table 1: Operational Measure of Variable and a-Priori Expectations

Variable	Measurement	Notation	Expected relationship
Nonperforming loans ratio	Ratio of nonperforming loans to total loans and advances	NPLR	Dependent variable
Insured deposits	Value of insured deposits of the insured banks		+
Risk-Based Premium	Value of indemnified banks		+

Source: Authors Research Desk, 2020.

6. Analysis of Results and Discussion of Findings

Table 2: Presentation Unit Root Test

Variable	ADF Statistics	Mackinnon			Prob.	Order of intr.
		1%	5%	10%		
Unit Root Test Summary Results at Level						
NPLR	-2.491860	-3.653730	-2.957110	-2.617434	0.1268	1(0)
ID	-1.197358	-3.752946	-2.998064	-2.638752	0.9971	1(0)
RBP	-0.436722	-3.661661	-2.960411	-2.619160	0.8905	1(0)
Unit Root Test Summary Results at Difference						
NPLR	-5.968223	-3.661661	-2.960411	-2.619160	0.0005	1(I)
ID	5.470520	-3.737853	-2.991878	-2.635542	0.0000	1(I)
RBP	-5.211090	-3.670170	-2.963972	-2.621007	0.0002	1(I)

Source: Extract From E-View 9.0

The ADF unit root test indicates that all the variables were stationary, at second difference. However, following Harris (1995) and Gujarrati (2003), both I(1) and I(0) variables could be carried forward to test for co-integration which forms the basis of the next section. The Johansen co-integration test was used to test for the existence or not of a long run relationship among the variables. The Johansen methodology was preferable for the study because it has the advantage amongst others of allowing for more than one co-integration vector.

Table 3: Presentations of OLS Regression Results

Variable	Coefficient		Std. Error	t-Statistic	Prob.
RBP2	-7.158309		1.955308	-4.366582	0.0000
ID2	-1.808309		2.242809	-0.804913	0.4272
C	17.82255		2.806806	6.349760	0.0000
R-squared	0.795775	Mean dependent var			15.08788
Adjusted R-squared	0.635493	S.D. dependent var			11.87564
S.E. of regression	11.66299	Akaike info criterion			7.837226
Sum squared resid	4080.758	Schwarz criterion			7.973272
Log likelihood	-126.3142	Hannan-Quinn criter.			7.883001
F-statistic	6.588788	Durbin-Watson stat			0.669099
Prob(F-statistic)	0.000876				

Source: Extract From E-View 9.0

From hypothesis II, the coefficient of determination adjusted (R^2) is 0.635493. This shows that 63.5 percent of variation in the level of nonperforming loan ratio is explained by variations in both deposits insurance variables such as insured deposits and risk-based premium while the remaining 36.5 percent of the variation in the model is captured by the error term. And this shows that the line of best fit is highly fitted. The Durbin-Watson statistic is 0.669099which show that there is autocorrelation in the model. The value of F-statistics is 6.588788and the value of the probability of Fstat is 0.000876. This result implies that the overall regression is statistically significant at 5% level of significant given that probability of F-stat is 0.669099is less than 0.05. In the estimated regression line, the results show that insured deposits and risk-based premium have negative relationship with the level of bank distress. The probability value shows that risk-based premium is statistically significant while insured deposit is statistically not significant.

Table 4: Johansen Co-Integration Test Results

Series: NPLR RBP2 ID2

Unrestricted Cointegration Rank Test (Trace)

Hypothesized No. of CE(s)	Eigenvalue	Trace Statistic	0.05 Critical Value	Prob.**
None*	0.288590	38.15092	29.79707	0.0049
At most 1*	0.213218	27.59231	15.49471	0.0096
At most 2	0.005190	0.161322	3.841466	0.6879

Unrestricted Cointegration Rank Test (Maximum Eigenvalue)

Hypothesized No. of CE(s)	Eigenvalue	Max-Eigen Statistic	0.05 Critical Value	Prob.**
None*	0.288590	30.55569	21.13162	0.0013
At most 1*	0.213218	1 7.43909	14.26460	0.0092
At most 2	0.005190	0.161322	3.841466	0.6879

Source: Extract From E-View 9.0

The guideline is that when the trace statistics is more than 5 % percent Critical value, we reject the null hypothesis. In all the three equations, we see that the trace statistics are higher than the critical values at 5 percent; we can then reject the null hypothesis, because variables are cointegrated. Trace test indicates 1 cointegrating equations at the 0.05 level in the hypothesis II.

