

Relationship Between Investment Liquidity and Deposit Money Banks Performance in Nigeria

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Abstract

The paper examined the effect of relationship between investment liquidity and deposit money banks performance in Nigeria. Secondary data were collected for the study. The data were analyzed using multiple regression analysis. Results show that Liquidity has positive and significant effect on banks' profitability ratios and that liquidity also has positive and significant effect on Return on Capital Employed. The study recommends that there is need to replace being practiced in the advance economies of the world. Investing on human capital may be beyond just employees but also frequently creating an interactive forum where bank clients could be sensitized on a variety of activities they indulge in that are capable of hindering effective liquidity management, need to invest on human capital by banks as it offers the highest returns in terms of increasing performance and it also enhances the level of competence of the employee and that the regulatory authorities should put in place appropriate policy with compliance measures to check high volume cash transaction and cash hoarding prevalent in the economy.

Keywords: *Liquidity, Financial Performance, Profitability, Return on Assets, Banks, Nigeria*

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Background to the Study

Investment in its nature brings about wealth if well managed by the company management team, and this will bring about such company having the financial liquidity which will enable them to meet their financial obligation as at when due and also help them to perform their financial obligations, they are able to do this through the assistance of deposit money banks. Deposit Money Banks performance stability is a function of high level of profitability of their activities, and also sufficient liquidity which indicates that banks have a balanced structure of assets and liabilities (Klaas & Vagizova, 2014). Financial stability of the banks in medium term can be reduced because of insufficient quality of capital, assets and liabilities, associated with aggression of their credit policy that increases credit risk, and as a result, probability of losses. Substandard of credit portfolio indicates that unqualified management approaches of a credit portfolio are used with insufficient capitalization of some of banks in Nigeria. The size of capital indicates ability of bank to maintain stability during difficulties, dependence on interbank credit market and significant share of demand liabilities in structure of bank liabilities (Klaas & Vagizova, 2014)

A financial institution's liquidity is the amount of cash or liquid assets it has easily available; whereas performance of a company measures its improvements over its functioning years. Putting into account the simple substitutability among cash and wide scope of budgetary resources, additionally called close funds, in current occasions, the amount of cash gets an optional job and the liquidity of the economy expects huger situation in the financial evaluation (Athanasoglou, Brissimis & Delis, 2008). Along these lines, the conventional financial arrangement which impact just the all-out volume of cash gracefully and not the complete volume of liquidity in the economy (which is substantially more than the cash flexibly) is lacking and inadequate on the grounds that total spending is affected not just by the money and the bank stores yet additionally by the close cash resources as made by the non-bank budgetary organizations. Since the new submission holds that non-bank budgetary establishments can baffle the ordinary financial strategy by changing the speed (liquidity) of cash, a proper meaning of cash must incorporate the liabilities of non-bank money related foundations (Restoy, 2017). In an organized financial system, there are major components that feature paramount for the survival of the system. This is also applicable to the financial system. The banking institution had contributed significantly to the effectiveness of the entire financial system as they offer an efficient institutional mechanism through which resources can be mobilized and channeled from less essential uses to more productive investments (Wilner, 2000).

The financial institutions have proved to be an effective channel between savers and borrowers. Among the financial institutions that make themselves available for this all-important role are merchant banks, savings banks, the Central bank, development banks and commercial banks. Commercial banks have overtime become very important institutions in the financial system as they function as retail banking units facilitating the transfer of financial assets that are well desired from some part of the public (fund lenders) into other financial assets which are more widely preferred by greater part of the public (fund seekers). Based on the financial intermediation role, the deposit money banks reactivate the idle funds borrowed from the lenders

by investing such funds in different classes of portfolios. Such business activity of the bank is not without problems since the deposits from these fund savers which have been invested by the banks for profit maximization, can be recalled or demanded when the latter is not in position to meet their financial obligations. Considering the public loss of confidence as a result of bank distress which has bedeviled the financial sector in the last decade; and the intensity of competition in the banking sector due to the emergence of large number of new banks, every commercial bank should ensure that it operates on profit and at the same time meets the financial demands of its depositors by maintaining adequate liquidity. The problem then becomes how to select or identify the optimum point or the level at which a commercial bank can maintain its assets in order to optimize these two objectives since each of the liquidity has a different effect on the level of profitability. This problem becomes more pronounced as good numbers of commercial banks are engrossed with profit maximization and as such they tend to neglect the importance of liquidity management. However, the profit maximization becomes a myth as the resulted liquidity can lead to both technical and legal insolvency with the consequence of low patronage, deposit flight, erosion of asset base.

