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EFFECT OF FINANCIAL SOUNDNESS ON BUSINESS EFFICIENCY OF LISTED BANKS IN NIGERIA

[1]Anisi, Emmanuel Chukwuka, [2]Alphonsus S. Anichebe and [3]Innocent C. Nnubia

[1,2]Department of Accountancy, Chukwuemeka Odumegwu Ojukwu University, Anambra State.
[3]Department of Accountancy, Nnamdi Azikiwe University Anambra State.
Email: anisichukwukaemmanuel@gmail.com, as.anichebe@coou.edu.ng, ic.nnubia@unizik.edu.ng

ABSTRACT

The study examined the relationship between financial soundness and business efficiency of listed banks in Nigeria. The specific objectives of the study were to: ascertain the effect of liquid assets ration operating expense ratio of listed banks; and examine the effect of capital ratio on operating expense ratio of listed banks in Nigeria. Ten (10) banks were selected from the banks listed on the Nigerian Exchange Limited (NEL). The data used were secondary data and were drawn from the selected bank's annual report from 2012 to 2021 as are contained in the Nigerian Exchange fact book. The data collected were analysed using Ordinary Least Square Method. The results show that liquid assets ration and capital adequacy ratio have no significant effect on operating expense ratio of listed banks in Nigeria. The study recommends among others that, the regulatory agency such as the Central Bank of Nigeria should also formulate fiscal policy that will enable the listed banks to withstand unexpected financial shocks and also improve their performance; since this indicator analyzed the liquidity available to meet expected and unexpected demands for cash.

Keywords*: Financial Soundness, Business Efficiency, Capital Adequacy Ratio, Liquid Assets Ratio.*

INTRODUCTION

The Soundness of banks is given by high benefit of their exercises, and furthermore adequate liquidity which demonstrates that banks has a fair structure of advantages 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. Poor quality of credit portfolio indicating that unqualified management approaches of a credit portfolio are used with insufficient capitalization of some of banks. But the size of capital defines ability of bank to maintain stability during the crisis periods, dependence on interbank credit market and significant share of demand liabilities in structure of bank liabilities (Klaas &Vagizova, 2014).

Bank stability is mostly measured in a negative way by considering individual or systemic distress broadly defined as periods where the banking system is not capable of fulfilling its intermediation function for the economy effectively anymore. Koch and MacDonald (2014) define banking distress as systemic if non-performing assets reach at least 10% of total assets at the peak of the crisis; the fiscal cost of the rescue operations. The financial soundness indicators (FSIs) were introduced following the financial crises of the 1990s to give nation pointers identifying with the existing financial health and reliability of financial organizations, as well as to that of the commercial and household segments (Restoy, 2017). The fundamental pointers are based on the CAMELS (Capital adequacy, Asset quality, Management soundness, Earnings, Liquidity, Sensitivity to market risk rating system), which is a generally used managerial structure for the valuation of individual banks' financial reliability (Athanasoglou, Brissimis& Delis, 2008).

The efficiency of commercial banks can be affected by internal and external factors. These factors can be classified into bank specific (internal) and macroeconomic variables. The internal factors are individual bank characteristics which affect the bank's efficiency. These factors are basically influenced by the internal decisions of management and board (Almazari, 2014). The external factors are sector wide or country wide factors which are beyond the control of the company and affect the profitability or efficiency of banks (Azam&Siddiqoui, 2012).
Over the years, majority of the scholarly work documents the role of internal issues, such as non-performing loans (Salas &Saurina, 2002; Louzis et al., 2012), loan loss provisioning (Bikker&Metzemakers, 2005; Bouvatier &Lepetit, 2008), capital (Berger, 1995; Jacques &Nigro, 1997) or interest rate risk (Hmweck &Kilcollin, 1984).

The empirical works done so far focuses on determinants of diverse groups. Numerous studies measure the stimulus of the macroeconomic

atmosphere on the banks' performance. While few works measure the individual banks' performance to diverse macro-indicators (Demirgüç-Kunt& Huizinga, 1999; Pasiouras &Kosmidou, 2007; Athanasoglou et al., 2008), other studies engage collective bank data to test for the effect of the financial setting (Albertazzi &Gambacorta, 2009).

