CREDIT RISK AND EFFICIENCY OF FINANCIAL INTERMEDIATION IN NIGERIA’S COMMERCIAL BANKS: AN EMPIRICAL ANALYSIS

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Abstract

Commercial banks in the process of efficient intermediation role and other financial services are exposed to credit risk. In which light, this study examines the deluge of efficiency of Credit Risk on the proficiency of financial intermediation in Nigeria’s commercial banks. Five commercial banks which incorporate First Bank, United bank for Africa, Zenith bank, Access bank, and Ecobank plc was browsed those banks from the period covering 2005-2015. The conventional profit hypothesis was utilized to plan profit, measured by Return on Asset (ROA), as a component of the proportion of Total loan & Advances to Total deposit (LA/TD), the ratio of Cash deposit with central bank to Total deposit (CD/TD) and the ratio of Specified liquid assets to Total deposit as measures of credit risk. The ordinary least square (OLS) method for the statistical analysis of data with E-view 9.1 was used. The results revealed that the impact of all the explanatory variables on returns on assets is negative with CD/TD and LQA/TD statistically significant. This means that changes in any of these variables had effect on ROA. For instance, a 1% increase in CD/TD and LQA/TD decreases ROA by 0.35% and 0.21% respectively and vice versa. The result provides evidence for weak profits that is persistence with the Nigerian banks. This mean, that as bank increased exposure to credit risk it reduces its profits. In light of the discoveries, it is suggested that banks in Nigeria ought to improve their ability in credit examination and advance organization while the administrative experts ought to give careful consideration to banks’ consistence to important arrangements of the Bank and other Financial Institutions Act (1999) and prudential rules and guidelines.

Keywords: Risk, Credit Risk, Return on assets, Efficiency, Total deposit, specified liquid assets.

A. Introduction

The centrality and significance of the Deposit Money (commercial) banks to the development and improvement of the Nigerian Financial framework and the economy in general cannot be overemphasized. This is largely due to the fact that commercial banks assume a vital part for monetary advancement, and encourage monetary development in any nation through the intermediation and financial management services they render. They possess focal position of the nation’s monetary framework and are fundamental specialists in the growth and development process. They possess a tendency to influence multiple facets of an economy, as a result of their inalienable “riskous” nature, which have been perceived for long. Their intermediation part can be said to be impetus for financial development. By intermediating between the surplus and the deficit units within a given economy. Banks trigger and encourage proficient assignment of national investible funds and resources, thus expanding the quantum of venture and henceforth national yield (Afolabi, 2004).

Oboh (2005) identified that financial intermediation is a region within which banks are proficient in coordinating the enthusiast natures of investors with those of borrowers by linking both parties together. As per Sirri and Tufano (1995), in more specialized terms, banks intermediation capacities involve development, change and division of the sparing and speculation work in an economy. This suggests without Deposit Money Banks, people or corporate bodies that need to contribute would first sufficiently collect subsidizes over a timeframe to meet their cost of speculations. In a comparative vein, those people or corporate speculators with surplus assets would need to scan for and recognize the deficit unit that needs their assets. Consequently the two procedure would be excessively unwieldy, costly and exceptionally wasteful. The Deposit Money Bank has turned into the veritable operator well placed to play out this exceptional capacity productively. Along these lines, in the process of saving mobilization and credit allocation, costs of borrowing are reduced as well as increased return on savings. The main finished products of commercial banks are the loans granted to clients (users of financial capital) and the main variable inputs are the deposits (lenders of financial capital) attracted from depositors (creditors).
Credit creation is one of the principle income producing exercises of Deposit Money banks. The credit capacity of banks improves the capacity of financial specialists to abuse craved productive endeavors. Notwithstanding, the credit work opens the banks to credit Risk. Credit Risk is an inside determinant of bank activities and performances. The higher the presentation of a bank to Credit Risk, the higher the propensity of the bank to encounter budgetary emergency. Banks in their reason for operation confronted different dangers (like liquidity risk, showcase Risk, operational risk and reputational Risk), yet credit Risk assumes an imperative part on bank’s profit since vast hurl of bank’s income collect from advances from which premium is inferred. In any case, financing cost risk is specifically connected to credit Risk. This inferred the higher the financing cost, the higher the odds of advance default (Credit Risk). Credit Risk and cost of capital/interest rate are inherently identified with each other and not distinguishable (Drehman, Sorensen, and Stringa, 2008). Aside from deposit assembly and progressing of credit to borrowers, banks give wellbeing to those assets that would some way or another been presented to such risk as burglary, fire, and so forth as well, banks don’t just make liquidity, they likewise dispense with the accumulating and inertness of money and loss of assets through safe authority (Delong, 1991). Through Financial intermediation, banks are connection with genuine segment, acting like an impetus and adding to the development of the economy.

