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Asset and Liability Risk Assessment and Share Performance of Deposit Money Banks in Nigeria

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Abstract

The study examines asset and liability risk assessment on share performance of deposit money banks in Nigeria. The population of the study is sixteen (16) listed deposit money banks in Nigeria Stock Exchange as at 2018 and fourteen (14) deposit money banks was the sample size of the study for the period of five year (2012- 2016). Secondary data were gathered from annual report and account of sample listed deposit money banks. The study utilizes descriptive research design to examine the relationship between the study's variables. Multiple regression analyses were carried out in the study. The findings revealed a positive relationship exists between earnings per share and asset risk management. Similarly, the regression results further showed that there is a negative and significant relationship between customers deposit and earnings per share, indicating that a unit increase in the customers deposit will lead to a decrease in earnings per share. Therefore, the study recommends that, listed deposit money banks in Nigeria should mobilize deposits from customers and increased loan with portfolio management of asset and liabilities for risk diversification in order to generate higher profitability. Also deposit money banks should increase loans to customers to boost their net income since loan to customer attract interest.

Keywords: asset, deposit money banks, liability, share performance

1. Introduction

Asset-liability management basically refers to the process by which an institution manages its balance sheet in order to allow for alternative interest rate and liquidity scenarios Asset-liability management is an approach that provides institutions with protection that makes such risk acceptable. It is therefore appropriate for institutions banks, finance companies, leasing companies, insurance companies, and others to focus on asset-liability management when they face financial risks of different types. Asset-liability management includes not only a formalization of this understanding but also a way to quantify and manage these risks leading to higher returns and profitability. The profitability of banks is vital for the smooth operation of the financial system of a country. Kosmidou, Pasioras and Ploropoulus (2004) and Subin (2010) identified that among the possible factors that have effect on banks' profitability is the asset-liability management. This therefore implies that if banks are able to properly match their liabilities to assets, then there is the possibility of improving profitability.

However, empirical evidence on the effect of asset and liability risk assessment on the share performance in Nigeria is scanty. The only studies the researchers found was conducted by Ajibola (2016) and Godfrey (2016) which examined the effects of assets and liability management on financial performance of some selected Nigerian banks. Therefore, this study sought to examine the effect of asset and liability risk assessment and share performance of deposit money banks in Nigeria, using the listed banks on the Nigeria Stock Exchange as at 31st December 2018. The objective of the study is to assess the effect of asset and liability risk on share performance of listed deposit money banks in Nigeria for the period of 2012 to 2016. In line with the research objective, the following hypotheses are formulated and tested:

HO_1: Asset risk management has no significant effect on share performance of listed deposit money banks in Nigeria.

HO_2: Customer deposit has no significant effect on share performance of listed deposit money banks in Nigeria.

2. Literature Review

Share performance as a subjective measure of how well a firm can use assets from its primary mode of business and generate revenues. Different measures are used to gauge financial performance, in finance and financial accounting like return on equity, return on assets, earning per share and capital employed (Bagh, Khan & Razzaq, 2017). Arif and Showket (2015) defined share performance as a measure which determines how well organizations use their available resources to generate more revenues. It tells the financial soundness and health of the organization in monetary terms and thus, can be used to compare the performance of different corporations within any particular industry or between the industries. Measuring the performance of the banking sector has gained momentum over the years, because the sector is not only an avenue for money saving, but also serves as a vehicle to channel funds in an appropriate manner from surplus economic units to deficit units so as to support the investment activities in the economy (Hazzi & Kilani, 2013). Financial performance is normally measured in the form of ratios like return on assets (ROA), return on equity (ROE) and earnings per share (EPS) (Tafri, Hamid, Meera & Omar, 2009; Qin & Dickson, 2012; Ruziqa, 2013).