However, there are scanty literatures on the banking sectors, with few exceptions (Yildirim&Philippatos, 2007; Andrieş, Cocris&Ursu, 2012; Mirzaei et al., 2013; Lee & Hsieh, 2013). Based on this, we try to ascertain the effect of financial soundness indicators have on business efficiency of listed banks in a developing country such as Nigeria. In addition, we consider CAMELS (Capital Adequacy, Assets Quality, Management, Earnings, Liquidity and Sensitivity to Market Risk) in the choice of our variables.

Objectives of the Study

The main objective of this study is to investigate the effect of financial soundness on Business efficiency of listed banks in Nigeria. The specific objectives were to:

1. Ascertain the effect of liquid assets ration operating expense ratio of listed banks in Nigeria.
2. Determine the effect of capital ratio on operating expense ratio of listed banks in Nigeria.

Research Hypotheses

In order to address the issue raised above, the following hypotheses were formulated:

1. Liquid assets ratio does not significantly affect operating expense ratio of listed banks in Nigeria.
2. Capital ratio has no significant effect on operating expense ratio of listed banks in Nigeria.

REVIEW OF RELATED LITERATURE

Financial soundness indicators (FSIs)

According to Babihuga, (2007), 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. 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. It comprises both combined evidence on financial organizations and gauges that are illustrative of markets in which monetary institutions function (Akosah, Loloh, Lawson &Kumah, 2018). 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 basic checks depend on the CAMELS (Capital ampleness, Asset quality, Management sufficiency, Earnings, Liquidity, Sensitivity to advertise hazard) rating framework, which is a by and large utilized controlling blueprint for the valuation of individual banks' budgetary dependability. The capital sufficiency checks measure the financial area's ability to hold startling misfortunes and are subsequently nearest to the "versatility to stuns" thought, while the benefit quality checks are straightforwardly associated with likely risks to banks' dissolvability.

Liquid Assets Ratio

This pointer is to assess the liquidity obtainable to meet envisioned and unexpected needs for cash. Liquid assets ratio is computed by using the central measure of liquid assets as the numerator and total assets as the denominator (Albulescu, 2015;Nnubia&Ojinta, 2016). The degree of liquidity indicates the fitness of the store taking part to suffer quakes to their accounting reports. In this specific circumstance, from one viewpoint the liquidity is associated with an improved limit of yielding advances, and then again, a compromise may exist between the credits 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.

Capital Adequacy Ratio

This marker is to contemplate the level of monetary influence on resources financed by other than banks' own reserves. Capital is value enthusiasm of owners in a bank (for example the difference between all out resources and liabilities).Total assets are the sum of monetary and non-financial assets. Capital adequacy examines the degree of robustness of financial organizations to endure tremors to their balance sheets. Subsequently, a well-capitalized organization can upsurge its profitability through the augmentation of its clients' sureness. Notwithstanding, a serious capitalization implies simultaneously less capitals for the credit

activity, and accordingly a benefit decrease. Consequently, the effect can be either hopeful or bothersome (Albulescu, 2015).

The capital ampleness pointer is one of the most significant rules utilized in the assessment of commercial banks and is considered the most important indicator of total financial robustness (Alhenawi, 1998). This marker is incorporated with the most significant models used to assess banks, including the CAMELS standard, which assesses banks dependent on six components and the main component of these components is the pace of capital sufficiency, enthusiasm for capital sufficiency has expanded for banks since the start of the 1970s. The capital sufficiency file and pointer is one of the most significant markers and models utilized in the assessment of business and Islamic banks and is viewed as the most significant pointer of complete money related power and that as an assurance to meet the danger and reason for pulling in stores and file to expand the benefit of the bank from one perspective and the record of its soundness on the other (Alzaidanein, 1999).

Business Efficiency

Ojoh (2010) asserted that business efficiency implies proper use of available resources or opportunities to maximise the benefits possible there from. To this end, business efficiency is revenue in relative to expenses. It can be seen as tool for avoiding resource wastages, energy, efforts, money and time in doing something, or in producing a desired result. Business efficiency is deals with the capability of a firm in maximizing return from a given resources, it is measured as assets turnover (Benjamin & Rolf 1995;Nnubia, 2015).