The Nigeria keeping money industry has been strained by the breaking down nature of its profits accordingly of the critical plunge in value advertise files, worldwide oil costs and sudden deterioration of the naira against worldwide monetary standards (BGL Banking Report, 2010). Other current difficulties incorporate high cost of capital/interest rate, high expansion rate, high unemployment rate, Niger Delta emergency, Boko-Haram emergency and so on. Confront with this arrangement of conceivable repercussions, the topic of regardless of whether banks have really accomplished the normal activities and performances picks up in Nigeria remains an exact issue. The target the review accordingly is to assess the effect of Credit Risk on the activities and performances of Nigeria's commercial banks over a period covering 2005-2015. The rest of the paper is diagram as takes after: segment two audit related writing on the topic. Exchange on strategy was on area three. Segment four disks observational outcome and translation of discoveries while five present conclusion and proposals

B. Theoretical Framework and Literature Review

To ensure a fluid work, this segment is discussed under the following captions.

Conceptual and Theoretical Framework

Risk refers to the circumstance where the genuine come back from a venture varies from the normal return. Risk means the likelihood of losing the first venture and the measure of interests collected on it. Credit Risk is the risk that a borrower defaults and does not respect its commitment to administration obligation. It can happen when the partner can’t income or can’t income on time (Gestel and Baesens, 2008). Credit Risk alludes to the likelihood of misfortune because of a borrower's inability to make installments on an obligation. That is, the danger of default on an obligation that may emerge from a borrower neglecting to make required installments. As indicated by Kolapo et al., (2012), bank exists to acknowledge deposits as well as to give credit offices, thusly definitely presented to Credit Risk. Credit Risk is by a wide margin the most noteworthy risk confronted by banks and the achievement of their commercial relies on upon precise estimation and productive administration of this risk to more prominent degree than whatever other dangers (Gieseche, 2004).

As indicated by Chen and Pan (2012), Credit Risk is the level of significant worth variances paying off debtors instruments and subsidiaries because of changes in the basic credit nature of borrowers and counterparties. Coyle (2000) characterizes acknowledge Risk as misfortunes from the refusal or powerlessness of credit clients to pony up all required funds and on time. Credit Risk is the introduction confronted by banks when a borrower (client) default in regarding obligation commitments on due date or at development.

Credit Risk emerges from the potential that a lender is either unwilling to play out a commitment or his capacity to perform such commitment is hindered, bringing about financial misfortune to the bank. Heffernan (1996) focused on that Credit Risk is the risk that a profit
or advance gets to be distinctly irretrievable, on account of aggregate default or the danger of deferral in adjusting of advances and advances. Consequently, when this happens or gets to be distinctly persevering, the activities and performances of the bank is influenced. In a bank’s portfolio, misfortunes frequently originate from by and large default because of failure or unwillingness of a client to meet duties in connection to loaning, exchanging, settlement and other Financial exchanges. On the other hand, misfortunes may come about because of lessening in resources esteem because of real or saw crumbling in credit quality. Credit Risk exudes from a bank’s Financial introduction to managing people, enterprise, monetary establishments or a sovereign.