Table 5: Parsimonious Error Correction Results

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.642527	2.097242	0.783185	0.4437
D(NPLR(-1))	0.203683	0.213292	0.954950	0.3523
D(NPLR(-2))	-0.076089	0.185010	-0.411269	0.6857
D(NPLR(-3))	-0.038220	0.182308	-0.209647	0.8363
D(RBP2(-1))	-2.602707	7.695308	-3.381335	0.0033
D(RBP2(-2))	3.591607	1.084507	3.331706	0.0037
D(RBP2(-3))	-1.467307	9.394308	-1.557126	0.1368
D(ID2(-1))	-2.246309	4.375309	-0.511240	0.6154
D(ID2(-2))	-1.572709	6.463409	-0.243244	0.8106
D(ID2(-3))	1.919309	6.592309	0.289735	0.7753
ECM(-1)	-0.361070	0.183401	-1.968746	0.0646
R-squared	0.601581	Mean dependent var		0.293103
Adjusted R-squared	0.380237	S.D. dependent var		9.952870
S.E. of regression	7.835398	Akaike info criterion		7.236877
Sum squared resid	1105.082	Schwarz criterion		7.755506
Log likelihood	-93.93472	Hannan-Quinn criter.		7.399305
F-statistic	2.717858	Durbin-Watson stat		2.309497
Prob(F-statistic)	0.031229			

Source: Extract From E-View 9.0

From table 5, the Error correction term is negative which is confirm to expectation, that is to say it has a negative sign, implying that the error obtain has high possibilities of moving much further away from the equilibrium path as time goes on and on. Also the ECM (-1) coefficient shows that 36.1 percent speed of adjustment of errors. The error term however is statistically significant ECM (-1) is speed of adjustment towards equilibrium or error correction term.

Table 6: Pairwise Granger Causality Tests

Null Hypothesis:	Obs	F-Statistic	Prob.
RBP2 does not Granger Cause NPLR	31	0.83811	0.4439
NPLR does not Granger Cause RBP2		0.42287	0.6596
ID2 does not Granger Cause NPLR	31	0.46510	0.6332
NPLR does not Granger Cause ID2		0.48252	0.6226
ID2 does not Granger Cause RBP2	31	0.18616	0.8312
RBP2 does not Granger Cause ID2		4.18935	0.0265

Source: Extract From E-View 9.0

As presented in table 6 the variable in the model show no causal relationship except the uni directional relationship running from risk based premium to nonperforming loan ratio. Apart from the relationship above, the study concludes that there is no causal relationship among the variables.

7. Discussion of Findings

The results presented in table 3 revealed the relationship between deposit insurance and the nonperforming loans ratio in Nigeria. The regression model formulated produced adjusted R-square of 0.635493 which means that the independent variables (insured deposits and risk based premium) explained 63.5 percent variation on the dependent variable (nonperforming loan ratio). This implies that the independent variables explained significant variation on the dependent variable.

The model summary proved that the regression model is significant. The estimated beta coefficient proved that insured deposit have negative and no significant relationship with the nonperforming loans ratio, this implies that increase on the variable will lead to decrease on nonperforming loans ratio in Nigeria. This finding confirms the a-priori expectation of the study and in line with the objective of deposit insurance established in 1998 by Federal Government of Nigeria. Theoretically, the findings of the study is supported by the hands-on

theory which posited that the governance, as insurer, should protect its interests by forcing insured banks to maintain their portfolios at a given level of risk which is appropriate to the cost of deposit insurance.

Empirically the negative effect of the variable confirm the findings of Berger and Bouwman (2013) that bank capital increases the probability of survival and market share of small banking institutions at all times (normal times, banking crisis, and market crisis). Boyle et al. (2015) that such a policy response may only be partially successful, at least compared to the effectiveness of a pre-existing insurance scheme. Calomiris and Chen (2016) that for both developed and developing economies, external political influences that predict the enactment or expansion of deposit insurance coverage also predict an increase in the proportion of lending to households, which primarily consists of mortgage lending.

The study found that there is negative and significant relationship between risks based premium and nonperforming loans ratio in Nigeria. The findings indicate increase on risk based premium will reduce the level of bank distress by 7.1 percent; this finding confirms the a-priori expectation of the study and also confirms the purpose of establishing deposit Insurance Corporation.