Operating Expense Ratio

Efficiency of Firms is measured by the share of operating expense to gross loan portfolio in most cases. The ratio provides a broad measure of efficiency as it assesses both administrative and personnel expense with lower values indicating more efficient operations. Operating Expense Ratio = Personnel and administrative expense/ Period-average gross loan portfolio.

The debt equity ratio is a member of the asset/liability management ratios and specifically attempt to track Banks leverage. This measure provides information on the capital adequacy of Banks and assesses the susceptibility to crisis. Banks investors mainly rely on this ratio as it helps

to predict probability of a firm honouring its debt obligations. However its use should always be contextualized as high values could lead to growth of firms. The Operating Expense Ratio is the most widely used indicator of efficiency, but its substantial drawback is that it will make a Bank making small loans look worse than a Bank making large loans, even if both are efficiently managed. Thus, a preferable alternative is a ratio that is based on clients served, not amounts loaned: Cost per Borrower = Personnel and administrative expense/ Period-average number of active borrowers [x GNI per capita]. If one wish to benchmark a Bank's Cost per Client against similar Banks in other countries, the ratio should be expressed as a percentage of per capita Gross National Income (which is used as a rough proxy for local labour costs).

Theoretical Framework

Buffer Theory of Capital Adequacy

The buffer theory by Calem and Rob (1996) predicts that a bank approaching the regulatory minimum capital ratio may have an incentive to boost capital and reduce risk in order to avoid the regulatory costs triggered by a breach of the capital requirements. This study employs the buffer theory of capital adequacy as the hypothetical base.

Buffer theory of capital adequacy is secured on the unpredictability of capital adequacy ratio as well as reliability and dependability on capital for long term planning. Likewise, a bank faces the peril of capital base disintegration on the off chance that it can't assemble adequate stores. All things considered, the bank might be imperilled by capital sufficiency proportion unpredictability. Therefore, the theory postulates that banks may prefer to hold a "buffer" of excess capital to reduce the probability of falling under the legal capital requirements, especially if their capital adequacy ratio is very volatile. This is to hedge against prolonged undercapitalisation and avoid sanctions and possible closure by the regulatory authorities which consider breach of the capital requirements as a major infringement of banking legislation.

Review of Empirical Studies

This section reviewed the empirical studies of the association between financial soundness indicators and bank performance.

International Studies:

Muthee (2020) examined the effect of bank financial soundness on the operational efficiency of microfinance bank in Kenya. The study was

based on descriptive survey research. The target population was all the 13 microfinance banks (MFBs) licensed by the CBK as at 31st December 2019. The study targeted a period of six years beginning 2014 to 2019 forming a panel data. Relevant secondary data was extracted from the published annual banking sector reporting by the central bank. Diagnostic tests namely, test for normality, autocorrelation and multicolliniarity, serial correlation and heteroscedasticity were conducted. The data collected was analysed using STAT Version 15. Data analysis involved descriptive and inferential statistics. The inferential statistics included pair wise correlation and multivariate regression analysis. The findings showed that bank financial soundness had a significant effect on operational efficiency of MFBs in Kenya.

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. The index is resultant from four sub-indices, namely financial development index (FDI), financial soundness index (FSI),financial vulnerability index (FVI), and the world economic climate index (WECI). The movement in AFSI identifies three separate expansions in Ghana's financial organization. These are (1) the period of financial strain subsequent to the worldwide financial crisis (June 2007 – September 2010);(2) period of continued development in financial stability (December 2010 – June 2015); and(3) a return to financial pressure (September 2015 – December 2016). We detect that the dangers to financial stability still persevere as sub-indices especially FVI, FDI and FSI (in 2016) continue underneath their respective levels in since 2012. Examination of the sub-indices thus recommends that the risk issues to financial stability mainly originate from the wearying local factors which could be connected to the doubts that bounded the election in 2016. Our metric therefore offers a more powerful measure of financial stability in Ghana and very significant for financial policymaking conclusion.

