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Industry Convergence and Quality of Assets in the Nigerian Banking Sector

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Abstract: The aim of the research was to assess the implications of industry convergence on the Nigerian banks' assets quality. The exact aims of the research were to: determine the degree to which capital adequacy ratio brought by industry convergence influences on the quality of banks assets in Nigeria; examine the effect of liquidity ratio brought on the quality of bank assets in Nigeria by industry convergence; ascertain the extent of influence of costs of intermediation brought on the Nigerian banks' assets quality by industry convergence. Using ex-post facto research design, the data regression technique was engaged by econometric view. The results recognized that capital adequacy ratio, quality of assets of Nigerian banks are significantly affected by liquidity ratio as well as the cost of intermediation, as a result, suggests that: capital adequacy ratios should be periodically increased by Nigerian central bank as it contributes to better quality of asset.

Keywords: Financial institutions, financial intermediation, industry convergence.

Introduction

Major development of any country's economy is a contribution of the banking sector. A complete advanced and dynamic banking sector is a fundamental requirement for asset quality. As an imperative aspect of the tertiary of any economy, banks act as the key support of economic prosperity by acting as an enabler in the course of development. They employ the habit of mobilizing and saving funds from diverse

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sources as the funds mobilized are utilized for production purposes of the whole system of the economy (Vossen, 2010). Considering the link between the stability of the banking industry as well as its asset quality (Ezeoha, 2011; Demirgu-Kut et al.,2013; Abata, 2014) assert that, the major factors that affect the banking industry's asset quality is of great importance not only the managers of the banks, but also for the many shareholders as well as the Apex Banks and other financial regulators.

Addressing the bank's assets quality issues has remained the primary goal of every apex bank across the globe. The Central Bank of Nigeria at no time, relented on the issues, in 2004/2005 there was an overall evaluation in the Nigerian banking industry that required all the deposit money banks based in the country to step up their capital base. Consequently, some of the banks were unable to meet the requirement (capital base of N25 billion) were optionally instructed to either merge or be acquired to guarantee the asset quality of banks (CBN, 2005). After the overall assessment, the Central Bank of Nigeria continued to intensify effort in finding out the level of Non-performing loans as a means of asset quality measurement (CBN, 2009). In the context of the continuing supervisory roles, the industry supervisory players have observed different methods by banks to the identification, measurement, control, and cancellation of NPLs (CBN, 2010). Additionally, in its regulatory rankings, CBN banking supervisory effort has emphasized credit risk and extent of non-performing loans as one of the main risks affecting the Nigerian banking sector.

The size, structure and cost of intermediation can also be affected by the banking industry convergence. Banks were instructed to increase their lowest requirement from ₦2 billion naira to ₦25 billion naira within a period of one year as witnessed in the 2004/2005 banking industry consolidation in Nigeria (CBN, 2005). As a result of the mergers and acquisition implementation, banks that were unable to meet the set amount joined together through mergers and acquisition to become a stronger bank, such that the First City Monument Bank plc (FCMB) acquired former rescued bank-Finbank, United Bank for Africa Plc acquired All States Trust Bank plc, and many more. Industry convergence advancement in the financial service industry and more predominantly, the convergence among banking and insurance have attracted concerns in both scholastic as well as in business literature (Van denBerghe et al.,2000).

It is on these assumptions that this research was caused to embark on analysis of characteristics of the bank assets in Nigeria and excluding factors that gave rise to generally acclaimed perception that the assets of Nigerian banks have not ameliorated after the 2005 bank restructuring that was seen from 2009 banking crisis that put five banks in distress out of 25. This was the motivation behind the research to find out the implications of industry convergence on the quality of banks' assets in Nigeria. Nevertheless, the achievement of the main objective is guided by the following definite objectives:

1) To determine the degree to which capital adequacy ratio influenced by industry convergence affects the quality of banks assets in Nigeria.
2) To ascertain the impact of liquidity ratio induced by industry convergence on the quality of bank assets in Nigeria
3) To investigate the extent of effect of costs of intermediation influenced by convergence on the quality of bank assets in Nigeria.

Literature Review

Industry Convergence

Lind (2004) defined industry convergence as the coming together of two or more independent and individual firms. The very evident type of convergence that had happened in advanced countries, for example, the United States, including countries is conglomeration among banks, securities firms, and

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insurance companies (Wallison, 2008). The most apparent form of convergence in Nigeria has been the purchase of banks or the form of mergers where the bigger banks purchase the smaller bank with a lesser capitalization (CBN, 2013). Another indicator of banking convergence is in products and services, where every single bank in the industry develops products and designs services that diametrically and unequivocally contend with the products and services of others (Wallision, 2008). Convergence affects the quality of bank assets, theoretically, has remained the overruling argument among researchers. In the midst of the most obvious indices of industry convergence across financial institutions includes; bank capitalization, ownership structure, banking industry density, market structure among others.

