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EFFECT OF CREDIT AND OPERATIONAL RISK MANAGEMENT ON FIRM VALUE OF DEPOSIT MONEY BANKS IN NIGERIA

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ABSTRACT: *The study investigated the effect of credit and operational risks on firm value of listed deposit banks in Nigeria. The study adopted an ex-post facto research design. The target population of the study was all the deposit money banks listed in Nigeria Stock Exchange. The study used secondary sources of data from Central Bank of Nigeria as well as from annual reports and financial statement of accounts of deposit money banks under review from 2010-2019. The Structural Equation Modeling was used to test the formulated hypotheses at 5% level of significance. The findings showed that credit risk had a significant but negative effect on firm value of deposit money banks in Nigeria. Operational risk had a significant and positive effect on firm value of deposit money banks in Nigeria. The study recommends that banks should ensure that their credit exposures are adequately secured through proper scrutiny of loan processing in order to identify viable projects so as to reduce loan defaults by bank customers. They should continue to employ qualified and competent workers who are experts in banking professionalism as well as ICT competence in order to reduce unsound banking practices.*

KEYWORDS: Credit Risk, Operational Risk, Firm Value, Deposit Money Banks, Nigeria

INTRODUCTION

Risks are uncertainties that are always evident in all business establishments whose sole aim is profit making (Cooperman, 2000). Financial institutions are usually exposed to various kinds of risks among them are credit risk, interest rate risk, liquidity risk, market risk, foreign exchange risk, currency risk, commodity risk and operational risk which are the most applicable risk in banks (Cooperman, 2000). Credit risk, also called default risk, is the risk associated with a borrower going into default that is not making payments as promised (Abudullahi, 2011). There is always the possibility for the borrower to default from his or her commitments for one or the other reason resulting in crystallization of credit risk to the bank.

These losses usually takes the form of total default or alternatively, losses from changes in portfolio value arising from actual or perceived deterioration in credit quality that is short of default (Abudullahi, 2011). Credit Risk Management policies of a commercial bank consist of those decision-making structures associated with the diminution of exposures to credit asset classification and loan loss provisioning (Olalekan & Adeyinka, 2013). BCBS (2003) maintained that management of bank risk relates to the minimization of the potential that a bank borrower or counter-party will fail to meet its obligations in accordance with agreed terms. Operational risk is a risk arising from execution of a company's business functions. It focuses on the risks arising from the people, systems and processes through which a company operates (Aruwa, 2014). According to Basel II regulations, operational risk is the risk of loss resulting from inadequate or failed internal processes, people and systems, or from external events (Medhat, 2006)

Statement of the Problem

Across the banking industry, the most prominent area that erodes the mass of their profit is risk management (credit and operational). The problem of this study is to cram the causes of risk and how this can be anticipated and managed to improve value of the bank. Prior to the bank crisis, the banking sector of many countries had built up excessive on-and off balance sheet leverage that was accompanied by the gradual erosion of the level and quality of the bank's capital base (Bank of International Settlements (BIS), (2009)). As a result, the banking system was not able to absorb the resulting systemic trading and credit losses nor could it cope with the re-intermediation of large off-balance sheet exposures that had built up in the shadow banking system (Financial Service Authority, 2009). To address the lessons of the crisis and the failures it revealed, bank regulators all over the world undertook fundamental reforms of the international prudential framework for the banking sector to strengthen global capital and liquidity regulations with the goal of creating a more resilient banking sector and ensuring overall financial stability (BIS, 2009; Naceur and Kandil, 2009; Financial Service Authority, 2009). Regrettably, Commercial banks in Nigeria still face many challenges with respect to management of risks which they are exposed to, despite the tremendous growth in the sector (CBN, 2011). Deterioration of asset quality relates to increase in credit risk which reduces the expected profits. For instance, according to CBN report in 2013 this growth has however been accompanied by an increase in non-performing loans from 4.7 % in 2012 to 5.2% in 2013. Extant literature has shown that researches have been conducted on the study variables (credit and operational risk) but with varying findings. Based on empirical evidence, there are still inconsistencies in the findings of different scholars on the study variables. For instance (Ramadan, 2019; Gadzo et al., 2019; Adebayo, 2017; George, 2015 and Murithi, 2014) found that credit risk has a negative effect on firm value of deposit money banks contrary to the findings of ((Akinselure, 2019; Bishnu, 2019; Nwude, 2019; Abiola, 2014 and Iwedi, 2014) that found that credit risk has a positive and significant effect on firm value of deposit money banks in Nigeria. Furthermore, Murithi (2017) and Kerong (2016) found that operational risk has an insignificant but positive effect on firm value of deposit money banks which contradicts the findings of (Hyey-yeh, 2016; Hsiang-His, 2014; Gikundi, 2014 and Micocci, 2009) that found that operational risk has a positive and significant effect on firm value of banks. Also, it negates the finding of Muriithi (2017) that found a significant but negative effect of operational risk on firm value of banks.