Ahmad, Ahmad, and Adeel (2018) appraise the trade-off between liquidity and profitability in the banking sector. The research was applied to all listed banks of Pakistan Stock Exchange during the time period of 2010-2015. Document investigation was the key research method adopted to gather secondary data for the research. Six research models were stated and estimated via Ordinary Least Squares (OLS) method. The observed outcomes exposed significant connection among bank

liquidity ratios and return on assets, return on equity, net profit margin, and Tobin-q. However, return on investment and earning per share relationship with liquidity is insignificant. The banks' management should maintained optimum liquidity that will maximise profitability.

Almayatah (2018)determined the influence of Islamic banks on the financial soundness Indicators, bearing in mind that these gauges are mirror that reproduce the aptitude of the banking system in fascinating crises and professionally capitalizing in the operation of the money. The pool data model used to guess the influence of Islamic banking, where the procedure used improved by using (the pooled time series-cross section analysis) to increase measurement efficiency. The outcomes of the research show optimistic influence ratio of Islamic banking on financial soundness indicators signified by the ratio of capital adequacy and the outcomes show that the upsurge in the percentage of Islamic banking by 1% has the influence of increasing the proportion of capital adequacy by 0.21%.

Abdulazeez, Asish, and Rohani (2017) assessed the profitability of Saudi banks using the parameters of the capital adequacy, asset quality, management quality, earning ability and liquidity framework over the period 2000-2014 using pooled ordinary least square and fixed effect model. Their results shown that domestic banks are more profitable than foreign banks; and foreign banks carry more credit risk in their portfolio. In contrast to domestic banks, operating expenses to total income for foreign banks is significant but negatively related to profitability, indicating that cost management inefficiency adversely affect the profitability of this group. Their results also indicated that banks with larger size are less profitable. The study failed to identify the effect of banks' capital adequacy, liquidity, and asset risk portfolio on their asset quality, efficiency and profitability on a stand lone basis between foreign and domestic banks rather focusing on earnings' ability of the studied banks. Another flaw is inappropriate statistical tool adopted for models comparison.

Tochukwu (2016) opines that capital adequacy ratio is one of the relevant measures of safety and soundness of a banking institution because it serves as a buffer or cushion for absorbing losses. The researcher employed pooled regression analysis model to examine capital adequacy-risk management outcomes of the banks during the 2009-2015 periods.

Analysis was based on twelve (12) banks whose selection was guided by convenience criteria. Variables of interest were capital adequacy ratio, risk-weighted assets ratio, deposit asset ratio, and nonperforming loans ratio. Data were extracted from published financial statements of the banks. Pooled least squares (PLS) techniques were used to obtain estimates of parameters of the model, as well as relevant inferential statistics. Results showed that risk management variables exerted differing degrees of negative effects on capital adequacy. Only risk-weighted asset ratio singularly exerted statistically significant at the 5% level. The explanatory variables jointly exerted statistically significant effect on, and were strong in explaining variations in the explained variable.

Albulescu (2015) examined the stimulus of financial soundness indicators on the banks' profitability, at the macro-level, in a set of developing republics. Dissimilar from preceding studies which evaluate the influence of the banking sector features and of the macroeconomic setting on the profitability, He emphases on the internal situations of banks. Using the IMF 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.

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.

Cihak and Schaeck (2010) investigated how financial soundness indicators can offer an accurate indication for the profitability 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.

Local Studies

Nnubia, Okafor and Okegbe (2022) investigate the connection between financial soundness metrics and deposit money Bank performance in Nigeria. The study's particular goals are to determine the associations between non-performing loans and deposit money Bank performance, liquid assets ratio and deposit money Bank performance, and capital adequacy ratio and deposit money Bank performance in Nigeria. The Nigerian Stock Exchange (NSE) allowed for the selection of eight deposit money Banks. The secondary data utilized we're gathered over a ten-year period (from 2009 to 2018) from the annual reports of the chosen Bank and the Nigerian Stock Exchange fact book. Pearson correlation matrix was used to analyze the data. Using the regression of ordinary least square approach, more tests were run. The findings reveal that the ratios of liquid assets and capital adequacy are positively correlated, indicating that they had a beneficial impact on the bank's performance (ROA & ROE) over the time period under consideration. However, because it has a negative coefficient, non-performing loans are bad for the bank's performance.