Convergence in the financial practice started in the United States of America over twenty years ago and since then the USA banking system has undergone a revolutionary convergence as viable forces and other economic factors have propelled the USA financial system to converge on a national scale thereby promoting a genuinely national market place for financial inexpensive to run but more competitive globally (Fein, 2007). Generally, banking system convergence is a result of the increasing globalization of the financial service subdivision and has been made feasible by the deregulation of the financial market in advanced countries like; Europe, the United States, and Japan (Cummins &Wess, 2008). Notwithstanding the best action of the players and the owners of banks in Nigeria to resist the policies/changes initiated by the regulators of the industry, a good number of economic players appear to have mutually in previous years heightened the speeding up of convergence between the banking sector and its quality of assets as the most obvious form of convergence in the industry is the 2005 consolidation implementation which affected the banks' capital strength, market structure, size and even the cost of intermediation were also affected (CBN, 2009).

Bank capitalization and asset quality

Excluding liabilities, a bank's capital is equivalent to its assets. This is the latitude by which banks were liquidated and their liabilities paid off (NDIC, 2006). NDIC states that a good measure of a bank's financial base is its capital/asset ratio, which is obliged to be above the recommended amount, in the case of Nigeria, however, banks were required to have a minimum amount of N25 billion as its capital base before a bank can operate as a full-fledged bank. Bank capitalization is the sum of the bank's long-term debt, stock, and retained earnings (CBN, 2010). Basu (2008) states that banks are compelled to be adequately capitalized, showing that they must have sufficient assets that can be quickly changed or transformed to cash to meet short-term and long-term responsibilities. Meanwhile, bank capitalization is the amount of capital a bank has to hold as necessitated by its regulatory agencies, like CBN, which are always stand for capital adequacy ratio of equity that must be held as a percentage of risk-weighted assets (CBN, 2004). Dang (2011) articulates that the capital adequacy ratio of a bank guides the internal analysis of the internal base of the banks as well as enables them to resist any form of crises.

A lot of researches have been done on bank capitalization and its overall performance. For instance, Iannotta et al. (2007) found a significant and positive relationship between regulatory capital ratios and two indicators of bank performance in fifteen European countries. Likewise, Lee (2008) found that capital capability ratios were positively correlated with bank returns, as the research aimed at finding out the impact of capital ratio on bank return in a period of different regimes of Asian countries. Other researchers also found a negative relationship between capital capability ratio and assets. For instance, the research carried out by Goddard et al. (2013) discovered a negative relationship that exists between bank capitalization and profitability ratio. Altunbas et al. (2007) also discovered a negative relationship that exists between well-capitalized banks in Europe and their assets.

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Cost of intermediation

As banks try to perform/fulfill their role as financial intermediaries, the costs of intermediation arise (Haruna, 2012). For banks to achieve the role of intermediaries there is always a cost imposed on both the depositors and borrowers and this cost is known as the cost of intermediation. Bernanke (1983) cited in Idries (2010) asserts that the cost of intermediation is the gross difference between the gross cost paid by a borrower and the net return received by a depositor. This is proxy as interest rate spread (Chirwa&Mlachila, 2004).

Generally, the banking industry intermediates between those classes of people who have surplus funds (savers) and those classes of people that need the funds (borrowers) accordingly play a vital task in resource allocation and thus improve economic development (CBN, 2010). Zheng et al. (2017) states that, the efficacy of the banking industry relies on the cost of financial intermediation. They went further to state that the banking industry in developing economies proved significantly better with continual interest spreads as compared to the interest spreads in advanced economies. A research done by Tenant and Folawewo (2009) recognized that among developing economies of the world, middle and lower-income economies found considerably high bank interest margins traceable to the non-existence of financial development. Similarly, Demirguc-Kunt and Merrouche (2003) studied the influence of bank regulations, industry concentration, and institutional development on banks' intermediation cost. In the process, the research discovered that higher entry obstacles and strict banking policies influence banks to charge higher net margins. Deregulation decreases bank net interest margin, according to the research. Miles et al. (2013) points that, changes in the capital may affect the economic activity of a country through their effect on the costs of financial intermediation. Similarly, divergent empirical researches have shown both positive and negative impacts of banking industry reform on costs of intermediation. Among these researches are; Naceur and Kandil (2009), Afzal and Mirza (2012), and, Mudos and Solis (2009).

Liquidity ratio

A firm's ability to pay its short-period debt obligations in the mold of financial ratios is determined by liquidity. Whether a company can use its current, or liquid, assets to cover its current liabilities is determined by metric. Three liquidity ratios are commonly used – the current ratio, quick ratio, and cash ratio. In each of the liquidity ratios, the current liabilities amount is placed in the denominator of the equation, and the liquid assets amount is placed in the numerator. Given the structure of the ratio, with assets on top and liabilities on the bottom, ratios above 1.0 are sought after. A ratio of one means that a firm can exactly pay off all its current liabilities with its current assets while a ratio of less than one would imply that a company is not able to satisfy its current liabilities. When a company is able to satisfy its current bills, it means that the ratio surpasses one. In fact, a ratio of 2.0 means that a company can cover its current liabilities two times over. A ratio of 3.0 would mean they could cover their current liabilities three times over, and so forth. The major significance of the Liquidity Ratio is that it influences the ability to cover short-term obligations, determine solvency, and also determine investment worth.