Objectives of the Study

The main objective of the study will be to investigate the effect of credit and operational risk on firm value of deposit money banks in Nigeria. The specific objectives of the study are to;

1. Investigate the effect of non-performing loan on firm value of listed deposit money banks in Nigeria.
2. Assess the effect of cost-income ratio on firm value of listed deposit money banks in Nigeria.

Research Questions

Based on the objectives of this study, the following research questions were formulated;

1. How does non-performing loan to total loan affect firm value of listed deposit money banks in Nigeria?
2. To what extent does cost-income ratio affect firm value of listed deposit money banks in Nigeria?

Statement of Hypotheses

The following hypotheses were formulated in their null structures to guide the study;

HO_1: Non-performing loan to total loan does not significantly affect firm value of listed deposit money banks in Nigeria.

HO_2: Cost-income ratio has no significant effect on firm value of listed deposit money banks in Nigeria.

Significance of the Study

The study is very important to banks, corporate executives (managers), shareholders, policy makers and future researchers. The findings from the study will provide the banks with a proper understanding of the importance of adopting appropriate risk mgt strategies which will improve the value of banks in Nigeria. The findings from the study will aid banks in making decisions on how to manage credit and operational risks. The findings from the study is expected to be of benefit to shareholders as it will reveal the value of having and implementing enterprise-wide risk management measures in their organizations so as to improved the value of the banks. The study is expected to provide information to potential and current scholars. They will use this study as a reference source of material while embarking on related studies.

Scope of the Study

This study covered a period of 10 years from 2010-2019 and concentrated on listed deposit money banks in Nigeria. The study is limited to studying the effect of two risk management indicators namely (credit risk and operational risk). Credit risk as used in the study focused on non-performing loans while operational risk centered on cost-income ratio. The dependent variable for the study is firm value proxied by Tobin Q and share price to its book value of listed Deposit Money Banks under review in Nigeria.

REVIEW OF RELATED LITERATURE

Credit Risk

Credit risk management has been an integral part of the loan process in banking business. Credit risk is the current and prospective risk to earnings or capital arising from an obligor's failure to meet the terms of a contract with the bank or otherwise to perform as agreed (Kargi, 2011). When banks grant loans to customers, they expect the customers to repay the principal and interest on an agreed date. A credit facility is said to be performing if payment of both principal and interest are up to date in accordance with agreed repayment terms. Non-performing loans (NPL) represent credits which the banks perceive as possible loss of funds due to loan defaults. They are further classified into substandard, doubtful or lost. Bank credit which is lost as a result of default on the part of the customer hinders bank from achieving their set targets (Kolapo, 2012). Due to increasing rise in non-performing loans (NPL) and its consequences, the Central Bank authorities entered into agreement in December 1987 known as Basel I and II accord in which the accords emphasized on the importance of capital adequacy for mitigating against credit risk (Kolapo, 2012).

Credit risk is the possibility of a loss resulting from a borrower's failure to repay a loan or meet contractual obligations (Kargi, 2011). Traditionally, it refers to the risk that a lender may not receive the owed principal and interest, which results in an interruption of cash flows and increased costs for collection (Kolapo, 2012). Although it's impossible to know exactly who will default on obligations, when credit risk is properly assessed and managed it can lessen the severity of losses (Kolapo, 2012). Interest payments from the borrower or issuer of a debt obligation are a lender's or investor's reward for assuming credit risk (Poudel, 2012).

Credit risk, or default risk, is the risk that a financial loss will be incurred if counterparty to a (derivatives) transaction does not fulfill its financial obligations in a timely manner (Kithinji, 2010). It is therefore a function of the following: the value of the position exposed to default (the credit or credit risk exposure); the proportion of this value that would be recovered in the event of a default; and the probability of default (Kithinji, 2010). Credit risk is also used loosely to mean the probability of default, regardless of the value that stands to be lost (Kargi, 2011).Credit risk is the risk of loss that may occur from the failure of any party to abide by the terms and conditions of any financial contract, principally the failure to make required payments on loans due to an entity (Afriyie, 2011).

Ali (2006) emphasized that risks related to lending are the risk of possible bank losses as a result of non-repayment of loans. Meanwhile, Bank of Indonesia Regulation (2009) states that credit risk is a risk which result from the failure of the debtor and/or other parties to fulfill obligations to the bank. Credit risk is the likelihood that a borrower will not pay its debt on time or will fail to make repayment at all (Sinkey, 2002). Conford (2000) emphasized the possibility that the actual return on a loan portfolio will deviate from the expected return, i.e loan delinquency and default by borrowers. While loan delinquencies indicate delay in repayments, default denotes non-payment, and the former if unchecked, leads to the latter (Padmanabhan, 2008). Credit risk refers to the delay of repayment on loan contract or the inability of a borrower to pay its debts, which can cause cash flow problems and affect a bank's liquidity position. Campbell further advanced that credit risk is the risk that a loan which has been granted by a bank, will not be either partially repaid on time or fully. Asare-

Bekoe (2010) opined that risk associated with the business of banking can be categorized into credit risk, market risk which consists of foreign exchange risk, liquidity risk and interest rate risk, operational risk which sometimes includes legal risk and most recently strategic risk.