Obalemo (2007) characterized acknowledge Risk as a risk in view of the supposition that a borrower would default in reimbursement to the bank. Notwithstanding immediate bookkeeping misfortune, Credit Risk could likewise be seen with regards to financial exposures. This incorporates opportunity costs, exchange expenses and costs related with a non-performing resource well beyond the bookkeeping misfortune. It can be further subclassified on the premise of reasons in charge of default. For example the default could be because of nation in which there is introduction or issues in settlement of budgetary exchange. In addition, it doesn’t really happen in confinement, a similar source that imperils credit Risk for the keeping money foundation may likewise open it to other risk. For example, a terrible portfolio may draw in liquidity issue. As indicated by Basel advisory group on Banking Supervision (1999), for most banks, advances are the biggest and the most clear wellspring of Credit Risk, be that as it may, Credit Risk could come from exercises identifying with both on and cockeyed sheet exchanges.

Banks are progressively confronting Credit Risk (or counterparty Risk) in different budgetary instruments other than advances, including acknowledgments, interbank exchanges, exchange financing, remote trade exchanges, Financial fates, swaps, securities, values, alternatives, and in the augmentation of responsibilities and ensures, and the settlement of exchanges. As indicated by Kithinji, (2010), the fundamental wellspring of Credit Risk include: restricted institutional limit, unseemly credit approaches, unpredictable financing costs, poor administration, wrong laws, low capital and liquidity levels, coordinate loaning, gigantic authorizing of banks, poor advance endorsing, laxity in credit appraisal, poor loaning hones, government impedance and insufficient supervision by national bank. Then again, Credit Risk administration is the practice for relieving misfortunes by understanding the ampleness of a bank’s capital and advance misfortune holds at any given time – a procedure that has for quite some time been a test for monetary mediators. Credit Risk administration augments bank’s risk balanced rate of return by keeping up credit Risk introduction inside satisfactory cutoff so as to give system to understanding the effect of Credit Risk administration on banks’ profit (Kargi, 2011).

The objective of Credit Risk administration is to augment a bank’s risk balanced rate of return by keeping up credit Risk presentation inside satisfactory parameters. Banks need to deal with the credit Risk innate in the whole portfolio and in addition the risk in individual credits or exchanges. Banks ought to likewise consider the connections between credit Risk and different dangers. The viable administration of Credit Risk is a basic segment of a complete way to deal with risk administration and basic to the long haul achievement of any keeping money association. In this way, banks inspiration for risk administration originates from those dangers which can prompt to banks underperformance.

Aruwa and Musa (2012) explored the influx of the credit Risk, and other risk parts on the banks’ monetary activities and performances. They found a solid connection between risk segments and the banks’ Financial activities and performances. Boahene, Dasah and Agyei (2012) inspected the connection between Credit Risk and banks’ gainfulness. They found a positive connection between Credit Risk and bank gainfulness.

**Empirical Framework**

Empirical confirmations and consequences of different reviews demonstrates a blended pattern on the impact of Credit Risk on bank activities and performances. While some settled on a negative nexus between Credit Risk and bank activities and performances, other found a
positive relationship. In the extraordinary is the review that found no connection between Credit Risk and bank profit. Likewise, a portion of the reviews considered the general risk as a determinant of bank’ activities and performances, others concentrate using a credit card Risk as the significant risk influencing bank profit.