This research seeks to investigate other problems such as excess liquidity and the problem of establishing the proportion of the deposits that will be demanded by the depositors at any particular time. There is also the problem of satisfying the two publics of the commercial banks simultaneously. While the accurate selection of the factors that influence the level of bank liquidity also poses some problems. All these problems are what the study intends to consider, find solutions and make recommendations where necessary.

The main objective of this study is to investigate the relationship between investment liquidity and deposit money banks performance in Nigeria. While, the specific objectives are to:

- i. Evaluate the relationship between capital market investments and performance of deposits money banks in Nigeria.
- ii. Evaluate the relationship between money market investment and performance of deposits money banks in Nigeria.

Literature Review

Conceptual Review

Liquidity as a proxy of financial soundness indicators

In this context financial soundness indicators (FSIs) are indicators accumulated to monitor the fitness and reliability of financial organizations and markets, and of their business and family counterparts (Babihuga, 2007). The objective of the set of financial stability indicators is to offer users with a coarse knowledge of the reliability of the financial segment as a whole. The essential gauges are based on the CAMELS (Capital adequacy, Asset quality, Management soundness, Earnings, Liquidity, Sensitivity to market risk) rating system, which is generally used in controlling outline for the valuation of individual banks' financial reliability. The liquidity gauges' measure banks' resilience to cash flow tremors. Foreign currency exposure is a gauge measuring a bank's risk exposure with respect to movements in asset prices on monetary markets (Sundararajan et al. 2002). The key goal of the FSIs is worldwide comparability, which should be certain by the fact that all nations issuing FSIs will use the

same methodology, Liquidity indicators designates the deposit customer's ability to meet unexpected demand for cash while sensitivity to market risk measures the ability of capital to cushion exchange rate instability. Financial soundness indicators (FSIs) offer vision into the financial fitness and reliability of a country's financial organizations as well as business and family sectors. It supports financial and monetary stability examination. This study measures financial soundness indicators using non-performing loans to total loans, nonperforming loans net of provisions to capital, liquid assets to total assets, capital to total assets and liquid assets to short term liabilities.

Liquid Assets to Total Assets

The liquid assets to total assets as an indicator are to evaluate the liquidity obtainable to meet anticipated and unanticipated demands for cash. Raw cash assets to total assets (liquid asset ratio), is computed by using the central measure of liquid assets as the numerator and total assets as the denominator. The level of liquidity specifies the aptitude of the deposit-taking sector to endure tremors to their balance sheets. In this context, on the one hand the liquidity is connected to an improved capacity of yielding loans, and on the other hand, a trade-off may exist between the loans volume and the liquidity volume (Albulescu, 2015). Liquid assets is the fundamental liquid assets including cash, checks for clearing, amounts due from the Central Bank, amounts due from banks, and asset with outstanding maturity of no more than three months, can be rehabilitated into cash rapidly and with negligible influence to the value received.

Corporate Performance

The theory of performance is a contentious issue in management and social sciences mainly because of its multidimensional meanings (Ishaya, et al., 2014). The profitability of a company measures its improvements over its functioning years. From the extant literature, researchers have applied several surrogates as metric measures of financial performance of banks. Such metrics according to Buba (2010) include a combination of financial ratios analysis, benchmarking and measuring of performance against budget. Others include return on assets, returns on equity, net interest margin, and host of others. However, this study employed Return on equity (ROE) as a metric of financial performance.