Nature of bank asset

An appraisal of assets to measure the credit risk that associates with it is referred to as Quality of banks' assets (CBN, 2013). Asset quality of a bank is continually associated to the assets side of the Statement of Financial Position as bank managers are always preoccupied with the quality of their assets. Asset quality of a bank can be measured as the ratio of total non-performing loans to total loans (CBN, 2009). A non-performing loan (NPL) is a loan in which the borrower is not paying interest or repaying any principal (CBN, 2009). The loans given out by the banks are the main asset; hence their quality has a key influence

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on their profitability. In view of that, Ongore and Kusa (2013) state that non-performing loan ratios are the superlative proxies for asset.

In harmony with this, many researches emerged, such as; Demirguc-Kunt (1998) and, Barr and Siems (1994) established the fact that assets quality of a bank is statistically a significant predictor of insolvency for cause of bank failures and the failing banking institutions always have high level of nonperforming loan aforementioned to failure. This issue over the years now has given concern to both advanced and evolving economies across the globe. For instance, the problem of NPLs has become indistinguishable to operational effectiveness of financial intermediaries and seems to be one of the major causes of the economic un-productivity delinquencies (IMF, 2009). It is clearly noted, according to (IMF, 2009), that better assets quality maintain increase in profitability of banks. However, prior empirical research has investigated convergence in the banking sector across the globe (Izzeldin et al., 2021;Olson &Zoubi, 2017; Andries&Capraru, 2012; Goddard et al., 2013; Das et al.,2020; Sare et al., 2019; Dickson &Mutagu, 2013)

Theoretical framework

The theory of Convergence was adopted by this work. The theory of convergence had its first introduction in the 1960s by Clark Kerr, Sheldon Rothblatt and Mathew Arnold, and equality of banks' assets is an assessment of assets to evaluate the credit risk consort with it (CBN,2010). This theory is found in the practice of functionalist analysis which presumes industrialism to be a distinct kind of society which is the most recent edition of max Weber's theory of consequence of bureaucratic arrangements in the management of production and distribution of services (Weaver, 2007). The theory assumes that the type of technology seen in an environment influences the surroundings of that environment. That is the type of technology seen in a country determines if that country's banking sector could converge. It also argues that the growing or expanding sizes of firms, the increase in the comparative influence of industry in the national economy, and the developing significance of new branches of industry are factors responsible for a greater similarity of two systems (Sampler, 1998). The weakness of this theory is in its view to the technological approach to socio-economic systems, which is the replacement of production for relations of production in an industry. The theory also deserts the prospects that political and social institutions may be considered separate from the imperious of technology.

Methodology

Quantitative research design was used by the research in order to maintain a strong base for the entire research work. The variables this research used were grouped into dependent and independent variables, such that the quality of bank asset proxies as a non-performing loan (NPL) to total loan (TL) constitutes the dependent variable. This is mathematically calculated as NPL/TL. Previous researches such as the research done by Ezeoha (2011) and, De-Bock and Demyanets (2012) used similar variables to determine the quality of bank assets. Bank Capitalization (CAP) and Cost of Intermediation (INTC) formed the independent variables of the research. These research variables are in agreement with the research objectives. Data generated and used on these variables are the annualized (audited annual reports) of the ten chosen Deposit Money Banks in Nigeria for a period that staggers between 2004 to 2019.

Considering the design of this work, the research variables which are time series by nature are classified into dependent and independent variables. The dependent variable which forms the main foundation of this work is the quality of Bank Assets, which is a proxy of the ratio of total Non-Performing loans (NPL) to Total Loans (TL). Among authors that have used this measure include; Ezeoha (2011), Khalid (2012), Klein (2013) and, Ongore and Kusa (2013). A non-performing loan is a loan on which the borrower is not

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paying interest or repaying any principal or a loan that is in default or close to being in default (CBN, 2013). Hence, quality of bank asset proxies as the ratio of nonperforming is arithmetically calculated as:

QBA = NPL/TL…….....1

Where QBA is the quality of bank assets, NPL is the total ratio of nonperforming loans and TL is the total loan. The rationalization for using this variable is that it shows at the individual bank level the volume of non-performing loans that a particular possesses, which is capable of determining the level of quality of bank assets. A priori expectation of this is that a bank with a low rate of non-performing loans is likely to have a higher quality of assets than a bank with a high profile of non-performing loans. In contrast, the independent variables of the research include;

Bank capitalization: This explains the composition of a bank's long-term capital and includes the combination of debt and equity of a bank. It is also the amount of capital a bank has to hold as compelled by the supervisory agency of the sector. This is conventionally measured as the Capital Adequacy Ratio (CAR) of equity that must be held as a percentage of risk-weighted assets (CBN, 2004). CAR is the ratio of a bank's capital to its risk (CBN, 2000). This ratio is used to protect depositors or bank customers against any risk of their deposits (CBN, 2005). Bank capitalization withe standard when measuring returns (CBN, 2013). This work adopted the proxy of bank capitalization as capital adequacy ratio as used in Basel committee and CBN. The research was done by Dabla-Norris and Floerkemeir (2007) similarly used capital adequacy as a measure of bank capitalization.