The asset liability management functions extend to funding, capital planning, profit planning and growth projection. Asset-liability management basically refers to the process by which an institution manages its balance sheet in order to allow for alternative liquidity, interest rate and credit risk scenarios. Asset liability management, ALM, is defined by different scholars like Gup and Brooks (1993), Zawalinska (1999) and Charumathi (2008). Charumathi (2008) defines ALM as a dynamic process of planning, organizing, coordinating, and controlling the assets and liabilities; their mixes, volume, maturities, yield, and costs in order to achieve a specified net interest income (NII). In other words, it deals with the optimal investment of assets in view of meeting current goals and future liabilities. It is therefore appropriate for institutions (banks, finance companies, leasing companies, insurance companies, and others) to focus on asset-liability management when they face financial risks of different types. Also, Sanjay (2015) it refers to a comprehensive recognition of the banking risk. Asset-liability management can also be defined as the ongoing process of formulating, implementing, monitoring and revising strategies related to assets and profitability to achieve an organization's financial objectives given the organization's risk tolerance and other constraints. The objective of asset-liability management is to maximize profit through efficient fund allocation given an acceptable risk structure. Asset-liability management has also been defined by different scholars like (charumathi 2008) as a dynamic process of planning, organizing, coordinating, and controlling the assets and liabilities". It can also be said to deals with the optimal investment of assets in view of meeting current goals and future liabilities. Hence, asset-liability management is the focus of matching assets and liabilities in terms of maturity and interest rate sensitivity to minimize interest rate and improve profitability (Zawalinska1999). Ranjan and Nallari (2004) examine asset-liability management of Indian banks for the period 1992 to 2004. The study found out that SBI and associates had the best asset-liability management. Also other than foreign banks, all other banks are liability-managed. They all borrowed from the money market to meet their maturing obligations. Private sector banks were found to be aggressive in profit generation, while nationalized banks were found to be excessively concerned about liquidity.

Rogers (2005) investigated the impact of asset and liability management on financial performance of commercial banks. Using a sample size of 100 commercial banks, through an explorative survey testing the relationship between the variables, the study established a positive correlation between the financial performance and asset liability management of commercial banks. Briys and Varenne, (2010) argues that, a bank has a balance sheet that is comprised of assets, liabilities, and equity. Banks fund their assets through a combination of their liabilities and equity. A bank's liabilities represent that bank's debt traditionally consist of deposits of money from people who entrust the bank to hold on to their money and return it when asked to do so. On the other side of the balance sheet are a bank's assets that, for the most part, consist of loans to its customers, from which the bank derives income in the form of interest charged to the borrowers. Mihir, Venkatesh, and Bhagav (2010) investigate asset liability management in Indian Banks. The study covered all commercial banks for the period of 2008 to 2009. The sample of twenty six public banks and twenty private banks. The study utilized secondary data. The finding revealed that public and private banks have excess liquidity.

Dash and Pathak (2011) proposed a linear model for asset-liability assessment. They study found that public sector banks have best asset-liability management positions, maintaining profitability, satisfying the liquidity constraints, and reducing interest rate risk exposure. Gyekyi (2011) examines effect of asset liability management on profitability of National investment bank in new juabeng municipal for the period of2008 to 2009. The study adopted mixed method of data collected and analysed using table and graph. The finding revealed that decreases in asset value increase profitability and liability increase as profit margin reduces. Tamiru (2013) examined the effect of ALM on commercial banks profitability in the Ethiopian financial market. The profitability was measured by ROA as a function of balance sheet and macroeconomic explanatory variables. Eight commercial banks were studied for period of 2005 to 2010. The model hypothesize that the rate of return on earning assets is positive and varies across assets, and the rate of cost on liabilities is negative and varies across liabilities. The pooled OLS regression was employed to analysed the data. The result showed that all assets, except fixed assets, mainly loans and advances affect profitability positively, while all liabilities mainly saving and fixed deposits and other liabilities and credit balances have significant and negative effect on commercial banks profitability. With regard to macroeconomic variables, real growth rate in GDP has negative effect on commercial banks profitability.

Harvey (2013) investigates the relationship between asset liability management and the financial administration of commercial banks on service firms using panel data for 3 years; the finding revealed that there was a positive relationship between asset liability management and financial performance. Makau (2014) examines influence of asset liability management on financial performance of commercial banks in Kenya. The study adopted a case study design and data were sourced from audited financial report for the period of 2006 to 2013. Panel regression model were employed to analysed the data using t-test analysis. The finding revealed that there is customer deposits have a significant influence on the net interest income. Jain and Gupta (2014) examine compatibility between asset and liability structures of a bank. The study explores the nature and strength of relationship between various assets and liabilities of 68 commercial banks operating in India for eight consecutive years, 1992 to 2000. A multivariate statistical technique used for evaluating the relationship between two sets of variables. The study reveals that most of the banks, in general, show prudent matching of assets and liabilities. The most prominent relationship is between short term deposits and SLR securities. However, there are substantial inter-group and inter-period differences.