In the same vein, Naomi (2011) argued that credit risk represents the potential variation in the net income from non-payment or delayed payment of credit facility granted to customers. The Global Risk Management Group 1999 in its report conceded that credit risk is the possibility that bank borrower will fail to meet obligation in accordance with the agreed terms. It added that, the effective management of credit risk is a critical component of a comprehensive approach to risk management and essential to the long-term success of any banking organization. Lending involves the creation and management of risk assets, and it is an important task of bank management. Credit risk occurs when a bank provides credit facilities to a debtor and there is a risk that the debtor will not repay the obligation which will then have an impact on the entity thereby resulting in the decline in the profitability of the bank (Alshatti, 2015)

Non-Performing Loan

This refers to loans that are in default or close to being in default. Many loans become non-performing after being in default for three months, but this can depend on the contract terms. A loan is said to be nonperforming when payments of interest and principal are past due by 90 days or more, or at least 90 days of interest payments have been capitalized, refinanced or delayed by agreement, or payments are less than 90 days overdue (Bhattarai, 2016). Non-performing loans are loans that give no return to the bank but also attract additional cost of recovery, apart from the provision requirement which tends to affect the bank liquidity adversely (Abiola, 2014). Non-performing loan is a sign of bank poor performance, an asset become non-performing when the customer cannot meet the repayment agreement as at when due. Non-performing loan can be attributed to both controllable and non-controllable factors (Olawale, 2014). Financial institutions are expected to take pre-caution both before and after granting a credit facility, the higher the level of non-performing loan cases of a bank, the lower the capital adequacy and liquidity of the bank (Ramazan, 2019). One of the key risks that faces banks is the risk of uncertainty about the full repayment of a loan as at when due, nonperforming loan is an unavoidable risk to money deposit banks (Ogboi, 2013). Poor credit management will not only result to loss of profit for a bank but also affect the operation of a bank, in terms of customer loyalty, goodwill, service delivery, efficiency and low return on shareholders' fund (Ramazan, 2019). Non-performing loan should be tackled by a financial institution with the highest level of seriousness in order to ensure the smooth running of bank. Non-performing loans usually have adverse effect to both the profitability and value of a bank (Kajola, 2015).

Operational Risk

Operational risks arise from inadequate or failed internal processes, people and systems, or from external events. They include: fraud, security failure, legal breaches, physical (e.g. infrastructure failure) or environmental risks (Chukwunulu, 2018). Operational risks affect client satisfaction, organization's reputation and its relationship with its stakeholders thereby reducing shareholder value. It increases volatility of operating costs and earnings. The Basel Accord (2007) defined operational risk as the risk of direct or indirect loss resulting from inadequate or failed internal processes, people and systems or from external events.

Malfunctions of the information systems, reporting systems, internal monitoring rules and internal procedures designed to take timely corrective actions, or the compliance with the internal risk policy rules result in operational risks (Bessis, 2010). Because operational risk is an event risk, in the absence of an efficient tracking and reporting of risks, some important risks will be ignored, there will be no trigger for corrective action and this can result in disastrous consequences.

Interestingly, the developments in modern banking environment, such as increased reliance on sophisticated technology, expanding retail operations, growing e-commerce, outsourcing of functions and activities, and greater use of structured finance (derivative) techniques that claim to reduce credit and market risk have contributed to higher levels of operational risk in banks (Greuning & Bratanovic, 2009). Nonetheless, operational risk is the risk of negative effects on financial performance and capital of the bank caused by negligence at work of employees, procedures and inadequate internal processes, inadequate management information systems and unpredicted external event. In some other literature, operational risk is defined as the organization's exposure to potential losses as a result of lack or failure to properly execute its operations. These losses may be incurred as a result of failure or lack of internal employees, processes and systems and their inability to cope with the adverse effects of external factors. Rachlin (2008) further added that the operational risk factors such as people, processes, and systems should take into account the external environment. These include criminal actions, legal risks, risks from third parties etc.

Broadly speaking, operational risk is the risk of loss from an operational failure. It encompasses a wide range of events and actions as well as inactions and includes, for example, inadvertent execution errors, system failures, acts of nature, conscious violations of policy, law and regulation, and direct and indirect acts of excessive risk taking (Casualty Actuary (2003). Operational losses can be caused by junior staff; but they can also be caused by mid-level officers, senior managers, C level executives and Boards of Directors. They are sometimes caused by individuals and in other cases by groups of people working in collusion. Many of the largest losses take place when operational failures are present at the senior-most level (Casualty Actuary (2003).