Thus CAR is calculated as:

CAR = Tier one capital + Tier 2 capital / Risk-weighted Assets…….2

Tier one capital according to the Basel committee is the major size of a bank's financial muscles from a supervisor's approach. This comprises of mainly common stock and exposed reserves or retained earnings and noncumulative desired stock. Tier 2 according to the committee is supplementary bank capital that includes; revaluation reserves, hidden reserves, hybrid instruments, and subordinated term debt. On the other hand, bank, the risk-weighted asset is a bank's assets or off-balance-sheet exposures, weighted according to the risk (CBN, 2010). Banks with higher capital adequacy ratios may be able to withstand shocks to their statement of their position, but they also give up financial leverage which may lead to lower interest margin and return on equity (Dabla-Norris &Floerkemeir, 2007). It is expected that banks with a higher capital base will reduce tension on the rate of non-performing loans and issues related to distress/failures will be less than another bank with a lower capital base. Beneath this bank or banks with a higher capital base will have an improved assets quality against the other bank with a lower capital base.

Cost of intermediation: This is the cost incurred by banks as they try to exercise their role of financial intermediaries. This is proxied as Interest Rate Spread (Chirwa&Mlachila, 2004). Interest rate spread is measured at the individual bank level as the ratio of net income to the average total assets of a bank (Naceur&Kandil, 2008). Bank cost of intermediation consists of a fixed cost element at the bank and financial system level, indicating that the relevance of economies of scale (Bossone et al., 2002). Stiglitz and Weiss (1981) maintain that high-interest spreads are the result of frictions such as transaction costs and information asymmetries. They similarly maintain that bank intermediation costs linked with screening and supervising borrowers and processing savings and payment services and information asymmetries resulting in agency costs, create a wedge between the interest rate paid to savers and the interest rate charged to borrowers, hence, the larger banking inefficiencies are, the higher spreads will be, which reduces the demand for and the benefits of financial intermediation. Researches were done by Demirguc-Kunt and Huizinga (1999); Dell'Arricia and Marquez (2004) insist that bank cost of

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intermediation and other factors such as bank size, risk evaluation capacity among other bank-specific factors affect banking efficiency.

Liquidity ratio: This is a financial ratio which control a firm's ability to pay its short-term debt obligations. The metric helps determine if a company can use its current, or liquid, assets to cover its current liabilities. Three liquidity ratios are commonly used – the current ratio, quick ratio, and cash ratio. As researchers have found, liquidity and profitability are inversely related, when liquidity increases profitability decreases and vice versa while on the other hand, there is a direct relationship between higher risk and higher return, hence the dilemma in liquidity management is finding a balance between liquidity and profitability.

Model specifications

The research adopted Panel Regression Model to estimate nine (9) individual bank data of deposit money banks in Nigeria from 2004 to 2020. This model is employed because the research combined both time series and cross-sectional data. Thus, the models below are stated to capture the stepwise regression used in the course of the research:

$NPLTLA = \beta_0 + \beta_1 INTC + U_t$……..3

$NPLTLA = \beta_0 + \beta_1 LQDR + U_t$……..4

$NPLTLA = \beta_0 + \beta_1 CAP + U_t$…….5

$NPLTLA = \beta_0 + \beta_1 CAP + \beta_2 INTC + U_t$……6

The regression model used by De-Bock and Demyanets (2012) was adopted and re-specified to capture our own objectives. The regression model is stated thus:

$Yi,t = Xi,t\ \beta + ni,t + \sum i,t$…….7

Where: yi,t is the NPL ratio nplrati,t, Xi,t is the vector of regressors, ni,t is the unobserved country effect, ∑i,t is a vector of disturbances, and β is a vector of model parameters.

The above model was re-specified as follows to enable us attend to the set research objectives.

$NPLRATi,t = \beta o + \beta 1 CARi,t + + \beta_2 LODR_{i,t} + \beta_3 INTC_{i,t} + Ui,t$……..8

Where:

NPLRATi,t	=	Non-performing Loan Ratio lagged.
CARi,t	=	Capital Adequacy Ratio).
LQDRi,t	=	Liquidity ratio
$INTC_{i,t}$	=	Cost of Intermediation (measured at individual bank level as net income to total assets).
βo	=	Intercept term
Ui,t	=	Error term Our Cross Section and time;
β1 – β3	=	Regression coefficients to be determined,
i	=	Index for individual bank (for the 10 sampled banks).
t	=	Time effects (year 2004-2019).

