EFFECT OF ASSET QUALITY ON THE OPERATIONAL EFFICIENCY OF DEPOSIT MONEY BANKS IN NIGERIA

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Abstract

The growing and increased awareness of the important role played by asset quality for banking efficiency has attracted more empirical validation all over the world. The concept of efficiency in banking research has been confounding as reported by various scholars and researchers due to vagaries of the environmental factors which banks are operationally subjected to. This study examined the effect of asset quality on the operational efficiency of banks (DMBs) in Nigeria. Panel data was collected for 10 years from 2007-2016 for all the 15 deposit money banks (DMBs) in Nigeria operational as at 31st December, 2016. Quantitative research design employed with the aid of descriptive and inferential statistics to confirm the reliability and suitability of the results obtained. Panel least square regression was employed to analyze the panel data sourced from the bank financial statements and Central Bank Statistical bulletins. Findings revealed that asset quality has a positive significant effect on operational efficiency

ratio of the banks with 0.035<0.05thus confirming the existing findings that the quality of bank assets especially when unimpaired or where non-performing loans is low. It can also spur higher revenue for the bank with an eagle eye on the cost / expense reduction that will improve banking efficiency and consequently enhance bank fortunes. The study recommended that banks should constantly monitor their asset portfolio and ensure compliance with standard credit risk management policies of the bank as well as the Central Bank credit regulations.

Keywords: Asset quality, Operational efficiency, Asset portfolio, Compliance

INTRODUCTION

Banking business enjoys the same right to have both assets and liabilities like any other firms. However, the composition of the assets and liabilities differs in line with the nature and type of business permitted them by statutory authorities in different countries. The asset of the banks comprise of the loans and advances, securities and other investments held for earning and generating income by the bank. Asset quality refers to the timely manner with which borrowers are meeting their contractual obligations (Alhassan, *et al.,* 2014). The quality of the asset must be adequate in terms of the proportion of high yielding and non-yielding assets i.e. performing and non-performing or impaired/delinquent loans. The higher the ratio of performing to non-performing the better with low cost/expense is sine qua non to overall efficient performance of the bank. Ceteris paribus, this important bank specific factor is germane to the profitability and survival of such bank hence the clamor by empirical scholars and practitioners for more examination empirically on this central subject of banking efficiency. Lina and Indre (2014), reported that banks tend to take more risks over time and manage their asset and liability with an attempt to influence their activity and profitability for the bank.

The general objective of the study is to examine the effect of asset quality on the operational efficiency of deposit money banks in Nigeria. This study is justified on the basis of the important role of bank assets and the need to ensure quality for enhanced operational efficiency of banks generally. In order to achieve the objective, the following statistical hypothesis is formulated for the study.

Hoi: Asset quality has no significant effect on operational efficiency of DMBs in Nigeria.

The study is limited in scope to examine the effect or influence of asset holding and the need to maintain quality after applying the risk management techniques on such assets due to the fiduciary nature of the banking operations. The prospective benefits derivable from the study will

greatly assist bankers and policy makers on the need to improve on the existing policies of risk and asset quality management through enhanced supervision and enforcement so as to achieve sustainable economic growth for Nigeria.

REVIEW OF RELATED LITERATURE

Theoretical background

The theoretical underpinning of the study have agency theory and asset and liability management theory which were relevantly reviewed to capture the theoretical nexus of the agent's function of adequate maintenance of the bank assets in order to enhance the shareholders wealth or investors return through operational efficiency. These theories were explored to capture the need to be operationally efficient in the management of bank assets and its liabilities aimed at enhancing the strategic, operational and efficiency level of the bank.

Agency Theory

The origin of Agency theory could be traced to Ross (1973) on economic theory of Agency, and Mitnick (2006) who concentrated on institutional theory aspect of Agency. Jensen and Meckling (1976) equally remains one of the proponents of this agency. The theory was further developed by Grossman *et al.* (1980), by justifying it on the basis of government goals of safety and protection. Agency as a theory is used to describe and explain the relationships especially between the principal (owners) and the agents (managers) of businesses. It therefore serves to provide a means of coping with emerging business challenges especially in turbulent and dynamic environment where banks operate globally.