Jarrow (2008) observed that operational risk is of two types. The first type is related to risk of loss caused by the operating system of a company (i.e., investment or transaction failure) either caused by legal considerations or caused by an error in production (or in the back office). The second type is related to the risk of a loss caused by incentives, which include both mismanagement and fraud; this represents an agency cost that occurs because of the separation of a company’s management and ownership. These two types of operational risk losses transpire with recurrent regularity, and they might be minor or disastrous (Jarrow, 2008). Therefore, managing operational risk encompasses an array of approaches and methods that fundamentally work for two purposes, which are prevention of catastrophic losses and reducing average losses (Chapelle & Crama, 2008). Unlike credit and market risks, operational risks are usually not willingly incurred nor are they revenue driven, and are notoriously difficult to pin down and to quantify or measure reliably (Soyemi, 2014).

However, many operational risks cannot be avoided, contracted away or insured. So as long as people, systems and processes remain imperfect, operational risk cannot be fully eliminated (Al Tamimi, 2015). Operational risk is the risk caused by insufficient and or non-functioning internal processes, human error, system failure, or the existence of external

problems that affect bank operations (Rivai & Veithzal, 2007). Moreover, Abdullah, Shahimi and Ismail (2011) state that compliance risk, legal risk, and reputation risk are also risks related to operational risk. The Indonesian Bankers Association (2015) states that operational risk can cause direct and indirect losses as well as creating potential opportunity lost in order to obtain benefits. If a bank is unable to overcome the operational risks it faces, then the level of bank value will decrease. Therefore, risk management related to operational risk can affect the value of a bank (Al Tamini, 2015).

THEORETICAL UNDERPININGS

This study is founded and also anchored on these relevant theories; anticipated income theory (for credit risk) and loan pricing theory (for operational risk);

Credit Risk is anchored on the Anticipated Income Theory (Prochnow, 1944)

The Anticipated Income Theory was formulated by H.V. Prochnow from a comprehensive: study he carried out in 1944. In the study, it was found that in every instance, notwithstanding the nature and character of the business the borrower does, banks had always planned the liquidation of the term loan from the anticipated earnings of the borrower. The theory posits that the cash flow of the borrower is enough to hedge against risks from a default. A banks' loan portfolio is thus considered as a source of liquidity. The loan is repaid in installments out of the anticipated earnings of the borrower instead of a lump sum at maturity. Theoretically, credit risk is expected to have an effect on firm value. The direction of the effect can be negative or positive depending on the effectiveness of credit management. Healthy or otherwise, the poor performance of bank credit is measured as a function of the performance of loans. Thus, non-performing loan, being the percentage of loan values that are in default for three months and above (Ahmad & Ariff, 2007), is a good measure of credit management (Wachira, 2017). Loan quality (whether poor or healthy) is a result of the information processing mechanism which begins right at the loan application stage, to loan approval, monitoring and controlling stages. Loan quality deteriorates when credit risk management guidelines in terms of policy and procedures for credit processing do not exist or are weak or are incomplete (Wachira, 2017).

Ideally, poor credit management leads to high non-performing loans which greatly impair bank value (Annor & Obeng, 2017). Poor assessment of the creditworthiness of the borrower affects servicing of loans. This means that a weak and poorly administered credit policy would lead to bad debt in the loan portfolio of banks. This will, in turn, affect the bank's entire asset strength leading to a liquidity threat to the bank. If credit risks increase with the growing volume of credit transactions in banks, bad and doubtful debts will claim a bulk of the estimated profit expected to be earned by banks. As these risks remain unchecked, the value of banks reduces with each transaction. This also reduces the operational performance of the banks (Ejoh, Okpa, & Egbe, 2014). Non-performing loans are bound to rise when the investment projects funded by borrowed funds do not perform well, that is, they fail to generate positive returns. NDIC (2001) states that the level of deterioration in loan quality decreases bank value and can even lead to bank distress. A high level of non-performing loans in bank portfolio leads as a reduction in bank value (Kargi, 2014). The gist of the above is that ineffective management of credits such as poor credit assessment and monitoring results

in credit default which in turn leads to losses. Losses from credit default have a negative effect on the value of banks because they erode the expected returns to the banks. On the other hand, high financial performance can be gained from credit risk management when there is better, effective and efficient management of credit risk (Singh, 2015; Ebrahim, Khalil, Kargbo & Xiangpei, 2016).

Better risk management indicates that banks operate their activities at lower relative risk and at a lower conflict of interests between parties (Santomero, 2007). Adoption and implementation of better risk management strategies increases firm value. Better bank performance increases their reputation and image from the public or market point of view. The banks also get more opportunities to increase productive assets, leading to higher bank value, liquidity, and solvency (Eduardus, Hermeindito, Putu, Mahadwartha & Supriyatna, 2007). A sound credit risk management is expected to result in greater performance through higher profit, good productivity, increased capital investment and also the creation of opportunities that would improve the standard of living generally. High accuracy of credit risk assessment would help to minimize the bank's losses, reduce the interest rate, and enhance the competitiveness of the bank (Konovalova, Kristovska & Kudinska, 2016). In a similar vein, Wachira (2017) posited that credit risk management can maximize the bank's risk-adjusted rate of return by maintaining credit risk exposure within acceptable limits. Compliance with the Accord means that a sound approach to tackling credit risk has been taken and this ultimately improves bank value. Through the effective management of credit risk exposure, banks not only support the viability and profitability of their own business, but they also contribute to systemic stability and to an efficient allocation of capital in the economy (Kolapo, 2012).