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Descriptive Statistics/Analysis

Descriptive statistics provides a historical background for the behavior of the data employed for analysis. Thus, the table below summarizes the fundamental statistical features of the variables under deliberation including the mean, standard deviation, and the minimum and maximum values for the data.

Results and discussion

Stationarity is an important concept in time series analysis. It usually implies that the statistical properties of a time series (or rather the process generating it) do not change over time. Stationarity is important because many helpful analytical tools and statistical tests and models rely on it. Unit root tests can be used to determine if trending data should be first differenced or regressed. Additionally, economic and finance theory often suggests the existence of long-run equilibrium relationships among nonstationary time series variables. Hence, in order to guarantee the policy forecasting reliability and suitability of the data employed in this, it was subjected to unit root diagnostic test and the summary of the result is presented below:

Table 1: Unit root test

Variable	ADF-Fisher	Chi-square @level @1st Diff	P-value	Order	Remark
LOGNPL	17.9335	34.9960	0.0095	1(1)	stationary
CAR	20.2619	39.2287	0.0027	1(1)	stationary
LQPR	86.4054	-	0.0000	1(0)	stationary
NITA	43.7437	-	0.006	1(0)	stationary

Source: Author's E-View 10 Computation Output (2021)

The result in table 1 above shows that initially (@ level, some of the variables (LOGNPL and CAR) were not stationary, but at first differencing they became stationary. Hence, they are integrated of order 1(1); for the liquidity ratio (LQDR) and the cost of intermediation (INTC) order 1(0). The conclusion of stationarity is based on the fact that following the rule for unit root testing, p-value of the individual (ADF-Chi-square test statistic) of the variables is less than the 5% significance level. The implication of stationary process or series is that the model employed can be relied upon for policy analysis and decision making.

Descriptive Test

Descriptive test was used to assess the characteristics of the dependent and independent variables. Some selected statistical measures of the variables are presented below.

Table 2: Descriptive Statistics

	LOGNPLTLA	CAR	LQDR	NITA
Mean	2.979035	0.164556	48.71057	0.020645
Std. Dev.	1.195379	0.062736	14.30630	0.055912
Skewness	0.280283	-1.147478	0.123714	0.205467
Observations	144	144	144	144

Source: Author's E-View 10 Computation Output (2021)

Table 2 above shows the selected descriptive statistical analysis between the dependent and independent variables. In percentage, the size of nonperforming loan ratio (LOGNPLTLA) been the dependent variable

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stood at 2.98%. This indicates the quality of loan assets of the banks is moderately improved as a consequent outcome of industry convergence; this could mean a plus sign on the efficacy of the convergence objectives and on the compliance level. The average percentage of capital adequacy ratio (CAR) across the banks in the period under review (2005-2020) stood at 16.45%. This indicates that the capital base of the banks contributes to the quality of assets. The size of the banks' cost of intermediation (INTC) averaged 20.06% over the period. To check the spread or changes in a series of data, the standard deviation test produced the result as seen above: for nonperforming loan ratio, capital adequacy ratio, and the cost of intermediation. The deviation in the series were 14.30, 0.257, 0.063, and 0.056 respectively. Indicatively, the capital adequacy ratio, the liquidity ratio and the cost of intermediation variables showed upward growth, hence they are significant determinants of the quality of assets (NPLTLA) of banks in Nigerian. The standard deviation determines how spreads out the data are from the mean. A higher standard deviation value indicates greater spread in the data. When data are skewed, the majority of the data are located on the high or low side of the graph. Skewness defines the extent to which a distribution differs from a normal distribution, the closer the values are to zero, the more normal the data sample is said to be. The descriptive result above shows that all the data have a normal distribution.

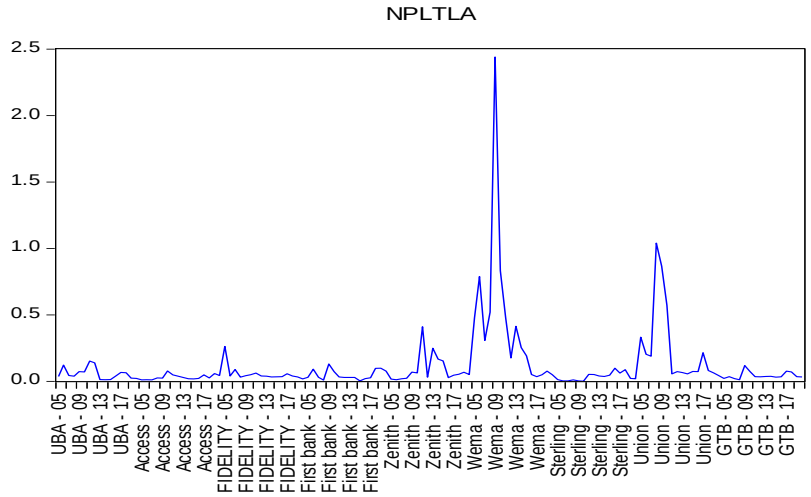
Table 3: Correlation Matrix

	LOGNPLTLA	CAR	LQDR	NITA
LOGNPLTLA	1.000000			
CAR	0.815196	1.000000		
LQDR	0.732145	0.032536	1.000000	
NITA	0.643584	0.113352	0.032534	1.000000