Return on Equity (ROE)

Return on equity is also use to measure corporate financial performance in this study. It details how well a company has used the capital from its shareholders to generate profits. Investors use ROE as a measure of how well a company is using its money. Many researched have used it in their study (Onuorah, et. A.l 2016, Fenty & Rusdiah 2015, Javed, et. al. 2014, Olaniyi, et. al. 2015, Aymen 2013, Akeem, et. al. 2014). In this study, it is calculated as profit after tax divided by shareholder's equity. Onuorah, et. Al. (2016) is of the view that return on equity (ROE) has not been a major player in the determinant of capital structure performance of firms in Nigeria. Salim and Yadav (2012) see no significant relationship between capital structure and ROE. The interest of shareholders in any corporate body is how their capital employed yield profit to which in turn determine the amount to be paid as dividend to shareholders. Although, the decision of dividend is at the discretion of management to exercise, most times there

maybe profit but the management may decide to plough it back to the business as a source of internal equity called retained earnings to boost the future operation of the firm. Hasan et al. (2014) observed that there is no statistically significant relation exists between capital structure and firm's performance as measured by ROE. Ayad, et al. (2015) opined that this type performance ratio measures the financial performance and the managerial efficiency of firm and the higher the ratio, the more efficient is the performance of profitability of a firm.

Money Market Instruments

These are short terms financial instruments, and they are debt financial securities that generally give the owner the unconditional right to receive a stated, fixed sum of money on a specified date. These instruments usually are traded, at a discount, in organized markets; the discount is dependent upon the interest rate and the time remaining to maturity (Ayad, et al. (2015)

Capital Market Instruments

The capital market, as it is known, is that segment of the financial market that deals with the effective channeling of medium and long-term funds from the surplus to the deficit unit of a given economy. The process of transfer of funds is done through instruments, which are documents (or certificates), showing evidence of investments, Bowa (2015).

Theoretical Framework

Radcliff Liquidity Theory of Money

The theory explains that the connection among cash and the volume of monetary movement (or the overall value level) cannot be clarified either by the old-style amount hypothesis or by the Keynesian pay hypothesis, however by the pretended by the entire structure of fluid resources which can fill in as a substitute for cash. It isn't the amount of cash in the economy; however, the liquidity of the economy, that is more noteworthy in the financial examination. The meaning of liquidity isn't restricted to the measure of cash in presence. Liquidity comprises of the measure of cash individuals figure they can get hold of whether by receipt of salary, by removal of capital resources, or by acquiring. Total spending in the economy is impacted not by the cash and the bank stores, but rather likewise by the close cash resources as made by the non-bank monetary organizations. The non-bank monetary organizations through their close cash resources increment the liquidity in the economy. Increment in liquidity causes an ascent in the speed of cash which, thus, grows general business action. The conventional financial approach which impacts just the complete volume of cash gracefully and not the absolute volume of liquidity in economy is deficient and incapable. Non-bank go-betweens are to be treated in the very same manner as business banks if the measure of loaning in the economy (and subsequently the liquidity and financial movement) is to be controlled; the money related power must have direct authority over the non-bank go-betweens.

Empirical Review

Empirical studies have showed different outcomes of the association between liquidity and bank performance. For instance, Akosah, Loloh, Lawson and Kumah (2018) computed the aggregate financial stability index (AFSI) for Ghana to measure the performance of the

financial organization since the acceptance of inflation directing in 2017. Their metric therefore offers a more powerful measure of financial stability in Ghana and very significant for financial policymaking conclusion. Okoli, Ifurueze and Nweze (2020) examined the relationship between liquidity and performance of deposits money banks in Nigeria. Ten (10) banks were selected from the Nigeria Stock Exchange (NSE). The data used were secondary data and were drawn from 2009 to 2018. The panel data used were sourced from the bank's annual report and Nigerian Stock Exchange fact book. The panel data collected was analyzed using Ordinary Least Square Method. The results show that liquid assets to total assets and liquid assets to short-term liabilities have insignificant relationship with performance of deposits money banks in Nigeria. The study, therefore among others recommends that the Regulatory agency such as the Central Bank of Nigeria and the Nigerian Deposit Insurance Corporation should formulate rules (fiscal policy) that will enable the deposit-taking sector to withstand unexpected financial shocks and also improve their performance.