Operational Risk is anchored on Loan Pricing Theory

The Loan Pricing theory posits that banks should not charge too-high interest rates in a bid to maximize interest income as doing so will lead to the problems of adverse selection and moral hazard. The theory argued that at the beginning of a banking relationship, banks may not be able to predict the behavior pattern of the borrower. When the interest rate is too high, the problem of adverse selection is likely to surface as high-risk borrowers are ready to accept it. As soon as the loan is received, the tendency is for these borrowers to exhibit moral hazard behavior because they are likely to take up very risky projects and investments (Gikundi, Alala, Wabwile & Musiega, 2014) Thus in order to mitigate this risk, the loan pricing theory maintains that banks should not set too high-interest rates.

Operational risk results from inadequate or failed internal processes which expose the bank to losses from internal or external frauds, theft as well as damages to assets. It can also result from bad or non-application of regulatory or contractual dispositions, wastes and even delayed delivery. This risk emanates from the weaknesses of internal controls or failure to comply with existing internal procedures. These operational risks from non-application or bad application of regulatory or contractual dispositions affect banks' evolution and operations negatively (Gikundi *et al,* 2014). If the operational risk is not addressed systematically, it can result in inconsistent performance and reduced earnings for the stakeholders. Thus, operational risk exposure threatens the financial stability and value of the banking sector (Muriithi & Muigai, 2017). Noxull (2003) captures that poor internal control strategies increase the risk which leads to declining in firm value due to huge financial losses it sustains, indicating that operational risk has a negative effect on firm value.

REVIEW OF RELATED EMPIRICAL STUDIES.

Empirical Review on Credit Risk

Ramazan and Gulden (2019) analyzed the impact of credit risk on banks performance. Data was collected from financial report of 26(Twenty-six) commercial banks operating in Turkey between 2005-2017. Three panels' data are considered respectively state-owned banks, privately-owned banks and foreign banks in order to compare banks according to their ownership structure. Return on Asset (ROA) and Return on Equity (ROE) were used as surrogate for financial performance pointers while Non-Performing Loans (NPLs) was used as credit risk pointer. The estimation results showed that there is a negative relationship between credit risk and ROA as well as between credit risk and ROE. Their findings showed that there is a relationship between credit risk management and profitability of Turkish deposit banks from the period of 2005 to 2017. The study recommends that banks should focus more on credit risk management, especially on the control and monitoring of nonperforming loans. Also, managers should focus more on modern credit risk management techniques.

Gadzo, Kportorgbi and Gatsi (2019) assessed the effect of credit and operational risk on the financial performance of universal banks in the context of the structural equation model (SEM). Data were collected from all the 24 universal banks in Ghana using the PLSSEM, the results showed that credit risk influences financial performance negatively contrary to the empirical study but in line with the information asymmetry tenant of the lemon theory. It was also found that operational risk influences the financial performance of the universal banks in Ghana negatively. Furthermore, the study indicated that bank specific variables measured by (asset quality, bank leverage, cost to income ratio and liquidity) significantly influence credit risk, operational risk as well as the financial performance of the universal banks positively. The study recommends that banks be encouraged to cut-down their lending rates in other to decrease credit risk and boost profitability. Regarding operational risk, banks should reduce leverage and have their portfolio more concentrated on liquid investment income so as to boost profitability.

Bishnu (2019) investigated the effect of credit risk on the financial performance of commercial banks in Nepal. The balance panel data of ten commercial banks with 160 observations for the period of 2001 to 2016 have been used for the analysis. The study employed capital adequacy ratio (CAR), non-performing loan ratio (NPLR), management quality ratio (MQR), credit to deposit ratio (CDR) and risk sensitivity (RS) as proxies for credit risk while ROA was used as proxy for financial performance. The regression results revealed that capital adequacy ratio (CAR), non-performing loan ratio (NPLR), and management quality ratio (MQR) have significant relationship with the financial performance (ROA) of the commercial banks in Nepal. Similarly, credit to deposit ratio (CDR) and risk sensitivity (RS) has no significant impact on the financial performance of the commercial banks in Nepal.

Nwude and Okeke (2018) investigated the impact of credit risk management on the performance of deposit money banks in Nigeria using five banks that had highest asset base. Ex-post facto research design was adopted using dataset for the period 2000–2014 collated from the annual reports and financial statement of the selected deposit money banks. Three hypotheses were proposed and tested using ordinary least square regression model. The

findings reveal that credit risk management had a positive and significant impact on total loans and advances, the return on asset and return on equity of the deposit money banks. The study recommended that bank managers need to put more efforts to control the non-performing loan by critically evaluating borrowers' ability to pay back.