Agency relationships occur when the principal hire the agent to perform a service on the principal's behalf, as principals commonly delegate decision- making authority to the agents. Jensen and Meckling (1976), defined agency theory as a contractual agreement under which one or more persons (principal) engage another (agent) person to perform certain service(s) on their behalf including among others, the delegation of some decision making authority to the agent. Agency theory therefore provides the means to address relationship between two or more contractual and/ or implied parties which may erupt problems. Some of the problems include adverse selection, moral hazard and agency costs. This is however different from the position of Williamson (1985). Mitnick (1973), states that agency problem are in three ways as principal's problem, agents problem and policing/monitoring mechanisms and incentives. Agency problem arise as a result of conflict of interest and information asymmetry between the principal and the agent.

This commonly leads to agency costs as explored and investigated by Jensen and Meckling (1976). Fama and Jensen (1983) corroborated this assertion through separation of ownership and control. According to Umar (2015), the theory's major aim is that government agencies (CBN, NDIC) must be present to supervise and check the excesses of financial institutions for the financial system to be virile, safe, protected and sound. He observed that the theory focuses on the problems of hidden actions and information (information asymmetry) from both parties but usually from the agents to the principal. Undoubtedly, agency theory is based on the incompleteness of contract and the separation of ownership (shareholders) and the control (management), which is the main characteristic of firms or institutions nowadays. Though, the resulting problems were already mentioned by Adam Smith in the 18th century (Williamson, 1979).

According to Jensen and Meckling (1976), managers are seen as honorable wealth builders on whose shareholders' information must be obeyed. On the other hand, due to the shareholder's perceived limited liability to control the management in practice, the agency conflict is exacerbated. The desires and goals of the principal and agent usually conflict and it may be difficult or expensive for the principal to verify agents' actions or operations as well as problem of risk preferences. Agency costs are inevitable within an organization whenever the principals are not completely in charge; the costs usually are spent on providing proper material incentives (such as performance bonuses and stock options) and moral incentives for agents to properly execute their duties or functions, thereby promoting the interests of both parties i.e. principals (owners) and agents (managers).

Agency problem arise due to inefficiencies in resource allocation which is limited and scarce in supply and incomplete information (Mitnick, 1973). Agency problem can be minimized through contract designing so as to be competitive in line with market dictates. This measure may go a long way at optimizing the resources of the firm especially to achieve cost/operational efficiency (Jensen & Meckling, 1976).The two are related to asymmetric information (such as adverse selection regarded as hidden information and moral hazard referred to as hidden action). Adverse selection occurs where asymmetric information exist before the transaction (contract) leading to inefficient allocation of resources. Moral hazard describes an agency problem which exists after a transaction is executed, from where inefficient resource allocation would have been made. Both terms have their linkages to the financial/insurance industry as a constituent member of good financial system where banking and non- banking institutions are present (Ross, 1973).

Delves and Patrick (2010) explored the principal's problem as helping to motivate agent to act in a manner that achieves principal's goals but the agents decisions either to act in the

principal's interest, his own interest, or compromise between the two when they do not coincide. This means that Directors of a company may, after signing their employment contract, start acting in a way that benefits themselves at the expense of their shareholders. Williamson (1985) stressed heavily on this as one of the elements of agency theory as opportunism. The theory has validly provided a ground to this study in terms of helping the contracting parties in the banks to understand their assigned relationships and obligations especially the agents to discharge their duties to the principal of the banks thereby helping the study to examine the determinants of operational efficiency of banks. According to Jensen (2004), a well-designed pay packages can mitigate the agency problems between managers and shareholders and well-designed corporate policies and processes can mitigate agency problems between members of the board and shareholders. They both focusses on different parties striving to achieve same corporate goals and objectives of the firm.