The findings confirm the findings of Angkinand (2009) that deposit insurance can reduce output cost of bank crisis, is lower in country with high deposit insurance coverage. Angkinand (2009) that a high coverage by DIS is associated with relatively small output losses of crises, presumably due to DIS preventing bank runs once a crisis occurs, Avkiranand Lin (2012) that the DEA can be used to identify distressed banks up to two years in advance, the findings of Schoors (2013) and Yan, Skully, Avram and Vu (2014) find that deposit insurance had large effects on bank risk taking and that the sensitivity of deposit withdrawals to declines in bank capitalization and increases in bank risk declined.

Williamsons (1994) noted that the principal cost of imposing regulation built around deposit insurance on the banking industry is inefficient allocation of risk assumption; that is, deposit insurance leads to some risk assumption which would not occur in the free market because the risk premium earned (before subsidization) is less than the disutility incurred from assuming the risk. Theoretically, this finding confirms deposit insurance theory which was of the opinion that banks are viewed as portfolio of risky claims and insured banks increase their risk of failure

without limit, there is an expected value transfer of wealth from government deposit Insurance Corporation to bank owners.

8. Conclusion and Recommendations

Conclusion

This study examined the effect of deposit insurance corporation on nonperforming loans ration of Nigeria banking system. It was found that 63.5 percent of variation in the level of nonperforming loan ratio is explained by variations in both deposits insurance variables such as insured deposits and risk-based premium. The estimated regression found that insured deposits and risk-based premium have negative relationship with the level of bank distress while probability value shows that risk-based premium is statistically significant while insured deposit is statistically not significant. The study concludes that there is no significant relationship between insured deposits and nonperforming loans ratio but there is significant relationship between risks based premium and non-performing loans ratio in Nigeria banking system.

Recommendations

1. Deposits of commercial banks should be charged in proportion to either deposits or holdings of risky assets, with the factor of proportionality the same for all banks and all dates, and the same overall portfolio choices. Depending on premium levels, deposit insurance subsidizes banks that experience low asset returns, and therefore have a high probability of failing, and penalizes banks that experience high returns.
2. The role of deposit insurance in eliminating costly bank runs should be is widely recognized. Critics point out that such insurance also has adverse effects, subsidize risk-taking by insured banks at the expense of the taxpayer.
3. Nigeria Deposit Insurance Corporation should adopt the more sophisticated differential premium assessment system (DPAS) where risk is explicitly considered in assessing premium payable by insured institutions.
4. Nigeria Deposit Insurance Corporation should protect of bank deposits in Nigeria and improve to large extent insured deposit of the deposit money banks deposit in the short run and long run to avert the cases of bank failure.

REFERENCES

Ani, U. W., & Ogar, A. (2018). Effect of deposit insurance fund on the safety of bank deposits in Nigeria. *IIARD International Journal of Banking and Finance Research, 4*(2), 65-73.

Benston, G., Hunter, C., & Wall, L. (1995). Motivations for bank mergers and acquisitions: Enhancing the deposit insurance put option versus earnings diversification. *Journal of Money, Credit and Banking, 2*(7), 777-788.

Black, F. & Scholes, M. (1973). The pricing of options and corporate liabilities. *Journal of Political Economy* 81, 637-653.

Bonfim, D., & Santos, J. A. C. (2017). The importance of deposit insurance credibility mimeo

Chag .V. (2018). Relationship banking, deposit insurance and bank portfolio choice. Finance 0411046. Accessed (15 February 2020.

Cham, C., Greenbaum & Thakor (1992). Does deposit insurance improve financial intermediation? Evidence from the Russian experiment. *Journal of Banking and Finance* 5(3), 388-402.

Chernykh, L, & Cole R (2011). Does deposit insurance improve financial intermediation? Evidence from the Russian experiment. *J Bank Finance, 3(5), 388–402.*

Chu, D.O. (2015) .The relationship between banking market competition and risk-taking: Do size and capitalization matter? *Journal of Banking & Finance, 36(12), 3366-3381*

Constantinescu, L. A. (2015). Challenges for deposit insurance and financial stability in European cooperative banks. *Knowledge Horizons. Economics, 3(2),*7**,** 43

Cournède, B. & Denk, O. (2015). Finance and economic growth in OECD and G20 Countries. *OECD Economics Department Working Papers*, No. 1223.

Cull, R., (2005). Deposit insurance and financial development. *Journal of Money, Credit and Banking, 37(3),* 43-82.