Hyun and Yo (2017) examined the relationship between the default risk, as measured by the Altman K-Score and firm value as measured by the Return on Assets of shipping and logistics firms in Korea and compared the impact of default risk on firm value between good financial health firms and poor financial health firms. The period covered span from 2003-2012. The study employed panel data analysis model to analysis data collected from financial statement and accounts of 281 Korean shipping and logistic firm. As the trends of K-Scores over a ten-year period, shipping and logistics firms in Korea register weak-to-moderate financial healthy rage. The study found out that Altman K-Score is significantly linked with firm value and also higher performing firms as measured by the ROA exhibit higher financial health as measured by K-Score. The study proposes that systematic financial alert system of Korean shipping and logistics industry should be required to decrease default risk reflecting significantly on Korean economy.

Nwanna and Oguezue (2017) examined the effect of Credit Management on Profitability of Deposit Money Banks in Nigeria. The study employed multiple regression analysis. The findings of the study revealed that loans and advances and loan loss provision have positive and significant effect on profitability while nonperforming loan has a negative and insignificant effect on profitability. The study recommends that management of banks should evaluate credit request before granting loans to customer(s) to circumvent high rate of non-performing loan.

Empirical Review on Operational Risk

Oluwaseyi, Yusoff and Md. Aminul (2018) investigated on Operational Risk in Commercial Banks: Empirical Evidence from Nigeria. Data was obtained from audited financial reports of selected sixteen (16) commercial banks over the period of 2009 to 2015 making up to 112 observations. Panel data approach was employed in the study for the analytical model which run Hausman test for random or fixed effect choice and hypothesis testing. Firm performance was measured by net interest margin while operational risk was proxied using cost to income and total operating expenses to total assets ratio. The controlled variables used in this study were bank size and GDP growth rate. The study found that bank efficiency ratio had a negative significant effect on firm performance, suggesting that the lower the cost to income ratio, the better the bank performance in terms of net interest margin. Operating expenses ratio has a positive significant effect on firm performance. The study suggests that further study can explore the effects of operational risks on banks efficiency using wider time-frame.

Muriithi and Waweru (2017) employed the qualitative research design and ordered logistic model to explore the effect of operational risk on the firm value of commercial banks in Kenya using data obtained from 43(forty-three) registered commercial banks in Kenya in the month of November 2015. The study measured operational risk using internal and external fraud (IEF), clients, products and business practices (CPBP), business disruption and system failure and execution (BDSF) delivery and process management (EDPM). Results revealed that operational risk has an inverse relationship with firm value.

Muriithi and Muigai (2017) investigated the effect of operational risk on the firm value of commercial banks in Kenya covering a period of 10(ten) years from 2005 to 2014 for all the 43 registered commercial banks in Kenya. Operational risk was measured by cost income ratio while firm value was measured by Tobin Q. Panel data techniques of random effects estimation and generalized method of moments (GMM) were used to analysis the data collect from accounts/financial statement of the banks under review. Findings indicate that cost income is negatively associated with bank value both in the long run and short run.

Nobanee and Ellili (2017) investigated the degree of operational risk disclosure and its impact on operating cash flow of banks listed on the UAE between 2003 and 2016. The content analysis of the annual reports was used to measure the degree of operational risk disclosure and showed a low degree of operational risk disclosure for all UAE banks, both Islamic and conventional. The result from dynamic panel data regression indicated no association between the levels of disclosure of operational risk and cash flow for all banks, conventional and Islamic.

Kerongo and Mwaura (2016) examined the effect of operational risk management practices on financial performance of 34(thirty-four) commercial banks in Tanzania. Analyses from descriptive statistics revealed that the three independent variables in the study - credit risk, insolvency risk and operational efficiency influenced the financial performance of the banks for the period under study, wherein operational risk had an insignificant positive effect on the financial performance of Tanzanian banks.

Huey-Yeh and Hsiao-Yi (2016) investigated the relationship between operational risk and the operational performance of banks in Taiwan with data covering the period from June 2007 to June 2014. A total of 30 (thirty) listed or over-the-counter banks were selected as the study sample and divided into two categories: "financial holding subsidiary banks" and "independent banks without financial holdings". Operational risk was measured using cost income ratio while performance was proxied by ROA. The result showed that there is a significant relationship between operational risk and performance of Taiwan banks. The study recommends that enhancement of operational performance by managing risks could improve performance.

METHODOLOGY

This study adopted an *ex-post facto* research design which focuses mostly on secondary data. Therefore, this study utilized an *ex-post facto* research design by collecting already existing data thereby averted any form of manipulations. Secondary source of data was used while the area of the study is concentrated on all Deposit Money Banks listed in the Nigerian Stock Exchange (NSE). The target population for the study consists of deposit money banks in Nigeria. The study adopted a purposive sampling technique and selected only all the deposit money banks listed in Nigeria Stock Exchange (13) namely; First City Monument Bank, Fidelity Bank, Guaranty Trust Bank, Stanbic IBTC, Sterling Bank, Union Bank, Access Bank, First Bank, Zenith Bank, Unity Bank, Wema Bank, Ecobank and United Bank (Source: Nigerian Stock Exchange Facts Book, 2020). The researcher utilized secondary data in which data were collected from the annual reports and financial statement of accounts of all the deposit money banks listed in Nigerian Stock Exchange for the period from 2010 to 2019.