On studies that found an inverse connection between Credit Risk and bank activities and performances, Bourke (1989), in a board of European, North America and Australian banks, found that the level of Credit Risk have a tendency to be adversely connected with banks productivity. Ducas and McLaughlin (1990) contended that instability of bank gainfulness is essentially because of Credit Risk. In particular, they built up that adjustment in bank profit is frequently because of an expanded presentation to Credit Risk. Molyneux and Thornton (1992) researched the determinants of bank profit utilizing a board of multi-nation setting of 18 European nations from 1986 to 1989 era. Their discoveries propose a negative connection between Credit Risk and bank productivity. The discoveries of Angbazo (1997) additionally demonstrates that banks that have higher advance portfolio with lower Credit Risk enhance their gainfulness. Also, Miller and Noulas (1997) recommend a critical negative connection between Credit Risk and bank productivity, in light of the fact that a higher advance or resource proportion builds bank introduction to unpaid advances and subsequently a diminished overall revenue. In a similar bearing, Ahmed, Takeda and Shawn (1998) in their review found that credit misfortune arrangement impacts non-performing advances. Thus, an expansion in advance misfortune arrangement suggests an increment in Credit Risk and weakening in the nature of advances, prompting to an antagonistic impact on bank activities and performances.

Hassan and Bashir (2003) inspected the determinants of Islamic banks’ profit utilizing a specimen of Islamic banks from 21 nations. They found that a higher credit proportion negatively affects the banks’ productivity. Athanasoglou, Brissimis and Delis (2005) Adopted element board information models to examine the impact of Credit Risk on the gainfulness of Greek banks. Their discoveries demonstrate that Credit Risk is contrarily and essentially identified with profit. The outcome suggests that an expanded introduction to credit Risk brings down profits. So also, Felix and Claudine (2008) inspected the impact of Credit Risk administration on bank activities and performances. Their discoveries propose that bank productivity is adversely identified with the proportion of non-performing advance to aggregate credit of keeping money organization. In a review on compelling acknowledge handling and organization as a panacea for non-performing resources in the Nigerian keeping money framework, Aremu, Suberu and Oke (2010) distinguishes non-performing credit as the significant risk to the gainfulness of banks in Nigeria.

Kargi (2011) explored the effect of Credit Risk on the profit of Nigerian banks, utilizing information on six chose banks for the times of 2004 to 2008. The proportion of non-performing advances to aggregate advances and progresses and the proportion of aggregate advances and advances to aggregate deposit were utilized as pointers of Credit Risk while return on resource demonstrates activities and performances. The review found that banks profit is conversely affected by the levels of advances and advances, non-performing credits and deposits, in this manner presenting the banks to more serious danger of illiquidity and trouble. Likewise, Dietrich and Wanzenried (2011) in their review approximating Credit Risk by the advance misfortune arrangements over aggregate advances proportion, propose a negative connection between Credit Risk and banks’ profit.

Alper and Anbar (2011) inspected the determinants of banks profit in Turkey over the day and age from 2002 to 2010. In that review the bank’s profit is measured by profit for resources (ROA) and profit for value ROE), while Credit Risk is proxied by advances to aggregate resources and advances under follow-up to aggregate advances. In their discoveries, the proportions of advances/resources and credits under development/add up to advances are found to have negative and critical effect on profit. Kolapo, Ayeni and Oke (2012) carried out an observational examination concerning the quantitative impact of Credit Risk on the activities and performances of commercial banks in Nigeria over the period from 2000 to 2010. In their board display approach, productivity is proxied by profit for resources and Credit Risk by; the proportion of non-performing advance to aggregate advances and advances, proportion
of aggregate advances and advances to aggregate deposit and the proportion of advance misfortune arrangement to ordered advances. Their discoveries demonstrate that the impact of Credit Risk is comparable crosswise over banks in Nigeria and that an expansion in non-performing advance and advance misfortune arrangement diminish profit. The outcomes additionally demonstrates that an expansion in all out advances and advances increment gainfulness.

In a review utilizing Costa-Rican Deposit Money institutions over a period of 1998 to 2007, Epure and Lafuente (2012) explored bank activities and performances within the sight of risk. Their discoveries demonstrate that activities and performances upgrades take after administrative changes and that risk clarifies contrasts in banks and non-performing advances contrarily influence Return on assets and proficiency.