Dagher, J., Dell'Ariccia, G., Laeven, L., Ratnovski, L., & Tong, H. (2016). Benefits and costs of bank capital. *IMF Staff Discussions no.89.*

Das, U. S., Nigel, D., & Richard, P. (2003). Insurance and issues in financial soundness. *IMF Working Paper 03/138.*

De Caux, R., McGroarty, F., Brede, M., (2017). The evolution of risk and bailout strategy in banking systems. *Phys. Stat. Mech. Its Appl. 4(6), 109–118.*

Deli, D. Y., & Hasan, I. (2016). Real effects of bank capital regulations: Global evidence. *Journal of Banking & Finance, 3(2),78-98.*

Dell' Aricca, D.J., & Ratnovski L, (2016). Benefits and costs of bank capital. *Financial Stability Review, 4(8)98-111.*

Demirgüç-Kunt, A., & Detragiache, A. (2002). Does deposit insurance increase banking system stability? An empirical investigation. *IMF Working Paper WP/00/03.*

Demirgüç-Kunt, A., & Huizinga, H. (2004). Market discipline and deposit insurance. *Journal of Monetary Economics*, 5(1), 375-399.

Flannery, M.J. (1989) Capital regulation and insured banks' choice of individual loan default risks. *Journal of Monetary Economics,* 2(4), 235-258.

Ghosh, S. (2010). Credit growth, bank soundness and financial fragility: Evidence from indian banking sector. *Munich Personal RePEc Archive. Paper No. 24715, Reserve Bank of India.*

Giannetti, M., & Andrei, S. (2013). On the real effects of bank bailouts: Micro evidence from Japan. *American Economic Journal: Macroeconomics, 5 (3), 135–167.*

Goodspeed, I. (2011). Out of the shadows: An overview of the shadow banking system. Retrieved from http:// financialmarketsjournal.co.za/oldsite/14thedition/ printedarticles/shadowbanking.htm

Granger, C. N. J. (1969). Investigating casual relationship by Econometrics models and cross-spectral methods. *Econometrica, 37, 424 – 438.*

Gujarati, D. (2004). *Basic Econometrics. New Delhi:* McGraw-Hill Companies Inc.

Hoggarth, G., Sorensen, S., Zicchino, L. (2005). Stress Tests of Uk Banks Using a Var Approach. *Working Paper No. 282*, Bank of England

Iwedi, M. (2018). Bank Failure in Nigeria: Evidence of Prudential Regulator Laxity. *International Journal of Finance and Management, 5(2), 141 – 150.*

Kane, E. J. (1992). The federal deposit insurance fund that didn't put a bite on U.S. Taxpayers. *Journal of Banking and Finance 20(September), 2(3), 1305-1327.*

McCoy, P. A. (2007). The moral hazards implications of deposit insurance: Theory and evidence. *International Monetary Fund Seminar on Current Developments in Monetary and Financial Law*

Merton, R. C. (1977). An analytical derivation of the cost of deposit insurance and loan guarantees. *Journal of Banking and Finance,* June *1(2), 3-11.*

NDIC. (2002). *Nigerian Deposit Insurance Corporation*: Annual Report.

Nwokoji, S. H. (2011). Deposit protection and the spread of deposit insurance: Some guidelines for developing countries. Washington: The World Bank.

Ogunleye, G. A., (2010). Official safety-nets for the Nigerian financial system: the role of the Nigeria deposit insurance system. CBN Seminar on Issues in Financial Institutions Surveillance in Nigeria. Publication of CBN Training Centre, Lagos.3, 80-98. https://www.cbn.gov.ng/out/publications/guidelines/pid/2004/surveillance.pdf

Opala, J. A. (2014). Effect of financial stability on the stability of deposit taking SACCOs in Nairobi County. *Unpublished Thesis, University of Nairobi.*

Sanusi, L. (2010). Growth prospects for the Nigerian economy. BIS central bankers' speeches. *Lecture by the governor of the central bank of Nigeria, at the Igbinedion University Eighth Convocation Ceremony, Okada, Edo State, 2(6), 1-18.*

Toby, A. J., (2014). Financial Fragility and Performance of Nigerian Banking Institutions: An Inter-Temporal Analysis. *Journal of Applied Finance and Banking, 4 (6), 137 – 153.*

Williamson, S.D. (1986). Costly monitoring, loan contracts and equilibrium credit rationing. *Quarterly Journal of Economics, 1(2), 135-146.*