Fernando *et al.* (2015), argued that high risk taking behavior of bank managers often leads to poor loan quality, hence shareholders most exert appropriate monitoring on managers action, implement suitable control devices to minimize possible agency conflicts. The assumption that all directors are greedy may not hold always but it is better to assume that a small minority of them are responsibly greedy in business practice. Again, this greed can be overcome if the firm is transparently efficiently run by the owners/investors of the business. The relationship between the parties (principal and agent) as regards efficient mobilization of resources/deposits from customers (costs of deposits) and the utilization of resources (cost optimization on assets and agency costs) so as to ensure the quality of the assets in running the bank to achieve her goals with minimum costs and superior profitability should be the hallmark of an efficiently run enterprise/firm. Adequate information and good monitoring mechanism to control expenses by both parties in the system must be evolved so that asymmetric information does not arise.

Asset Liabilities Management Structure Theory

Asset Liabilities Management (ALM) theory is a systematic approach that attempts to provide a degree of protection to risk regarding asset/ liability mismatch and consist of a framework to define, measure, monitor, modify and manage risks of liquidity and interest rate usually faced by banks and other financial institutions. Asset Liability Modelling which is a neoclassical model of banking firm was developed by Klein (1971) and Monti (1972) as branch of microeconomics of banking. It states that the asset side of the balance sheet of the bank consist of central bank reserves, loans, bonds, market traded assets and interbank loans while the liability side include deposits, equity and other regulatory reserves. Its management involve matching various

assets and liabilities according to the maturity pattern or matching the duration, by hedging and by securitization.

According to Sudanarao (2017), ALM is a risk management technique designed to earn an adequate return while maintaining a comfortable surplus of assets beyond liabilities e.g. loans exceeding deposits of the bank. It takes into account interest rates, earnings power and degree of willingness to take on debt otherwise called Surplus- management. Its financial management process involves, risk identification (parameters), risk measurement, risk management and framing of risk policies and its tolerance levels for any bank. ALM is concerned with an attempt to match assets and liabilities as regards the maturity and interest rate sensitivity so as to minimize interest rate and liquidity risks that usually accompany assets (Anjichi, 2014).

Through dynamic balance sheet management, ALM involves the process of decision-making to control risks of existence, stability and growth of a system by controlling risks brought by changes in interest rates, exchange rates, credit risk, contingency risk, and the liquidity position of the bank. There are 3 processes in ALM, all of which are information based: Firstly, is the ALM information system. Secondly, is the Management Information System and lastly, is the information availability, accuracy, adequacy and expediency (Sudanarao, 2017). This is the pillar of ALM since information must flow across the large network of branches of the bank and maintain adequate system to collect information regarding the daily operations from the branches as regards liquidity requirement which is germane to banking business. It can therefore be said that information asymmetry must not occur between the head office and the branches for ALM to succeed so that its influence on the operational efficiency of the bank can be felt. According to Lina *et.al.* (2014) in a properly integrated banking function, the ALM desk will have a system to cover all aspects of a bank's operations hence it is considered a strategic discipline but not a tactical one.

According to Saksonova (2011), who stated that it is the task of every Commercial banks to determine the optimal asset portfolio depending on the profitability of various asset classes and chosen constraints such as liquidity, mandatory reserve requirements capital adequacy, common sense constraints etc. Again, it was argued that the financial crisis of 2008 in advanced countries had underscored prior asset and risk management models inadequate for proper investigation of two most important factors of the cost of resources and risks associated with assets (Saksonova, 2011). It was also argued that the risk taking behavior of bank managers often leads to poor loan quality resulting in ALM mismatch which may automatically affect operational efficiency (Sudanarao, 2017).