Abba, Okwa, Soje, and Aikpitanyi (2018)analyze capital adequacy ratio (CAR) and Nigerian deposit money banks' (DMBs) performance using balanced panel data collected from financial statements of 12 selected quoted banks for the ten-year period2005-2014. The index for profitability which is ROA was found to be the most important determinant of CAR. Also, Nigerian banks' risk portfolio is quite high and ROA is quite low. The study concludes that CAR is largely determined by banks risk-portfolio, deposit level, profitability and asset quality and CAR of Nigerian banks is well above CBN and Basel Accord

regulatory minimum. The banks should maintained optimum capital adequacy ratio.

Michael, Etukafia, Akpabio and Etuk (2018) examined capital adequacy and the value of banks in Nigeria, using secondary data for the period spanning 2006 and 2016. Total Assets (explained variable), Capital, Provision for Bad Debts, and Provision for Loans/Lease Losses (explanatory variables) of deposit money banks (DMBs) were used as variables in the study. Data were analysed using Ordinary Least Square (OLS) regression technique. Unit Root tests (Augmented Dickey-Fuller and Phillips-Perron) were conducted to test the stationary levels of the variables. OLS results showed that capital has a positive and statistically significant relationship with DMBs total assets; loans/lease losses provision and provision for bad debts exhibited negative and statistically non-significant relationships with total assets. These positions were in line with a priori expectations of the study. The researchers recommend that banks should take risks that are commensurate with their level of capital in order to remain sound and stable for every stakeholder.

Saheed (2018) studied the effect of capital adequacy and operational efficiency on profitability of deposit money banks (DMBs) in Nigeria for the period of 2008-2016 using panel data of 15 listed banks drawn from the Nigerian stock exchange. The study adopts correlational research design to examine the effect of the bank specific factors on bank profitability. Panel data techniques were employed to examine the effect of capital adequacy and credit risk on profitability of the sampled DMBs. The capital adequacy has a positive and significant relationship with bank profitability while operational efficiency has a negative and significant relationship with bank profitability during the study period. The banks should maintained optimum capital adequacy and operational efficiency level.

Onyekwelu, Chukwuani, and Onyeka (2018) appraised effect of liquidity on financial performance of deposit money banks in Nigeria**.** Ex-post facto research design was adopted and 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, that is, return on capital employed (ROCE). The

management should established liquidity level that will guarantee best financial performance.

Fapohunda and Eragbhe (2017) empirically investigated 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 non-performing 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 endorses that regulation and direction of banks should be reinforced in other to advance the performance of banks in Nigeria.
Umoru and Osemwegie (2016) examined the degree of significance of the capital adequacy ratio in influencing the financial deeds of Nigerian banks by applying the feasible GLS estimator technique on the pooled panel model for the period of 2007 to 2015. Empirical evidence supported the overriding impact of capital adequacy in enhancing the financial needs of Nigerian banks. Nevertheless, the impact of the estimated capital adequacy was below 30%. The policy stance of the empirics holds thus that depositor's money in the banking sector has not been absolutely assured. Hence, the deposit money banks might not be able to fulfil their liabilities and risk. They suggested a constant reassessment of the least amount of capital required of banks by the regulator.

Olalekan and Adeyinka (2013) examined the effect of capital adequacy on profitability of deposit- taking banks in Nigeria. They sought to assess the effect of capital adequacy of both foreign and domestic banks in Nigeria and their profitability. The paper presented primary data collected by questionnaires involving a sample of 518 distributed to staff of banks with a response rate of 76%. Also published financial statement of banks were used from 2006 - 2010. The findings for the primary data analysis revealed a non-significant relationship but the secondary data analysis showed a positive and significant relationship between capital

adequacy and profitability of bank. That implied that for deposit- taking banks in Nigeria, capital adequacy plays a key role in the determination of profitability. It was discovered that capitalization and profitability are indicators of bank risk management efficiency and cushion against losses not covered by current earnings.