Fapohunda & Eragbhe (2017) empirically examined the influence of regulation, financial Progress and financial soundness on bank performance in Nigeria for the period 1985-2015. The research uses two regulatory gauges (cash reserve ratio and monetary policy rate) as measures of regulation; the ratio of broad money supply to Gross Domestic Product (M2/GDP) for financial progress; bank nonperforming loans to total gross loans for financial soundness while bank performance was proxy by earnings of bank after tax. It accepted a multivariate OLS analysis for the guesstimate process, co-integration scrutiny for long-run equilibrium connection and the associated error correction model to ascertain the short-run effect of the variables. The answers of the research are that cash reserve ratio, monetary policy rate, financial progresses and financial soundness mostly influence on bank performance both in the short run and long-run. It is endorsing that regulation and direction of banks should be reinforced in other to advance the performance of banks in Nigeria. Also, we endorse that the on-going improvements in the banking system should be strengthened so as to ensure safe, sound and steady banking system that is a sine qua non for long run financial performance of banks in Nigeria. Albulescu (2015) inspected the stimulus of financial soundness indicators on the banks' profitability, at the macrolevel, in a set of developing republics. Dissimilar from proceeding studies which evaluate the influence of the banking sector features and of the macroeconomic setting on the profitability. The study emphasizes on the internal situations of banks, using the International Monetary Fund monthly data for the period 2005-2013 and a panel data method, and learn that non-performing loans have an adverse influence on banks' profitability under the fixed effect model. While the level of liquidness has a mixed stimulus, the capitalization and the interest rate margins definitely touch the banks' profitability. As predictable, the non-interest expenses damagingly influence the profitability. The outcomes show robust either if we use the return on assets or the return on equity pointer to measure the level of profitability.

Adegbola, Gabriel, Tony, Babatunde & Adebajo (2019) examined the performance of selected quoted deposit banks of Nigeria and liquidity management. Secondary data used was extracted from the financial statements of 15 money deposit banks out of population of 17 deposit money banks on the Nigerian Stock Exchange (NSE) for 2012–2017 (six years). The

descriptive research design was used. The data collected was analyzed using ordinary least square method (OLS). Liquidity management was measured using capital ratio (CTR), current ratio (CR) and cash ratio (CSR), while performance was measured using return on assets (ROA). Based on the results of the study, liquidity management proxied by capital ratio, current ratio and cash ratio and performance of the firm proxied by return on assets are positively related. The result shows that liquidity management is an essential factor in business operations and consequently leads to business profitability. Hence proper liquidity management helps solve the agency theory problem of agency costs that arise when control of companies is separated from the ownership, whereby managers are able to employ the firm's resources for personal gains instead of maximizing the value of the firm or the shareholders' wealth. The value of the firm and the shareholders' wealth can be maximized through the firm's profitability via effective and efficient liquidity management. Onyekwele, Chukwuani & Onyeka (2018) appraised effect of liquidity on financial performance of deposit money banks in Nigeria. A sample of five (5) banks was used for the study. Secondary data were collected from the firms for ten years' period, 2007 - 2016. The data were analyzed using multiple regression analysis. Results show that Liquidity has positive and significant effect on banks' profitability ratios and that liquidity also has positive and significant effect on Return on Capital Employed. The study recommends that there is need to replace being practiced in the advance economies of the world. Investing on human capital may be beyond just employees but also frequently creating an interactive forum where bank clients could be sensitized on a variety of activities they indulge in that are capable of hindering effective liquidity management, need to invest on human capital by banks as it offers the highest returns in terms of increasing performance and it also enhances the level of competence of the employee and that the regulatory authorities should put in place appropriate policy with compliance measures to check high volume cash transaction and cash hoarding prevalent in the economy. The Central Bank of Nigeria must critically review and follow-up or monitor the effectiveness of liquidity policy tools in banks and where necessary, appropriate sanctions placed on erring banks to ensure effective implementation of these policy tools in an attempt to achieve desired liquidity level.

Kremmling (2011) required to find out if regulating financial organizations during financial disaster will affect bank performance by taking into account, deposit insurance schemes, capital regulation and activity limitations. The outcomes presented that capital requirements damagingly influenced the level and change in loan loss provisions during financial disaster and as such, banks with high or low capital ratios still yielded to bank runs during financial disaster. Action limitations elevated the danger profile of banks severely during financial disaster; this is unavoidable as banks with frequent activities from non-financial companies will try to gain returns from loan provisions which will be problematic to receive during financial catastrophe. Thus, Kremmling (2011) declared that banks difficulty can have adverse effect on regulation, which directly touches performance and stability. Cihak and Schaeck (2010) inspected how financial soundness indicators can offer an accurate indication for the performance of detecting systemic banking susceptibilities. They used an example of 100 countries, the research discloses that a high capital of risk weighted assets and a high return on equity drops the probability of a systemic banking disaster happening. It was exposed that an

upsurge in non-performing loans to total loans is revealing of an imminent banking chaos. A low capital adequacy ratio and a high ratio of non-performing loans to total loans decrease the existence time of the banking system but the influence is not statistically significant. Babihuga (2007) inspected the association between nominated macroeconomic variables and financial indicators for 96 nations covering the period 1998 – 2005. The study covers key macroeconomic indicators and capital adequacy, asset quality and profitability. The study exposed a negative association with capital adequacy and non-performing loans and an optimistic association with profitability.