Sanjay (2015) examines the effect of ALM on commercial banks' profitability in Nepal. Top seven private commercial banks were taken as sample, which constitutes 49 percent share of total net profit of overall 30 commercial banks for the period 2007 to 2013. The pooled OLS regression analysis was employed. The finding report emphasizes that the rate of return on assets is positive and varies across assets, and the rate of cost on liabilities is negative and varies across liabilities, including fixed assets, mainly loans and advances as well as other assets affect profitability positively, while all liabilities, mainly deposits, and other liabilities have negative effect on commercial banks profitability. With regard to macroeconomic variables, GDP and Inflation rate has negative effect on commercial banks profitability. Ajibola (2016) examines effects of Assets and Liability Management on Financial Performance of Some Selected Nigerian Banks. Data were sourced from Annual financial statement of selected Nigerian Deposit Money Banks and were analyzed using descriptive statistics and a panel data regression analysis was used to explore the relationship between AML and Financial performance. Findings revealed that loans and advances are positively related to return on equity especially when profitability is measured as proxy of financial performance, while the liability variables are negatively related to the measure of bank performance adopted in this study. It was also revealed that, asset management has significant effect on financial performance of Nigerian deposit money banks.

Shetty (2016) conducted A Study on an Analysis of Private Banks Exposure to Asset Liability Management for the Period of 2011 to 2015. The Finding From The Study Revealed that Banks Have Been Exposed To Liquidity Risk. The Study Also Indicated That Hdfc Bank And Icici Bank Have Better Alm Framework In Practice. Godfred (2016) assessed the effectiveness of asset and liability management as a panacea to Banks profitability in India. The objectives of the study were to identity the risk factors associate. The study was carried out on four selected Banks in Lucknow, India, with emphasis on two National Banks and two Private Banks. These were the State Bank of India, Bank of Baroda, Axis Bank and HDFC Bank. The State Head Offices of the selected Banks with 60 respondents were selected as sample size via multi stage sampling technique. Questionnaires were designed consisting of open and close-ended questions and data were taken from both primary and secondary sources. Findings indicated that, the Banks' Asset Liability Management involved the effective management of all the risk factors where strategies are also mounted by these Banks in controlling them. Evans (2017) assesses the impact of asset and liability management on the profitability of listed banks in Ghana. Multiple linear regressions has been applied by taking ROA as the dependent variable, and TAS (the total asset) and TLT (the total liability) representing the asset and liability. The robust panel regression analysis was employed to analysed the data. Result of the study showed that, total assets affects profitability positively, while total liabilities mainly saving and fixed deposits and other liabilities and credit balances have significant and negative effect on commercial banks profitability. With regard to the macroeconomic variables, interest rate had no significant effect on commercial banks profitability.

Ahmed, Farida, Zainul, Azfar, Muhammad and Aamir (2017) Conducted a study on determine the Gap between the assets and the liabilities of Islamic and conventional banks. Empirical study of Pakistan, UAE, Malaysia and Bahrain. The study used liquidity risk, capital adequacy, management efficiency, operating cost and transaction size on net interest margin for Conventional Banks (CBs) and net profit margin for Islamic Banks (IBs) in Pakistan, Malaysia, Bahrain, and UAE. Short-term and long-term assets and liabilities gap is further emphasized in this study. Data were extracted from the financial statements of both types of banks for the period of 2008 to 2014. The study finds that, there is a negative short-term gap for both types of banks while the long-term gap for both types of banks is positive. Results also show that the operating cost is an important factor which affects the profit margins and progress quality of the management of banks. Lastly, the overall results show that the CBs have better assets and liabilities structure of profitable assets at low cost liabilities.

Tee (2017) Evaluate Asset Liability Management and the profitability of listed Banks in Ghana. Multiple linear regressions were employed by taking ROA as the dependent variable, and TAS (The Total Asset) And TLT (The Total Liability) representing the Asset And Liability mix of the Banks. Pragathi and Veena (2018) investigates analysis of asset liability management in banking sector case study of kotak Mahindra bank. Data were collected from secondary sources from annual reports of Kotak Mahindra Bank from the period of 2013 to 2017. analyze the performance of assets and liabilities management has been measured it results the credit deposit ratio, quick ratio, interest expanded to interest earn, other income to total income and interest spread this ratios showing increasing trend from one year to another year therefore the performance of assets liability management position is satisfactory and better in Kotak Mahindra Bank.