Ikpefan (2013) investigated the impact of bank capital adequacy ratios, management and performance in the Nigerian commercial bank (1986 - 2006). The study captured their performance indicators and employed cross sectional and time series of bank data obtained from Central Bank of Nigeria (CBN) and Annual Report and Financial Statements of the sampled banks. The formulated models were estimated using ordinary least square regression method. The overall capital adequacy ratios of the study showed that Shareholders Fund/Total Assets (SHF/TA) which measure capital adequacy of banks (risk of default) have negative impact on ROA. The efficiency of management measured by operating expenses index 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 Nigerian commercial banks and also heighten the confidence of customers especially in this era of global economic meltdown that has taken its toll in the Nigerian financial system.

METHODOLOGY

Research Design

The study adopted ex post facto research design. The reason for this is because the data used are secondary data that cannot be easily manipulated. The secondary data used for this study were sourced from the internet, annual financial reports of the selected banks, Nigerian Exchange Limited, over a period of ten years spanning 2012 to 2021.

The population of this study consist of all the deposit money banks registered by the central bank of Nigeria. According to the central bank of Nigeria, there are (26) twenty-six licensed deposit money banks in Nigeria which maintained existence to 2021. The sample size for this study was determined based on availability of the required data. Ten banks were selected using judgemental sampling method.

Method of Data Analysis

The secondary data were collected and analysed using the regression of ordinary least square method. 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 have on the dependent variable. This study employs operating expense ratio (OER) as the dependent variable, which measures banks efficiency. OER was chosen because it is to an extent common and important accounting – based and widely accepted measures of business efficiency. The independent variables in this study are liquid assets ratio (LAR) and capital ratio (CAPR) as they serve as the proxies for financial soundness. Specifically, the study adopted the model of Albulescu (2015) with some modifications to suit this study. The model of Albulescu (2015) is:

$OE_{it} = \beta_0 + \beta_1 AQ_{it} + \beta_2 CA_{it} + \beta_3 PR_{it} + \beta_4 LQ_{it} + e_{it}$.....I

Where,
OE = Operating efficiency
AQ = Asset quality
CA = Capital adequacy
PR = Profitability
LQ = Liquidity

The above model was modified for the purpose of this study as follows:

$OER_{it} = f(LAR_{it}, CAPR_{it} e_{it})$.....II

$OER_{it} = \beta_0 + \beta_1 LAR_{it} + \beta_2 CAPR_{it} + e_{it}$.....III

Where:
OER = Operating expense ratio
LAR = Liquid assets ratio
CAPR = capital ratio
β_0 = Constant term (intercept)
e_{it} = Error term
$\beta_{1\text{-}2}$= Coefficient of independent

Description of Research Variable

Operating expense ratio was considered as proxy for business efficiency variable while, liquid assets ratio and capital ratio served as explanatory variables of the study. It employs the variables according to the approach used by the previous studies and it was considered based on availability of data for measurement purposes.

Table 3.1: Operationalization of variables

Operating expense ratio	Personnel and administrative expense /period-average

(OER)	gross loan portfolio
Liquid assets ratio	liquid assets / total assets
Capital ratio	capital / total assets

Source: Albulescu (2015);Sarker (2006); Financial Stability Report (2014)

Decision Rule

Accept null hypothesis if the probability value is greater than the desired level of significant of 5%, otherwise reject.

ANALYSIS AND INTERPRETATION OF DATA

The summary of the analysis result and its corresponding interpretations of the effect of financial soundness on business efficiency of listed banks in Nigeria are presented below.