Berger and Deyoung (1997) inspected the association between loan quality, cost efficiency and bank capital. They stated a negative association between cost efficiency and nonperforming loans. Berger (1995) establishes that US banks with comparatively high capital adequacy were more lucrative than other banks with inferior capital ratio. Ikpefan (2012) investigated the impact of shareholders' fund on bank performance in the Nigerian deposit money banks for the period spanning 1986 and 2006. The formulated models were estimated using ordinary least square regression method. The study identified a positive relationship between shareholders' fund and bank loan. The researcher also found that there is significant relationship between shareholders' fund and banks' liquidity, bank deposits, and bank loans. The study confirmed that the efficiency of management measured by operating expenses is negatively related to return on capital. The implication of the study, among others, is that adequate shareholders fund can serve as a veritable stimulant in strengthening the performance of Nigeria deposit money banks and also heighten the confidence of customers especially in this era of global economic melt-down that has taken its toll in the Nigerian financial system. Kayode, Obamuyi and Owoputi (2015) investigated the impact of credit risk on banks' performance in Nigeria. A panel estimation of six banks from 2000 to 2013 was done using the random effect model framework. Their findings showed that credit risk is negatively and significantly related to bank performance, measured by return on assets (ROA). This suggests that an increased exposure to credit risk reduces bank profitability. They also found that total loan has a positive and significant impact on bank performance. Therefore, to stem the cyclical nature of non-performing loans and increase their profits, the banks were advised to adopt an aggressive deposit mobilization to increase credit availability and develop a reliable credit risk management strategy with adequate punishment for loan payment defaults.

According to Nawaz and Munir (2012) evaluated the impact of credit risk on the profitability of Nigerian banks. Financial ratios as measures of bank performance and credit risk were the data collected from secondary sources mainly the annual reports and accounts of sampled banks from 2004 - 2008. Descriptive, correlation and regression techniques were used in the analysis. The findings revealed that credit risk management has a significant impact on the profitability of Nigeria banks. Therefore, management needs to be cautious in setting up a credit policy that might not negatively affect profitability and also that they need to know how credit policy affects the operation of their banks to ensure judicious utilization of depositors funds. Kargi (2011) investigated the impact of credit risk on the profitability of Nigerian banks, using data on six selected banks for the periods of 2004 to 2008. The ratio of non-performing loans to total loans and advances and the ratio of total loans and advances to total deposit were

used as indicators of credit risk while return on asset indicates performance. From their findings, it is established that banks profitability is inversely influenced by the levels of loans and advances, non-performing loans and deposits, thereby exposing the banks to great risk of illiquidity and distress. Also, Dietrich and Wanzenried (2011) in their study approximating credit risk by the loan loss provisions over total loans ratio, suggest a negative relationship between credit risk and banks' profitability. Kaanya and Pastory (2013) studied the relationship between the credit risk and bank performance as measured by return on asset. Regression model was used to develop the relationship between the indicators of credit risk and bank performance, the credit risk indicators have produced negative correlation which indicate the higher the credit risk the lower the bank performance. Regression model was statistically fit producing R square and adjusted R square of 70% and 64% respectively. The study recommended that the banks studied should increase the capital reserve to protect the bank for the future losses and to increase bank credit risk management techniques.