The major theoretical assumptions of this study are based on finance distress theory and Shiftability theory. Baldwin and Scott (1983) alleged that when a firm's business deteriorates to the point where it cannot meet its financial obligation, the firm is said to have entered the state of financial distress. The first signals of financial distress are violations of debt payments and failure or reduction of dividends payouts. Whitaker (1999) defines entry in financial distress as the first year in which cash flows are less than current maturities' long-term debt. The firm has enough to pay its creditors as long as the cash flows exceed the current debt obligations. The key factor in identifying firms in financial distress is their inability to meet contractual debt obligations. However, substantial financial distress effects are incurred well prior to default. Wruck (1990) stated that firms enter into financial distress as a result of economic distress, declines in their performance and poor management especially on risks. Boritz (1991) depicts a process

of a financial distress that begins with an incubation period characterized by a set of bad economic conditions and poor management which commits costly mistakes.

The shiftability theory developed by Moulton (1915) holds that banks could most effectively protect themselves against massive deposit withdrawals by holding, as a form of liquidity reserve, credit instruments for which there existed a ready secondary market. The theory is based on the proportion that banks liquidity is maintained if it holds assets that could be shifted or sold to other lenders or investors for cash. Also, these assets could be shifted to the Central Bank for cash without material loss in case of necessity than relying on maturities to solve their liquidity problems (Ngwu, 2006). This theory posits that a bank's liquidity is maintained if it holds assets that could be shifted or sold to other lenders or investors for cash. This point of view contends that a bank's liquidity could be enhanced if it always has assets to sell and provided the Central Bank and the discount market stands ready to purchase the asset offered for discount. Thus this theory recognizes and contends that shiftability, marketability or transferability of a bank's assets is a basis for ensuring liquidity. This theory further contends that highly marketable security held by a bank is an excellent source of liquidity. Dodds (1982) contends that to ensure convertibility without delay and appreciable loss, such assets must meet three requisites. The Shiftability theory has reduced the necessity of holding reserve of huge amount of idle cash balance. It has presented an alternative way of real bill doctrine/theory where there is possibility/of risk because of economic depression in the case of buying and selling of commercial goods and raw material. With the help of Shiftability theory the probability of income can be increased and the probability of risk can be reduced (Cai & Anjan, 2008).

3. Methodology

Ex-post factor research design and Census sample were adopted for the study. The population is sixteen (16) listed deposit money banks in Nigeria as at 2018. Fourteen (14) DMBs form the sample that was used in this study because their data are readily available for the period of this study. Data were sourced from annual financial reports of the sample listed DMBs and were analyzed using multiple regression technique.

Table 1
Variables Measurement and Model Specification

Variable Name	Variable acronyms	Variable Type	Measurement	Source
Share performance	EPS	Dependent	Profit after tax-Preference dividend/ Total Number of Common share Outstanding	Olalekan, Mustapha, Irom & Emily (2018)
Asset Risk Management	ARM	Independent	Account receivable/ Total asset	Sanjay (2015)
Customer deposit	CD	Independent	Customer deposit/ Total asset	Makau (2014)
Interest rate risk	IRR	Control	Net Interest margin	Bagh, Khan & Razzaq (2017)
Liquidity risk	LR	Control	Current asset/current liability	Bagh, khan & Razzaq (2017)
Leverage risk	LEV	Control	Total debt/total assets	Hague & Wani (2015)
Bank size	TA	Control	Natural logarithm of The total asset	Mohammed (2015)
Bank age	AGE	Control	Number of years From the date of Listing on the NSE	Bagh, khan & Razzaq (2017)

Source: Researcher Compilation 2018

For our set research objectives to be reached, the following regressions models were adopt from prior study (Mansyur, 2017). The model for the study is specified thus:

Share performance = f(Asset and liability, control variable)................... (i)

$$EPS = \alpha_t + \beta_1 ARM_t + \beta_2 CA_t + \beta_3 IRR_t + \beta_4 LR_t + \beta_5 LEV_t + \beta_6 TA_t + \beta_7 AGE_t + \mu_t \quad\text{(ii)}$$

Where: EPS = Earnings per share; ARM = Asset risk management; CA= Customer deposit; IRR= Interest rate risk; LR= Liquidity risk; LER = Leverage risk; TA =Bank size; AGE= Bank age; eit= Error term; β_0= Intercept; β_1- β_6 = Parameter estimates

4. Results and Discussion

The study performed several diagnostic tests including descriptive statistics, variance inflation factors (VIF), test for Heteroskedasticity, correlation matrix as well as regression analysis (see appendix I for the outputs). Presented and discussed below is the regression result.