Source: Author's E-View 10 Computation Output (2021)

The correlation test result in table 3 above shows the correlation movements of the dependent variable and the independent variables. The relationship appeared positive across board but the strength of the correlation differed. The strength was highest between nonperforming loan and the capital adequacy ratio (CAR) and followed closely by the liquidity ratio (LQDR) and the cost of intermediation (INTC). This implies that the industry convergence indicators have direct (positive) relationship with the quality of assets (particularly the nonperforming loan which is the response variable).

Figure 1: Graphical Trend Analysis of Dependent Variable (NPLTLA)



Source: Author's E-View 10 Computation Output (2021)

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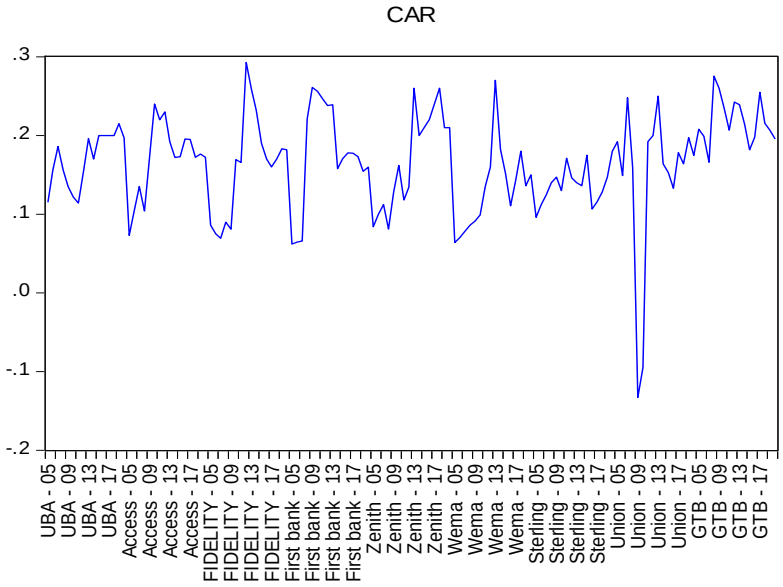
Figure 1 shows the graphical trend in the nonperforming loan ratio of all the 9 selected banks in the Nigerian banking system for the period 2005-2020. The analysis shows that Wema Bank had the highest ratio of nonperforming loans ratio (2.49 in 2009, 0.7 in 2005 and 0.4 between 2013 and 2017); followed by Union Bank in the same years with a ratio of 1.1 between 2009 and 2013, and 0.3 in 2005. Zenith bank had 0.5 in 2009 and 0.35 between 2013 and 2017. Fidelity bank had had 0.4 between 2005 and 2009. The others had below 0.3 for the period under review.

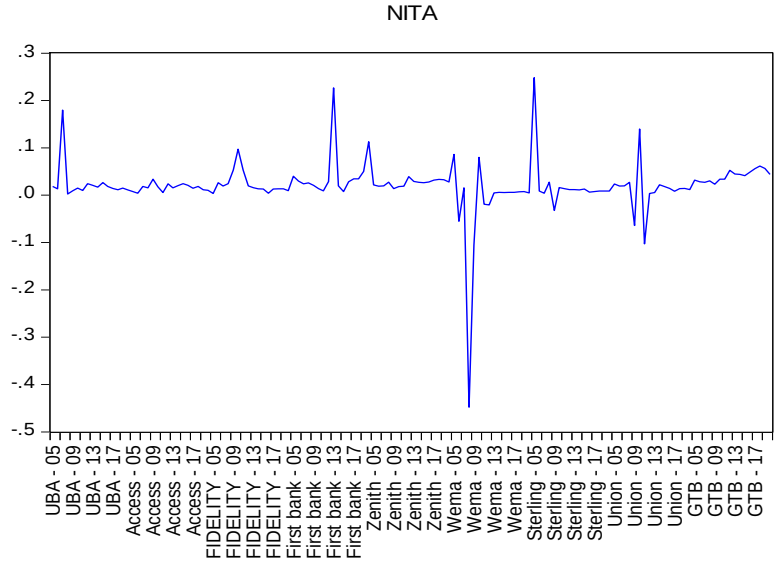
Figure 2: Graphical Trend Analysis of Independent Variable (CAR)



Source: Author's E-View 10 Computation Output (2021)

Figure 2 shows the graphical trend in the capital adequacy ratio of the banks studied. The information shows that the capital adequacy was highest for Fidelity bank (0.3 in 2009), followed by GT bank (0.29 in the same year), and then Zenith, First bank and Wema in that order between 0.25-0.28. In 2009, Union Bank had a very large deep in her capital adequacy ratio sliding nearly to -0.2.