Table 4.1: Descriptive Statistics

VARIABLES	OER	LAR	CAPR
Mean	0.248270	0.310700	0.407130
Median	0.210000	0.253500	0.445350
Maximum	0.950000	0.857000	0.890000
Minimum	-0.247000	0.005000	0.022200
Std. Dev.	0.197033	0.202696	0.243041
Skewness	1.230539	0.880372	0.016618
Kurtosis	5.229044	2.970181	1.960930
Jarque-Bera	45.93976	12.92129	4.503212
Probability	0.000000	0.001564	0.105230
Sum	24.82700	31.07000	40.71299
Sum Sq. Dev.	3.843376	4.067465	5.847811
Observations	100	100	100

Source: Researcher summary of descriptive statistics (2021)

Table 4.1 above shows the mean (average) for each variable, their maximum values, minimum values, standard deviation. The result provides some insight into the nature of the selected banks' data used for the study. Firstly, it was observed that over the period under review, the sampled banks have positive average operating expense ratio (OER) of 0.248270, this means that the selected banks has a positive operating expense ratio (efficiency) in the period of the study. The maximum and minimum value of operating expense ratio (OER) is 0.950000 and -0.247000 respectively. The large difference between the maximum value, the mean value and the minimum value show that the sampled firms used for the study are not dominated by either firms with high efficiency or firm with low efficiency. Secondly, it was observed that on the average over the period that Liquid assets ratio has a mean value of 0.310700, maximum value of 0.857000 and minimum value of 0.005000. The large difference between the maximum and the minimum liquid assets ratio reveals that gyrating nature of the bank's liquidity among the selected banks. Capital adequacy ratio has average value of 0.407130, maximum and minimum value of 0.890000 and 0.022200 respectively, the large differences between the maximum and minimum value shows the banks' capital adequacy.

Table 4.2: Correlation Analysis

VARIABLES	OER	LAR	CAPR
OER	1.000000	-0.110127	0.146434
LAR	-0.110127	1.000000	0.075783
CAPR	0.146434	0.075783	1.000000

Source: Researcher summary of correlation analysis (2021)

The correlation matrix is to check for multi-colinearity and to explore the association between each explanatory variable and the dependent variable. The findings from the correlation matrix table (table 4.2 above) show that operating expense ratio (OER) has a negative association with LAR (-0.110127); and also has a positive association with CAPR (0.146434). Liquid assets ratio (LAR) has a positive association with CAPR (0.075783). In checking for multi-colinearity, the study observed that no two explanatory variables were perfectly correlated.

Table 4.3:Operating expense ratio(OER) model

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.379835	0.093037	4.082613	0.0001
LAR	-0.107716	0.101691	-1.059253	0.2922
CAPR	0.148423	0.097241	1.526347	0.1302
R-squared	0.703915	Mean dependent var		0.248270
Adjusted R-squared	-0.700130	S.D. dependent var		0.197033
S.E. of regression	0.197162	Akaike info criterion		-0.360879
Sum squared resid	3.692906	Schwarz criterion		-0.230621
Log likelihood	23.04397	Hannan-Quinn criter.		-0.308162
F-statistic	0.967709	Durbin-Watson stat		1.594757
Prob(F-statistic)	0.428987			

The R-squared which is the co-efficient of determination or measure of goodness of fit of the model, tests the explanatory power of the independent variables in any regression model. From our result, the R-squared (R^2) is 70% in OER model. This showed that our model displayed a good fit because the R^2 is closer to 100%, these explanatory variables can impact up to 70% out of the expected 100%, leaving the remaining 30% which would be accounted for by other variables outside the models as captured by the error term. The F-statistics measures the overall significance of the explanatory parameters in the model, and it shows the appropriateness of the model used for the analysis while the probability value means that model is statistically significant and valid in

explaining the outcome of the dependent variables. From table 4.3 above, the calculated value of the f-statistics is 0.967709 and its probabilities are 0.428987 which is greater than 0.05. We therefore state that there is insignificance relationship between the variables. This means that the parameter estimates are statistically insignificant in explaining the relationship in the dependent variable. The t-statistics helps in measuring the individuals' statistical significance of the parameters in the model from the result report. It is observed from table 4.3 above that none of the variables were statistically significant at 5%. This implies that they have not contributed significantly to corporate profitability at the rate of 5% level of significance. The variables such as LAR, and CAPR with its t-values as -1.059253and 1.526347 respectively and p-value of 0.2922, and 0.1302 respectively are statistically insignificant at 5% level.