Therefore, the relevance of the theory to the study is based on the fact that for banks to achieve operational efficiency, they must strive to carefully manage their asset and liability structure well so as to avoid mismatch. As a strategic option plan, the entire branches of the bank must be involved especially as it relates to liquidity and interest rate risks management information of the bank either through the Asset Liability Management Committee (ALMC). It therefore beholds on the banks to perform these key functions efficiently, prudently and profitably as economic agents that promotes growth and ensuring financial system stability. According to Sudanarao (2017), problems associated with ALM are the issue of slow pace of computerization, absence of total deregulation policies for banks on interest rates for term deposits, credit portfolio (floating rate) which affects pricing these assets, based on prime lending rate. Again, it is limited in practice to develop easily an optimal asset- liability model for the bank since no one model capture the daily risk and liquidity requirements of banking operations especially in a developing nation such as Nigeria.

Empirical Literature

 Asset quality remains a fundamental issue as regards achieving efficiency in banking operation hence bankers always monitor and control the level of non-performing credits (loan and advances) adequately. Asset quality as an important variable must constantly be monitored by banks for survival and stability. The two principal components of asset/credit portfolio of a bank are Performing and Non-Performing Loans (PL & NPLs) that constitutes the credit portfolio of the bank. It was reported that the component of asset quality called non- performing assets that constitute a major part of asset quality for banks which had been identified as a significant source of banking failure and its relationship with intermediation efficiency remain unclear (Kariuki *e.t al.,*2016).

Abata (2014) studied asset quality and bank performance of commercial banks in Nigeria and reported that asset quality had a statistically significant relationship and influence on bank performance. It was concluded by the study that banks need revenue/income diversification, credit risk management to reduce level of delinquent loans and liquidity holdings to improve bank performance. Kariuki *et. al.* (2016), also affirmed the significance of asset quality through his study on asset quality and intermediation efficiency on deposit taking and saving and credit co-operative societies in Kenya. The results from the study show a positive relationship between asset quality and financial intermediation efficiency. The study concluded that an existence of bad luck or bad control of cost/expense was highlighted in the running of these societies which may lead to high level impaired loans.

Similar study from Mohd zaini *et. al.* (2010) affirm that Non Performing Loans (NPLs) can act as a significant source of banking failure with evidence from Malaysia and Singapore. In Africa and Nigeria in particular, there are increasing trend in Non-Performing Loans (NPLs) which is a component of asset quality that's adversely affecting bank performance especially in the provision of credits to economic agents in all sectors of the Nigerian economy, which is equally affecting financial intermediation and economic activities (Umoren *et. al.,* 2016). Kolapo *et. al. (*2012) corroborated and reported that the trend and growth rates of Non-Performing Loans (NPLs) for both pre-consolidation (1979-2004) and post consolidation era (2005-2014) were very high in Nigeria. The result further confirmed that the regression estimates of NPLs trend in the two periods (regimes) show a significant negative growth rates attesting to the fact that financial policies of the CBN yielded positive impacts on the economy of Nigeria over time. Idowu (2016) had indicated and confirmed that in 2009-2010, many banks in Nigeria were affected by bad risk management resulting in bank failures, a fall-out from the global financial crisis of 2008/2009 originated from USA.

METHODOLOGY

Quantitative non-judgmental research design method was employed making it a positivistic research philosophy based on the type of data sourced for the study. The population for the study comprise of 15 deposit money banks operating in the Nigerian economy for the period 2007-2016. The sample size was done using purposive sampling techniques. Again, this is sequel to the fact that the period of this study witnessed the financial crisis of 2008/2009, bail-out scheme of the CBN, and it also entails serious socio-political/economic management in Nigeria. All of these greatly impacted on the general economic condition of the country.

Panel least square regression method was adopted by the study and the results obtained from the regression were subjected to diagnostic tests so as to ensure that the model represents best linear unbiased estimation. The tests were performed through Stata statistical package version 13. Specifically, Jarque-Bera was used to test for normality of the model while multicollinearity and autocorrelation tests involved Variance Inflation Factor and Pearsons correlation coefficients were employed. Test for heteroscedasticity was equally conducted on the balanced panel data.