Figure 3: Graphical Trend Analysis of Independent Variable (NITA)



Source: Author's E-View 10 Computation Output (2021)

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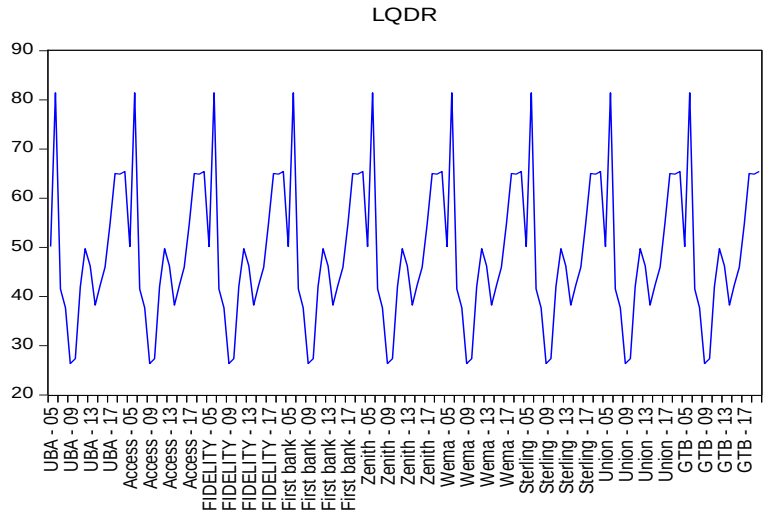
Figure 3 presents the graphical trend in the cost of intermediation for all the banks in the research data. The information suggests that UBA, First Bank, Sterling and Union banks had very high cost of intermediation between 2009 and 2013. For the 2009 financial year, Wema bank had the lowest cost of financial intermediation

Figure 4: Graphical Trend Analysis of Independent Variable (LQDR)



Source: Author's E-View 10 Computation Output (2021)

The figure above shows the graphical trend in the liquidity ratio of all the 9 selected banks in the Nigerian banking system for the period 2005-2020. The trend information shows a uniform cyclical movement. The fact behind the uniform trend owes to the uniform industry ratio. Other ratios such as the reserve ratio are uniform across the industry as the liquidity ratio as they are variables that are external to the internal policy of the banks. They are set by the apex monetary policy authority (the CBN). Hence, the trend information is not expected to vary among banks in the industry.

Table 4: Baseline Panel Regression Results

Series	Pooled OLS (1)	FE OLS (2)	Random E. OLS (3)
C	0.150969	2.360795	2.288383
	[0.0000]**	[0.0000]	[0.0000]**
CAR	7.838315	11.791145	7.146399
	[0.0000]**	[0.0039]	[0.0177]**
LQDR	0.030240	0.006511	1.106399
INTC	[0.0000] 3.872220 [0.0522]	[0.1656] 8.307544 [0.8556]	[0.0037] 1.247539 [0.0089]
Observations	144	144	144
R-Squared F-Value	0.426457	0.474983 7.199491 [0.0000]	0.4631801 4.533127 [0.0006]
Hausman Test =	15.4107 P-	Value =	[0.0841]

Sources: Author's E-View 10 Computation Output (2021)

*Note: ** indicates 5% level of significance*

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The research considered the pooled regression, fixed effect and random effect ordinary least square (OLS) panel regression, the results are in table 4 above. Observing this result, the research pools all 144 observations together and ran the regression model, not taking cognizance of features such as the cross section and time series nature of the data. The R-squared value for the pooled regression model is 0.426457 indicating that about 42.65% of total variation in the asset quality of the banks is explained by the industry convergence proxy variables (liquidity ratio, capital adequacy ratio, and the cost of intermediation). However, following the pooled regression estimation, only the liquidity ratio parameter significantly influences the quality of asset. This is confirmed by the P-values [0.0000]. In considering reliability, the pooled regression model is unreliable as it is fraught with inadequacies including its inability to distinguish between the various banks sampled. The individual peculiarities of the banks are lost during pooling. To accommodate the specific or peculiar characters of each individual bank studied, they are allowed to have their own intercept value, hence the progression of the analysis to the fixed effect model (FEM). The fixed effect model is necessary because it is time invariant so that despite change in the intercept across the sampled banks, it however does not change over time. The R-squared value of 0.474983 indicates that 47.50% of the total variation in asset quality (NPLTLA) is explained by the combined effect of the capital adequacy ratio (CAR), liquidity ratio (LQDR) and the cost of intermediation (INTC). Meanwhile only the capital adequacy ratio appeared to significantly influence quality of asset, the P-values were [(CAR = 0.0039), (LQDR = 0.1656) and (INTC = 0.8556).