Table1
Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
eps	70	1.150777	1.209585	-2.59	4.31
ram	70	0.9500015	0.0392415	0.7586343	0.9727147
cd	70	0.9715453	0.0380319	0.7994694	0.9960839
irr	70	0.9306598	0.0641631	0.6950631	1.157872
lr	70	1.026626	0.0692044	0.6071733	1.216405
lev	70	0.9761984	0.0656993	0.6412138	0.99973
ta	70	9.0814	0.4044438	8.111861	9.796228
age	70	19	14.26966	1	47

Source: Regression output from STATA

Table 1 show that earning per share (EPS) has a mean of 1.1508, a standard deviation of 1.2096 with a minimum and maximum of -2.59 and 4.31 respectively. Also, asset risk management (ARM) has a mean of 0.9500, a standard deviation of 0.0392 with a minimum and maximum of 0.7586 and 0.9727 respectively. Customer deposit (CD) has a mean of 0.9715, a standard deviation of 0.0380 with a minimum and maximum of 0.7995 and 0.9960 respectively. Interest rate risk (IRR) has a mean of 0.93066, a standard deviation of 0.0642 with a minimum and maximum of 0.6950 and 1.1578 respectively. Liquidity risk (LR) has a mean of 1.0266, a standard deviation of 0.0692 with a minimum and maximum of 0.6072 and 1.2164 respectively. Leverage risk (LEV) has a mean of 0.9762, a standard deviation of 0.0657 with a minimum and maximum of 0.6412 and 0.9997 respectively. Bank size (TA) has a mean of 9.0814, a standard deviation of 0.4044 with a minimum and maximum of 8.1119 and 9.7962 respectively. Bank age (AGE) has a mean of 19, a standard deviation of 14.2697 with a minimum and maximum of 1 and 47 respectively.

Table 2
Regression results

R-sq:

within = 0.4042	Obs per group: 70	
between = 0.0281	min = 14	
overall = 0.3634	avg = 14.0	
	max = 14	

P-value: 0.0000

eps	Coefficient	z	P>|z|
ram	14.06373	2.17	0.030
cd	-19.88238	-2.95	0.003
irr	-.6891913	-0.36	0.718
lr	.6666152	0.82	0.410
lev	.5115854	0.43	0.668
ta	1.973313	4.14	0.000
age	.0024512	0.23	0.821
_cons	-11.40255	-4.15	0.000

Source: Regression output from STATA 14

An examination of the regression result shows that a positive relationship exists between EPS and risk asset management (RAM) given its slope coefficient of 14.06373. The relationship is also observed to be statistically significant at 5% significance level. This implies that a unit increase in ARM will increase EPS by about 14.06%. The result is line with Mansyur (2017), but in contrast to Aruwa and Musa (2014), Lake (2013) who both found an inverse relationship between EPS and risk asset management. Similarly, the regression results further showed that there is a negative and significant relationship between customers deposit(CD) and earnings per share given its slope coefficient of -19.88238 and a P-value of 0.003,indicating that a unit increase in the CD will lead to a decrease in EPS by about 19.88%, ceteris paribus. The finding confirms those of Hussain et al. (2016) and Soyemi et al. (2014).

On the overall, the regression result produced an adjusted R^2 of 0.3634. This implies that about 36% of the total variation in real EPS is explained by the explanatory variable (ARM, CD and controls IRR, LR, LEV, TA, and AGE).

5. Conclusion and Recommendations

The study examined how asset and liability risk assessment could influence share performance of listed deposit money banks in Nigeria. The findings revealed a positive relationship exists between EPS and asset risk management (ARM). Similarly, the regression results further showed that there is a negative and significant relationship between customers deposit (CD) and earnings per share, indicating that a unit increase in the CD will lead to a decrease in EPS. Based on the findings, the study recommends that listed deposit money banks in Nigeria should mobilize deposits from customers and increased loan with portfolio management of asset and liabilities for risk diversification in order to generate higher profitability. Also deposit money banks should increase loans to customers to boost to boost their net income since loan to customer attract interest.

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