The study adopted Partial Least Square Structural Equation Modeling; an advanced as well as a second generation statistical technique specially developed for the test of complex model or complex relationships that involved many dependent variables and many independent constructs. It is also used when the dependent variable has many proxies which regression analysis cannot estimate simultaneously in one model. PLS-SEM is used in this study to test for the hypothesized significance as well as effect of credit and operational risk parameters on firm value (Tobin Q and PBV) of all deposit money banks listed in Nigeria. Although, its usage is still unique in Nigeria but many accounting and financial studies have used it in their work (Gadzo et al., 2019; Saeidi et al., 2018 and Maruhun et al., 2018).

Decision Rule: Accept null hypothesis if the P-value is greater than the stipulated level of significance of 5% (0.05). Also, reject null hypothesis and accept the alternative hypothesis if the P-value is less than or equal to the stipulated significant level 5% (0.05)

Measurement Model for the study

Firm Value (Tobin Q) = $\beta 0 + \beta_1 CR(NPL) + \beta_2 OPR(CIR) + \mu$

Firm Value (Price book value) = $\beta 0 + \beta_1 CR(NPL) + \beta_2 OPR(CIR) + \mu$

RESULTS AND FINDINGS

Assessment of the Structural Model

The hypotheses were tested using PLS-SEM bootstrapping procedure in SmartPLS version 3.8 (Hair et al., 2017). The study used the standardized root mean square residual (SRMS), the root mean square residual covariance (RMS $_{theta}$) as well as normed fit index (NFI) as the measures for the assessment of PLS-SEM goodness of fit. The three models fit measures results show that the SRMR value is 0.012, RMS $_{theta}$ value is 0.0133 and the NFI value is 0.909 which portrayed a well-fitting model. This means that the model is well fitted for the data used and that the threshold for acceptance of the fitness of the model used in the study was therefore met. The coefficient of determination measures the total variance explained in the endogenous constructs as a result of variations in the exogenous variables in the model used. The model explains the positive significant variance of 0.710 (71%) for firm value measured by Tobin Q and 0.668 (66.8%) for firm value measured by firm share price to its book value (PBV). The R^2 values generated showed the substantial power of the exogenous constructs to explain the endogenous construct which met the threshold of 0.75, 0.50 and 0.25 stand for substantial, moderate and weak respectively as proposed by (Hair et al., 2017). In addition, the significance of the structural model was evaluated based on the values of the coefficients, statistical t-values and the p-values. Table 1 shows the PLS-SEM results for the test of hypotheses raised to guide the study.

Table 1: PLS-SEM Bootstrapping Result of the Structural Model

Hypotheses	P. Coefficients	S. Mean	Std. Dev.	T-values	P-values	Decision
CR(NPL) -> FV(TBQ)	-0.700	-0.682	0.088	7.976	0.000	Supported
CR(NPL) -> FV(PBV)	-0.674	-0.658	0.086	7.809	0.000	Supported
OPR(CIR) -> FV(TBQ)	0.264	0.188	0.082	2.011	0.045	Supported
OPR(CIR) -> FV(PBV)	0.257	0.175	0.081	1.962	0.054	Supported

Note: Path is significant at 5% level of significance; if the t-value is ≥ 1.96, or p-value ≤ 0.05.