Owoputi, Kayode and Adeyefa (2014) examined the determinants of bank gainfulness in Nigeria over the day and age from 1998 to 2012, utilizing a board information demonstrate. The outcome demonstrates that credit Risk has a negative and huge impact on bank productivity. On studies that found an immediate connection between Credit Risk and bank activities and performances, Kosmidou, Tanna and Pasiouras (2005) inspected the determinants of gainfulness of Domestic UK commercial banks from the time of 1995 to 2012.

The discoveries of their review give the confirmation that Credit Risk influence decidedly the bank productivity. The review completed by Ben-Naceur and Omran (2008) to look at the effect of bank focus, directions, budgetary and institutional advancement on bank profit in center East and North Africa nations from 1989 to 2005, found that credit Risk has positive and noteworthy impact on bank gainfulness and cost proficiency.

Boahene, Dasah and Agyei (2012) explored the connection between Credit Risk and profit of some chose banks in Ghana, utilizing a board of six chose banks for a time of five years from 2005 to 2009. Their review speaks to one of only a handful few endeavors to represent Credit Risk past non-performing advances. From their outcomes, credit Risk (non-performing advance rate, net charge-off rate, and pre-arrangement profit as a rate of net aggregate advances and advances) has a positive and huge association with bank productivity. The outcomes show that banks in Ghana appreciate high profit regardless of high Credit Risk. Utilizing a dynamic model detail.

Ameur and Mhiri (2013) inspected the illustrative components of bank activities and performances in Tunisia over the period from 1998 to 2011. Their outcomes plainly demonstrate that Credit Risk proxied by the proportion of non-performing advances to aggregate advances, has positive effect on bank productivity. In Hamisu (2011), monetary proportions as measures of bank activities and performances and credit Risk from 2004-2008, the discoveries uncovered that credit Risk administration significantly affects the productivity of Nigeria banks.

In any case, as opposed to the discoveries of the reviews above, Kithiniji (2010) examined the impact of Credit Risk administration on the profit of commercial banks in Kenya from 2004 to 2008 period, and found that the majority of the profits of commercial banks are not affected by the measure of credit and non-performing advances, subsequently recommending that different factors other than credit and non-performing advances affect on profits. His intriguing however very amazing outcomes demonstrate that Credit Risk pointers have no association with bank profit. In general, the current writing gives a somewhat thorough record of the impact of Credit Risk on bank activities and performances, however the experimental outcomes change essentially. Additionally, the time measurement of the boards utilized as a part of a large portion of the observational reviews is too little to properly catch the impact of unpredictability of Credit Risk on bank profit. At long last, writing portraying the impact of Credit Risk on the Nigerian Deposit Money division is meager. In this manner, more reviews are expected to address the above issues attractively, keeping in mind the end goal to permit a superior understanding into the impact of Credit Risk on bank productivity, particularly in Nigeria.

C. Methodology
Research Design: The study design utilized in this research is the Ex-post facto, which entails
where pre-existing variables are matched on the Criterion variable and the variables data are historical or preceding events.

**Model Specification:** The study is predicated on model adopted by Kargi (2011) in his study on credit risk and profitability of Deposit money in Nigeria. It thus uses ordinary least square (OLS) method for the statistical analysis of data with E-view 9.1 for window. The study took a sample of five deposit money banks which include the following: First bank plc, United bank for Africa plc, Zenith bank plc, Access bank plc, and Ecobank plc for period covering 2005-2015. The functional form of the model is presented below.

\[
ROA = f \left( \frac{LA}{TD} \cdot \frac{CD}{TD} \cdot \frac{LQA}{TD} \right)
\]

Where:
- ROA = Return on assets
- LA = Loans & advances
- TD = total bank deposit
- CD = Cash deposit with central bank
- LQA = specified liquid assets

In stochastic form, equation (1) becomes:

\[
ROA = \alpha_0 + \beta_1 \frac{LAD}{LQD} + \beta_2 \frac{CDD}{TD} + \beta_3 \frac{LQD}{TD} + \epsilon
\]

Where:
- \(\alpha_0\) = constant parameter (intercept)
- \(\beta_1, \beta_2, \beta_3\) = regression coefficient of independent variables
- LAD = LA/TD
- CDD = CD/TD
- LQD = LQA/TD
- \(\epsilon\) = Error (stochastic) term

**Discussion of various parameters:**

(a). **Return on assets (ROA):** often called Returns on investment(ROI), This captures the overall effectiveness of management in using its assets to generate return (earning). It is derived by dividing the bank's net income by its total assets (NI/TA). In this study, it is measured in percentage unit which served as the dependent variable.