Our model is free from the problem of autocorrelation because the Durbin-Watson value is 1.594757 which is approximated as 2 (that means, the absence of autocorrelation in the model used for the analysis). The a'priori criteria are determined by the existing accounting theory and states the signs and magnitude of the variables from the result. LAR has negative sign and its values are -1.059253. In OER Model, this implies that increase in LAR will insignificantly decrease the corporate profitability by 106% respectively; this conforms to our theoretical expectation. CAPR have positive sign in the model and its values are 1.526347. In OER Model, this implies that increase in CAPR will insignificantly increases the corporate profitability by 153% respectively at 5% level.

Hypotheses Testing

Ho_1: Liquid assets ratio does not significantly affect operating expense ratio of listed banks in Nigeria.

Liquid assets ratio (LAR): From the result of our test in table 4.3 above, we found out that the analysis result showed a coefficient value of -0.107716, t-value of -1.059253 and a p-value of 0.2922 for liquid assets ratio. The coefficient value which reveals the degree of variation caused by the individual independent variable to the dependent shows a negative value of -0.107716, this reveals that liquid assets to total assets has negative influences on the profitability of listed banks in Nigeria. The t-value of -1.059253 shows that liquid assets to total assets have a negative effect on profitability of listed banks in Nigeria. The probability value of

0.2922 shows that the effect of liquid assets to total assets on profitability of listed banks in Nigeria is statistically insignificant at 5% level.

Decision

Accept null hypothesis if the probability value is greater than the desired level of significant of 5%, otherwise reject.

Therefore, since the probability value is greater than the desired level of significant of 5%, we accept the null and reject the alternative hypothesis; this implies that liquid assets ratio does not significantly affect operating expense ratio of listed banks in Nigeria. Thus, liquid assets to total assets are negative and have insignificant effect on profitability of listed banks in Nigeria at 5% level of significant.

Ho_2: Capital ratio has no significant effect on operating expense ratio of listed banks in Nigeria.

Capital ratio (CAPR): From table 4.3 above, we found out that the analysis result showed a coefficient value of 0.148423, t-value of 1.526347 and a p-value of 0.1302 for capital to total assets. The coefficient value which reveals the degree of variation caused by the individual independent variable to the dependent shows a positive value of 0.148423, this reveals that capital to total assets has positive influences on the profitability of listed banks in Nigeria. The t-value of 1.526347 shows that capital to total assets has a positive effect on profitability of listed banks in Nigeria. The probability value of 0.1302 shows that the effect of capital to total assets on profitability of listed banks in Nigeria is statistically insignificant at 5% level.

Decision:

Accept null hypothesis if the probability value is greater than the desired level of significant of 5%, otherwise reject.

Therefore, since the probability value is greater than the desired level of significant of 5%, we accept the null and reject the alternative hypothesis; this implies that capital ratio has no significant effect on operating expense ratio of listed banks in Nigeria. Thus, capital to total assets is positive and has no significant effect on profitability of listed banks in Nigeria at 5% level of significant.

SUMMARY OF FINDINGS AND CONCLUSION

Based on the result, the study concluded that liquid assets ratio have negative insignificant effect on operating expense ratio of listed banks in

Nigeria at 5% level of significant. This implies that increase in LAR will decrease the operating expense ratio by 106%; whereas Capital to total assets has positive effect on operating expense ratio of listed banks in Nigeria; and its effect is statistically insignificant at 5% level of significance. This implies that increase in capital adequacy will increase profitability of listed banks in Nigeria. Though, it is statistically insignificant at 5% level of significance. The study therefore concludes that our metric provides a powerful gauge of financial stability in Nigeria and very relevant for monetary policymaking decision.

The study, therefore recommends that the regulatory agency such as the Central Bank of Nigeria should also formulate fiscal policy that will enable the listed banks to withstand unexpected financial shocks and also improve their performance; since this indicator analyzed the liquidity available to meet expected and unexpected demands for cash. Secondly, the managers should considered capital to total assets ratio as one of factors that enhance or boost the profitability of listed banks in Nigeria, though it is insignificant at 5% level but has positive effect.

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