Bowa (2015) examined the effect of bank capitalization on liquidity of commercial banks in Kenya. The regression results showed that size of bank and asset quality have an influence on banks liquidity ratio. However, it was identified that bank size had the highest influence on banks liquidity ratio. This therefore shows that the current held assets by banks that is both fixed and current assets determines the overall stability of banks to a great extent. The results suggested that larger banks essentially enjoy economies of scale which in turn positively influences their profitability. The study further asserts that holding assets in highly liquid form tends actually increases income levels. On the contrary, banks with poor asset quality often suffer from high credit risks leading to less profitability. Banks size therefore determines the banks' ability to remain profitable and sustainable for the foreseeable future. In essence, if a bank cannot be able to utilize its held assets to generate revenues, then it cannot be able to remain stable in the long run as liabilities and other obligations will have to be met as and when they mature. Pasiouras and Kosmidou (2007) shows that banks with higher equity to asset ratios will normally have lower needs for external funding and therefore higher profitability. According to them the performance of domestic and foreign commercial banks in 15 EU countries during 1995-2001 were affected by bank specific characteristics. Their findings suggest that capital adequacy, credit risk, bank size and liquidity risk have a significant relationship with a bank's profitability, although their impact and relations are not always uniform for domestic and foreign banks. These mixed and conflicting results are not limited only to this research.

Various studies also suggest that banks with higher levels of capital perform better than their under-capitalized peers. Staikouras and Wood (2004) claim that there exists a positive link between greater equity and profitability among EU banks. Abreu and Mendes (2001) also trace a positive impact of the equity level on profitability. Goddard et al., (2004) support a prior finding of a positive relationship between the capital/asset ratio and a bank's earnings. However, the direction of the relationship between bank capital and bank profitability cannot be unanimously predicted in advance. In Nigeria, however, there is scanty literature available on capital adequacy with heavy emphasis on CBN's prudential guidelines. Olalekan and Adeyinka (2013) attempted to investigate the impact of capital adequacy on Nigerian banks'

performance. They examined the effect of capital adequacy on profitability of deposit taking banks in Nigeria by assessing the effect of capital adequacy of both foreign and domestic banks in the country and their profitability. They collected primary data by a questionnaire involving a sample size of 518. The questionnaire was distributed to staff members of banks with a response rate of 76 per cent. Their findings revealed a non-significant relationship between capital adequacy and a bank's profitability. This implies that for deposit taking banks in Nigeria, capital adequacy did not play a key role in determining profitability. Although it is generally agreed that CBN's prudential guidelines were influenced greatly by the Basel Accord, so far only Ezike and Oke (2013) have investigated the impact of the adoption of capital adequacy standards on the performance of Nigerian banks. Their study involved the use of the ordinary least squares (OLS) estimation technique for examining and determining the effect of independent variables – loans and advances (LA), shareholders' funds, total assets and customer deposits – on dependent variables – earnings per share (EPS) and profit after tax (PAT). The results of their analysis showed that capital adequacy standards exerted a major influence on a bank's performance. In addition, the impact of the Nigerian monetary authority on new capital requirements was complemented by the adoption of the Basel Accord Framework.

This paper work builds on these studies by examining relationship between investment liquidity as a proxy of financial soundness indicators and performance of deposits money banks in Nigeria. Further, Nigerian secondary environmental data were used to smooth out the methodological constraints of the studies mentioned earlier.

Method of the Study

Research Design

The paper adopted ex post facto research design. The reason for this is because the data used were secondary data.

Model Specification

This study employs return on equity (ROE) as the dependent variable, which measures banks performance. However, there is no unique measurement of corporate financial performance in extant literature. ROE was chosen because it is to an extent common and important accounting – based and widely accepted measures of financial performance. The independent variables in this study are liquid assets to total assets (LATA) and liquid assets to short-term liabilities (LASTL) as they serve as the proxies for liquidity. Specifically, the study adopted the model of Albulescu (2015) with some modifications to suit this study. The models of Albulescu (2015) are:

$$ROE_{it} = f(NPLGL_{it}, RCRWA_{it}, LATA_{it}, NIEGI_{it}, IMGI_{it}, eit) \dots \dots \dots I$$

Where, ROE = Return on Equity

NPLGL = Non-performing Loans to Total Gross Loans

RCRWA = Regulatory Capital to Risk-Weighted Assets

LATA = Liquid assets to total assets

NIEGI = Non-interest Expenses to Gross Income
IMGI = Interest Margin to Gross Income

From the above, the model for this study is as follows:

$$\text{ROE} = f(\text{CAPINT}, \text{MNINT}, \mu t) \dots \dots \dots \text{II}$$
$$\text{ROE} = \beta_0 + \beta_1 \text{CAPINT} + \beta_2 \text{MNINT} + \mu t \dots \dots \dots \text{III}$$

Where:

- ROE = Return on Equity
- CAPINT = Capital Market Investment
- MNINT = Money Market Investment
- β_0 = Constant term (intercept)
- μt = Error term
- β_1-2 = Coefficient of Independent

Method of Data Analysis

The secondary data collected were analyzed using descriptive statistics and correlation matrix. The descriptive statistics were used to evaluate the features of the data such as Mean, maximum, minimum, and standard deviation and also checks for normality of the data. The correlation analysis was used to evaluate the association between the variables and to check for multi-collinearity. The ordinary regression analysis was used to evaluate the influence of the independent variables on the dependent variable. It reveals the degree of influence and effect the independent variables has on the dependent variable.