In panel analysis, unobserved effects in the fixed model are very important as they inform policy decisions. To imbue this into the system, the random effect regression model was applied. The random effect model shows that (46.32%) of the total variations in the quality of asset (NPLTLA) are accounted for, by the explanatory variables (CAR, LQDR and INTC). This is evidenced from the R-squared value of 0.463180. however, the output values indicate that all the industry convergence variables as modelled (capital adequacy ratio, liquidity ratio and the cost of intermediation) significantly, positively and jointly influence asset quality as confirmed by the P-values [CAR = 0.0177, LQDR = 0.0037, and INTC = 0.0089].To affirm direction and properly inform policy statements arising from the research, there is need to decide between the fixed effect model and the random effect model, the Hausman test solves this. The Hausman test selects the model most appropriate for estimation; it is performed under null hypothesis that the random effects model is the most appropriate. In the alternative, the fixed-effects model is appropriate. The selection of either fixed effect model or random effect model is based on the statistical significance of the P-value. Following the result in table 4, the Hausman test statistics P-value is [0.0841]. This is greater than the 5% (0.05) chosen level of significance. Consequently, the null hypothesis cannot be rejected. Therefore, it is concluded that random effect model is desirable for prediction. The panel regression result presented in table 4 above, reveals that the capital adequacy ratio (CAR) has significant negative impact on the quality of assets of banks in Nigeria. This result is in conformity with the priori expectation that capital adequacy ratio is a determinant of asset quality of banks. The panel regression result also reveals that liquidity ratio (LQDR) and the cost of intermediation (INTC) has significant positive impact on the asset quality of the banks studied and indeed other banks in the banking system in Nigeria.

Discussion

This research investigated industry convergence on the quality of banks assets in the Nigerian financial system - assessing to what extent the capital requirements (bank capitalization proxy by the capital adequacy and liquidity ratios) and the relatively high and escalating bank interest margins influences the quality of banks' assets (focusing on the non-performing loans). Results of hypotheses analyses are in sync with Izzeldin et al. (2021), Das et al. (2020), and Sare et al. (2019). It was discovered that hypothesis one result revealed that capital adequacy ratio with coefficient value (7.146399) and p-value (0.0177) has

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positive significant effect on the quality of assets of banks in Nigeria. This corroborates with Izzeldin et al. (2021) result which shows that steady-state efficiency and the pace of convergence of Islamic and conventional banks are indistinguishable. Result of second hypothesis revealed that liquidity ratio has positive significant impact on the quality of assets of banks in the Nigerian banking system (coefficient = 1.106399, p-value = 0.0037). This is in line with Das et al. (2020) finding which indicated that the application of IFRS in the banking system improves transparency and comparability of accounts bank stakeholders. Hypothesis three result shows that cost of intermediation with coefficient value (1.247539) and p-value (0.0089) has positive significant effect on the quality of assets of banks in Nigeria. This is in congruence with Sare et al. (2019) finding which revealed a strong evidence of financial development divergence when using bank-based financial sector development indicators. The research results showed that the banks following the convergence are on a safe path in adopting a moderately increasing levels of interest margins (cost of intermediation) which evidently are derived mainly from increasing efficiency levels. The results also show that the bank specific variables, mainly the capital adequacy ratio and the liquidity ratio are among the factors that strengthen the observed levels of quality of assets in the banking system. Therefore, the policymakers should expand the ongoing deregulation efforts aiming at enhancing the levels of operating efficiency and stimulate the market competitiveness. In particular, new policies should be directed at encouraging market entry and eradication of the legal and regulatory obstacles to competition. The increase in capital ratios has sometimes reduced the asset quality productivity and in most cases, the levels of non-performing loans and non-performing asset have been increased with the increase in capital ratios. The capital adequacy ratios ensure the efficiency and stability of a nation's financial system by lowering the risk of banks becoming insolvent. Generally, a bank with a high capital adequacy ratio is considered safe and likely to meet its financial obligations. Bank regulators enforce this ratio to ensure credit discipline in order to protect depositors and support stability and efficiency in the financial system.

Conclusion and Implications

Findings from the empirical results lead to the conclusion that industry convergence has positive significant effect on the quality of assets of the Nigerian banking system. The policy implication of this result is varied. It implies that maintaining a high adequacy ratio (ensuring that banks have more equity capital) is a policy that could enhance the safety net and the quality of asset of banks as such advantage can be translated into higher profitability, ability to withstand a financial downturn and other unforeseen losses. Similarly, a policy in the direction of the liquidity ratio may also look to prescribe high ratios for the banks. High ratios promote banks' ability to meet daily runs without recourse to external financing (loans). In addition, the cost of intermediation policy is necessary to increase the efficiency of the allocation of capital.

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