The Structural Model Showing the Path Coefficients Results

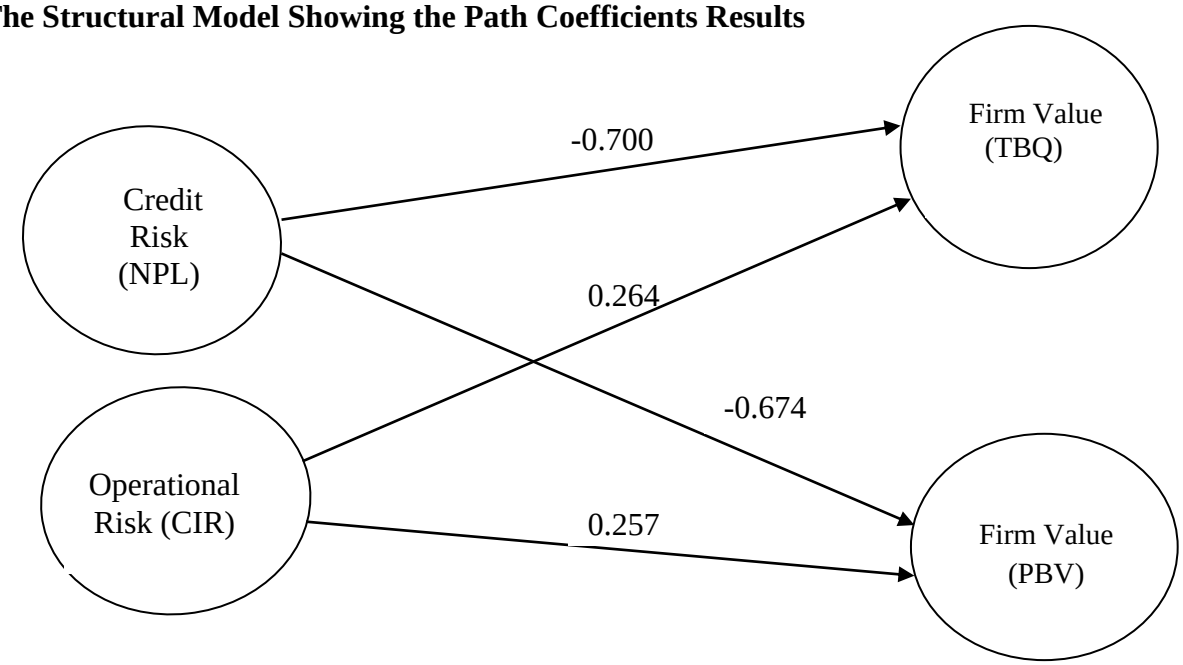

Figure 1: Structural Model Results

Source: PLS-SEM Bootstrapping Output, 2020.

Taking into consideration that the path coefficient should be equal to or greater than 0.20 to demonstrate its significance effect; the t-value should be ≥ 1.96 while the p-value should be ≤ 0.05 to be significant as proposed by (Wong, 2013). An examination of the path coefficients, t-values as well as the p-values of the structural model in table 1 and figure 1 show that credit risk (non-performing loan) had a negative significant effect on firm value measured by Tobin Q (β = -0.700, t = 7.976 and p < 0.05). Also, it had a negative significant effect on firm value measured by share price to its book value (β = -0.674, t = 7.809 and p < 0.05). Furthermore,

operational risk (cost-income ratio) had a positive significant effect on firm value measured by Tobin Q ($\beta = 0.264$, $t = 2.011$ and $p < 0.05$). In addition, it had a positive and significant effect on firm value measured by share price to its book value ($\beta = 0.257$, $t = 1.962$ and $p < 0.05$). Accordingly, all alternative hypotheses earlier formulated to guide the study were significant and were supported.

DISCUSSION

A careful examination of results presented in table 1 and figure 1 show that credit risk surrogated by non-performing loan had a negative significant effect on firm value of deposit money banks in Nigeria. The finding of the study is in agreement with the findings of the following researchers (Ramadan, 2019; Gadzo et al., 2019; Adebayo, 2017) that found that credit risk has a significant but negative effect on firm value. The finding of this study contradicts the findings of the following studies (Akinselure, 2019; Bishnu, 2019; Nwude, 2019) that found that credit risk has a positive and significant effect on firm value of deposit money banks. Furthermore, operational risk has a positive significant effect on firm value of deposit money banks in Nigeria. The finding of the study is in line with the findings of the (Hyey-yeh, 2016; Hsiang-His, 2014 and Gikundi, 2014) that found that operational risk has a positive and significant effect on firm value. Also, our finding did not agree with the finding of Muriithi (2017) that found significant but negative effect of operational risk on firm value of deposit money banks. The finding of the study negates the findings of (Murithi, 2017; Kerongo, 2016) that found that operational risk has an insignificant but positive effect on firm value.

Implication to Research and Practice

This study has contributed to the body of existing knowledge by providing conceptually, comprehensive explanations of proxies for measuring risks and firm value. Theoretically, this study has contributed to the body of existing theories. Practically, findings from this study are expected to make significant contributions to bank managers especially while making strategic policies and decisions. Interestingly, this study has contributed to the body of knowledge by using an advanced multivariate statistical technique developed to simultaneously test for complex relationships and effect of the exogenous variables on endogenous constructs. However, some empirical studies done on the risk proxied firm value using Tobin Q only, but the study used two surrogates for measuring firm value; Tobin Q and share price to its book value. The study has supplied empirically documented evidence concerning the constructs for this study.

CONCLUSION AND RECOMMENDATIONS

Risk management has a significant effect on firm value of deposit money banks in Nigeria Operational risk have not been properly managed in Nigeria. Credit risk significantly but negative affect the value of deposit money banks in Nigeria. Banks in Nigeria are still confronted with the problem of defaults on loan repayment by bank customers. The level of technological advancement is still relatively low among deposit money banks staff in Nigeria which affect their operational efficiency adversely. Based on the findings of the study, the

researchers recommend that banks should ensure that their credit exposures are adequately secured through proper scrutiny of loan processing in order to identify viable projects so as to reduce loan defaults by bank customers. Banks should continue to employ qualified and good workers who are experts in banking professionalism and ICT competence so as to reduce unsound banking practices.

Suggestions for Future Research

There is a need to expand the scope of this study in future research to cover other financial institutions like insurance companies and even micro finance banks in order to broaden the frontier of knowledge since this study dealt on only listed deposit money banks in Nigeria.

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