Sources of Data

The secondary data used for this study were sourced and obtained from the internet, annual financial reports of the selected banks, Nigerian Stock Exchange, over a period of ten years spanning 2011 to 2021.

Results

Data Analysis and Discuss of Findings

Table 1: OLS Regression Results

Dependent Variable: ROE

Method: Least Squares

Date: 12/01/23 Time: 10:28

Sample: 2012 2022

Included observations: 10

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.209513	0.120706	-1.735732	0.1208
CAPINV	0.006360	0.002886	2.203357	0.0587
MMINV	1.236369	0.936163	1.320678	0.2231
R-squared	0.761953	Mean dependent var		0.161208
Adjusted R-squared	0.672686	S.D. dependent var		0.148410
S.E. of regression	0.084907	Akaike info criterion		-1.833308
Sum squared resid	0.057674	Schwarz criterion		-1.671673
Log likelihood	14.99985	Hannan-Quinn criter.		-1.893152
F-statistic	8.535617	Durbin-Watson stat		1.425603
Prob(F-statistic)	0.007108			

Source: Author's computation, 2023

From Table 1, Durbin-Watson Statistics value of 1.43 is less than the benchmark of 2, although greater than the R^2 value of 0.76. This is an indication of the presence of positive serial correlation which renders the estimated model result biased and hence, prevent meaningful economic and standard inference from been made. The auto-correlation problem has to be corrected to avoid bias of OLS result. Therefore, the corrected estimates are depicted in Table 2.

Table 2: Newey-West HAC-corrected OLS Estimates

Dependent Variable: ROE

Method: Least Squares

Date: 12/01/23 Time: 10:30

Sample: 2012 2022

Included observations: 10

HAC standard errors & covariance (Bartlett kernel, Newey-West fixed bandwidth = 3.0000)

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.209513	0.137380	-1.525064	0.1658
CRR	-0.008333	0.032863	-0.253555	0.8062
CAPINV	0.006360	0.003559	1.786973	0.1118
MMINV	1.236369	1.212057	1.020058	0.3376
R-squared	0.761953	Mean dependent var	0.161208	
Adjusted R-squared	0.672686	S.D. dependent var	0.148410	
S.E. of regression	0.084907	Akaike info criterion	-1.833308	
Sum squared resid	0.057674	Schwarz criterion	-1.671673	
Log likelihood	14.99985	Hannan-Quinn criter.	-1.893152	
F-statistic	8.535617	Durbin-Watson stat	1.425603	
Prob(F-statistic)	0.007108	Wald F-statistic	15.21041	
Prob(Wald statistic)	F-0.001143			

Source: Author's computation, 2023

From the above multiple linear regression results, the regression equation predicting the linear relationship between the return on equities of Nigerian banks(ROE) as a measure of deposit money banks performance and value of investment securities which is proxied with value of capital market investments securities(CAPINV)and value of money market investment securities (MMINV) is stated as:

$$ROE = -0.2095 + 0.0064CAPINV + 1.2364MMINV$$

From the estimated regression model above, it shows that both capital market investments securities (CAPINV) and value of money market investment securities (MMINV) maintain positive relationship with the Return on equities of Nigerian banks (ROE). Therefore, since MMINV maintain positive relationships with ROE, it follows that, 1% increase in MMINV will bring about 123% increase in the average or mean value of return on equities of Nigerian banks and vice versa; also, 1% increase in capital market investments securities (CAPINV) will culminate in about 0.6% increase in ROE. Thus, CAPINV and MMINV conform to apriori expectation in terms of relationship with banks' performance. This is because investment of