The model for the study was adapted from the work of Olarewaju et.al. (2015) based on the nature of the panel data employed and it is presented below:

$OER_{it} = \beta o + \beta_1 AQ_{it}$……………..eq.1

Where, OERit = Operational Efficiency Ratio as dependent variable

βo = Constant β_1 = Coefficients of Asset Quality ($_i$=15 and $_t$= 10)

RESULTS AND DISCUSSION

Both descriptive and inferential statistical analyses have been employed to unearth the statistical significance of the variables of the study of the panel data. The data was subjected to the relevant econometrics tests of linearity stationarity, auto correlation, heteroscedasticity in line with the OLS assumption (BLUE). They were all confirmed to be suitable for the model of the study.

Table 1: Descriptive Statistical analysis of Asset Quality and Operational Efficiency

Variable	Obs	Mean	Std. Dev.	Min.	Max.
oer	150	0.2486695	0.1101137	0.1199643	0.4574035
aq	150	0.5437782	0.8131537	0.176361	2.96831

Source: Stata Statistical Package Version 13

Above table 1 showed a mean of 0.5437 for asset quality while the standard deviation (0.8131) indicating the spread of the observed distributions of data for the sampled banks with a wide variability of same as confirmed by the maximum and minimum statistics (2.9683 and 0.1763) meaning that the banks are managing their asset portfolio fairly and making use of their asset and liability management structure policies work within the banking industry. The normality of the data test is thus confirmed by the diagnostic tests used on the model (d = 0.867, VIF = 2.05, Wald chi square = 134.32, prob > 0.0000).

Inferential statistics

This subsection discusses the inferential statistics with the employment of panel least regression analysis. The hypothesis of the study stating that asset quality has no significant effect on the operational efficiency of deposit money banks in Nigeria was tested and result analyzed as thus.

The model for the hypothesis was basically formulated from the study's objective. The study tested the hypothesis indicating a statistical significance (alpha) of 0.05 at (95% confidence level), degree of freedom (df) and two tailed, p-value < 0.05 (0.035) The result showed that asset quality has significant effect statistically on OER with a negative relationship of 0.0079. The overall R square of 0.8467 confirmed the goodness of fit of the model. R square is a measure of the goodness of fit of the explanatory variables in explaining the variation on operational efficiency. It means that the variable explained about 85% of the variation in the operational efficiency of banks while the remaining 15% remain unexplained and can be accounted for by other variables not captured in this model. The coefficients of the regression

analysis also confirmed the negative relationship with -0.02557 implying that the sampled banks have not been efficient in the employment of their asset especially the liquid asset under their control.

Hypothesis Testing

H_o: Asset quality has no significant effect on operational efficiency of DMBs in Nigeria.

Table 2: Inferential Statistics of OER and Asset Quality

Model 1: $OERit = \beta_0 + \beta_1 AQit$			
Variable	Coefficient	Std. Error	P-value
Intercept	1.98569	0.39454	0.000
Asset Quality	-0.02557	0.01214	0.000
R^2	0.8467		
Durbin-Watson	0.8679		

The specified model indicates $\beta_0 =$ constant while $\beta_1 =$ coefficients of asset quality, i = 15, t = 10 years as presented above.

The Pearson's correlation coefficient of -0.0079 show that the two variables, OER and AQ, are weakly negatively correlated. Hence, Asset quality has significant effect on operational efficiency of deposit money banks in Nigeria since p-value is less than 0.05 (0.035). The result therefore statistically suggests that banks have not been operationally efficient in the employment of assets at their disposal under this period and as such should consolidate on credit/loan appraisal. The credit risk management policy as regards non-performing loans must improve be reduced to acceptable level as a means of enhancing performance and efficiency in the industry. However, both R^2 and adjusted R^2 shows an explanatory power of 0.846 means that about 85% of the variation on OER is accounted for by AQ. The model's output result with the explanatory variable is shown below:

$OER_{it} = 1.985 - 0.0255AQ$

As revealed by this result, it means that individually this explanatory variable (AQ) have effect on OER since the p-value is less than 0.05 (0.035) with R^2 (0.846) and "d" value of 0.8679. It was also confirmed by the descriptive statistics result with the mean value of about 54% indicating a high degree of variability amongst the banks with wide dispersion of 81%. The result is consistent many with prior studies in the finance literature. For instance, Abata (2014) reported that asset quality had a statistically significant relationship and effect on bank

performance while Adeusi *et.al.* (2014) also concurred in his findings that asset quality has high statistical significance in all the models emphasizing that credit risks remain a major determinant of commercial banks profitability while employing OLS regression model for the study. The study from Mohd zaini (2010) again confirmed that asset quality can act as a significant source of banking failure with evidences drawn from Malaysia and Singapore.

The result again found support from the findings of Kariuki *et.al.* (2016) who reported a negative correlation coefficient with a statistically significant relationship between asset and intermediation efficiency. Affirmatively therefore, Anjichi (2014) reported that poor asset quality as evidenced from this research and low levels of liquidity are the two major causes of bank failures. The study equally stated that the Central Bank of Kenya (CBK) measures asset quality by the ratio of the Non-performing loans to gross loans, a method adopted by the present study. Supporting the above findings, Adjei-Frimpong *et.al.* (2014) reported that loan loss provision has no effect on bank efficiency in Ghana while Roman et.al. (2013) affirmed in his findings that a higher ratio of non-performing loans to total loans coupled with absolute deterioration of credit portfolio quality negatively affects commercial banks' profitability significantly.

CONCLUSION AND RECOMMENDATIONS

This study has contributed knowledge to the existing empirical studies on operational efficiency literature with a special focus on the Nigerian banking system. One important predictor variable of asset quality was considered to examine its influence on banking efficiency for a period of 10 years. Quantitative research non-judgmental design method was employed on the panel data sourced from the bank's annual reports and CBN statistical bulletins to achieve the study's objective. The study found that asset quality is statistically significant to the operational efficiency of banks sampled hence confirming the importance and value of asset quality in ensuring operational efficiency. Although, a negative relationship was established in conformity with existing studies (Kariuki, Muturi, & Ngugi 2016; Anjichi, 2014) thus indicating the need for an optimal balance in ALM for sustained efficiency in banking operations. In a nutshell, the results suggest that bank should improve on credit risk management policies/loan appraisal as well as credit rating of customers for sound credit assessment that will automatically reduce the proportion of non-performing loans to performing loans must be vigorously pursued by banks. This will no doubt engender improved performance and efficiency of the Nigerian banks.

The study drew its theoretical support and relevance from the agency theory which outlines the basic relationship between the agents who performs fiduciary role of asset quality maintenance and the prospects of higher returns or value to the investors or owners through transparency and informed operational efficiency for the bank. No doubt Nigerian banking

system cannot be isolated in the face of stiff global competition of ICT etc. which anchors the required solution for higher performance based on efficiency all over the world. It can therefore be empirically stated that asset portfolio of the banks especially commercial banks must be qualitatively and quantitatively managed with all prescriptive analytical tools and techniques applied so that weak and non performing items (credits) in such credit/loan portfolio are drastically reduced if not eliminated. The statutory requirements for assets maintenance such as risk weighted qualifying metrics must be applied and drastic cost reduction strategies employed by the bank managers.

Based on findings from the study, the following policy implications are recommended: there is the need to have an all-inclusive increased supervision and monitoring of credit officers and bank mangers by the regulatory authorities (CBN and NDIC). The monitoring must be done by both the individual banks and the Central Bank on credit administration and risk management policies of the banks. The Apex bank (CBN) must initiate corporate measures on the efficiency metrics of bank performance especially on efficiency so that optimum benefits will be achievable by the banks and the entire banking system in tandem with the developed economies of the world. Finally, further research is advocated to explore other variables not included in this model especially the qualitative aspects relating to banking efficient performance.

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