(b). **Total loans and advances- to-total deposit ratio:** banks channel reserved funds from the surplus unit to the deficit unit of the economy in this way, performing intermediation function. Determination of this ratio is always done by the central bank to guide commercial banks against the amount of loans and advances that bank can give in order to protect customer's deposits. This ratio is derived by dividing the total loans and advances by the total deposits (LA/TD). In this study it served as independent variable that measured credit risk.

(c). **Cash Reserve Ratio:** this is the minimum percentage rate of cash that bank can keep with central bank at a particular time as determined by the central bank. This ratio helps to measure the efficiency and soundness of the bank. It is calculated by dividing the cash deposit by bank with the central bank by the total deposits (CD/TD). It also used as independent variable that measure credit risk.

(d). **Specified Liquid Assets:** this is captured as the proportion of specified liquid assets of the bank to its aggregate deposits. It gauges the bank capacity to fulfill its transient out of this world due. Since a typical marker to financial mismanagement is low or declining liquidity, liquidity proportion is a decent pointer of income issues. The liquidity ratio in this study is derived by dividing the specified liquid assets by its total deposits (LQA/TD). It is equally used as independent variable that measure credit risk.

**Presentation of Results**

Table 1 shows the output of the model developed for the study. From the results the independent variables explained 59% variation in return on assets while F-stat shows that the
model is jointly significant. Also, the DW statistics of 2.20 reveals absence of serial correlation problem.

**Table 1: OLS Estimate**

**Dependent Variable: ROA**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Coefficient</th>
<th>Std error</th>
<th>t-statistics</th>
<th>Probability</th>
</tr>
</thead>
<tbody>
<tr>
<td>Constant</td>
<td>0.32</td>
<td>0.13</td>
<td>2.48</td>
<td>0.04</td>
</tr>
<tr>
<td>LAD</td>
<td>-0.12</td>
<td>0.18</td>
<td>-0.68</td>
<td>0.52</td>
</tr>
<tr>
<td>CDD</td>
<td>-0.35</td>
<td>0.13</td>
<td>-2.70</td>
<td>0.03</td>
</tr>
<tr>
<td>LQD</td>
<td>-0.21</td>
<td>0.08</td>
<td>-2.47</td>
<td>0.04</td>
</tr>
</tbody>
</table>

R² = 0.59, DW = 2.20, F-Stat = 3.38

Source: Author’s computation, using E-view 9.1

Table 1 also revealed that the impact of all the explanatory variables on returns on assets is negative with CDD and LQD statistically significant. This means that changes in any of these variables had effect on ROA. For instance, a 1% increase in CDD and LQD decreases ROA by 0.35% and 0.21% respectively and vice versa.

**D. Conclusion and Suggestions**

From the Data regression estimates in the previous section, the aftereffect of Credit Risk on the effectiveness of Financial intermediation of Nigeria’s commercial banks measured by bank profitability (return on assets), revealed that the impact of all the explanatory variables on returns on assets is negative with the ratios of cash deposit with central bank and specified liquid assets to total deposits statistically significant.

The result provides evidence for weak profits that is persistence in the Nigerian banks. This mean, that as bank increased exposure to credit risk it reduces its profits.

The review on the premise of its discoveries suggested that banks in Nigeria ought to give careful consideration to banks’ consistence to significant arrangements of the Bank and other Financial Institutions Act (1999) and prudential rules.

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