the banks in either money market or capital market is for the purpose of earning revenue in form of returns on those investments which can come in form of capital appreciation, interest incomes as well as dividend incomes. All these forms of investment rewards will bring about increase in the net profits of the banks, thereby leading to increase in the returns on equities of the banks. The intercept of the model which is -0.2.095 represents the value of the performance of the banks (ROE) in billion naira should there be no change in value of investment securities of the banks. The multiple correlations co-efficient (R) which is the square root of R^2 is 0.87, and this indicates a strong linear positive correlation relationship between the value of investment securities (CAPINV and MMINV) and the dependent variable which is the banks' performance, proxy with Return on equities of Nigerian banks (ROE) since the value approaches 1. Also, the coefficient of determination (R^2) of 0.76 indicates that about 76% of the variation in the dependent variable (ROE) can be explained by the independent variables while the remaining 24% is explained by other factors not captured in the model but represented by stochastic term. This figure increases the goodness of fit of the fitted regression model to the set of time series data used in this study. The R^2 as adjusted for the degree of freedom (n-k) associated with the sums of squares entering into the specified model is 0.67 which is close to R^2 value, which connotes that the model is unaffected by the addition or subtraction of variables from the estimated model. Furthermore, the standard error of 0.0849 is the standard deviation of the sampling distribution of the OLS estimator which measures the accuracy of the estimates of the model and is relatively low as expected. T-ratios determines how large the coefficients will vary if carried out on repeated sampling. All the explanatory variables i.e., MMINV and CAPINV have very low t-ratios. It therefore means that they will all have very little variation in repeated sampling of the observations than other explanatory variables. F-stat of 8.53 with probability of 0.0000 as depicted on Table 2.0 reveals that jointly, the included independent variables consistently and significantly explain variation in the dependent variable; that is, the percentage of variation in the dependent variable, accounted for by the explanatory variables is real.

Test of Hypotheses

The decision rule for testing hypothesis is that Null Hypothesis (H_0) should be rejected and Alternate Hypothesis (H_1) accepted if P-value is less than 0.05 and vice versa.

H_{0_1} : Capital market investments securities has no significant effect on return on equities of Nigerian banks

H_{1_1} : Capital market investments securities has significant effect on return on equities of Nigerian banks

Here, p-value of 0.1118 is more than the critical value of 0.05; thus, we do not have enough reason to accept the H_{0_1} , hence, capital market investments securities have no significant positive effect on the Nigerian banks' performance. Notwithstanding of the foregoing, the effect of capital market investments securities on the bank performance has been found positive in this study. This means that returns on investment made in the capital market securities helps to improve the profitability of the banks;

H0₃: Value of money market investment securities has no significant effect on the return on equities of Nigerian banks

H1₃: Value of money market investment securities has significant effect on the return on equities of Nigerian banks;

Also in this case, value of money market investment securities has p-value of 0.3376 which is obviously more than the critical value of 0.05; thus, we do not have enough reason to reject the H0₃. Hence, value of money market investment securities has no significant positive effect on the Nigerian banks' performance. By this result, it can be inferred the incomes made by the banks from money market investment weakly facilitated the profitability stance of the Nigerian banks.

Conclusion and Recommendations

Conclusion

Based on the result, the study concluded that the regression result in ROE Model shows a positive and statistically insignificant relation between liquid assets to total assets and performance of deposits money banks in Nigeria at 5% level of significant. This implies that liquid assets to total assets positively influence the performance of deposits money banks in Nigeria. Whereas liquid assets to short-term liabilities also have insignificant relationship with performance (ROE) of deposits money banks in Nigeria. The negative effect is also statistically insignificant at 5% level of significant. These therefore conclude that the results prove robust when use the return on assets and return on equity as indicator to measure the level of performance. Our metric also provides a more powerful gauge of financial stability in Nigeria and very relevant for monetary policymaking decision

Recommendations

The paper, therefore recommends

1. That capital market investment has negative insignificant relationship with performance of deposits money banks in Nigeria. This indicator is to analyze the liquidity available to meet expected and unexpected demands for cash.
2. Money market investment has negative insignificant relationship with performance of deposits money banks in Nigeria. This indicator is also to analyze the liquidity available to meet expected and unexpected demands for cash. The Regulatory agency in Nigeria should also formulate laws (fiscal policy) that will enable the deposit-taking sector to withstand unexpected financial shocks and also improve their performance.

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