

Determinants of Profitability in Nigerian Listed Deposit Money Banks

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Abstract

The study examines the determinants of profitability of ten deposit money banks in Nigeria over the period 2007-2016. Five potential bank-specific factors (non-performing loan, capital adequacy, size, deposit growth and age) and three macroeconomic factors (real interest rate, growth in GDP and inflation rate) were considered. Using Random Effects Generalized Least Squares estimation technique, the findings suggest that banks' profitability is only affected by bank-specific factors while macroeconomic variables seem to have no influence. Consistent with theoretical expectation, results show a negative and statistically significant relationship between non-performing loan ratio and bank profitability as well as a direct relationship between profitability and capital adequacy ratio. The three macroeconomic variables have insignificant relationship with bank profitability. It is recommended that bank management consider non-performing loan and capital adequacy as relevant factors when issues relating

to prescription of policy on profitability of banks are discussed and formulated.

Keywords: Bank-specific; Determinants; Macroeconomic; Nigeria; Profitability.

Introduction

Financial institutions, particularly commercial banks (known as deposit money banks in Nigeria) play important role in economic development of any country. Banks mobilize funds from the “surplus” unit of the society and extend credit facility to the “deficit” segment. By this singular intermediary function, the economy is put in the right pedestal for economic development and growth. Banks are also important participant in the money market. Their actions indirectly regulate the level of inflation and employment opportunities. If funds are not provided to needy users, especially organizations, production may be affected and this can lead to reduction in staff strength.

The significance of banks to the economy calls for studies on their performance. The analysis of factors that determine profitability of banks has been on the front burner of intellectual and professional discourse for over three decades. Particular attention was observed during the Nigerian reform of the banking sector in 2003 and global financial crisis of 2007 to 2009.

Banks’ profitability is perceived by financial management researchers to be influenced by both, internal and external factors. By scrutinizing the individual bank’s financial statements, the internal factors that are specific to each bank are derived (Wahdan and Leithy, 2017). However, those factors that are exogenously determined and beyond the control of management, but reflect on the macroeconomic activities that indirectly affect the profitability of banks are considered to be external factors (Tobias and Themba, 2011).

Several studies on determinants of profitability in the banking sector can be found in the literature, especially from the developed countries (Ayanda, Christopher and Mudashiru, 2013). In order to reduce the knowledge gap, this study targets profitability determinants of deposit money banks in Nigeria, an emerging country. Non-performing loan, capital adequacy, size, age and deposit growth are the bank-specific factors considered. For the macroeconomic variables, inflation, interest rate and growth in GDP were considered. These factors, except bank age, were extensively discussed in several studies

in other climes, but are these factors relevant to Nigerian business environment? The current study tries to provide answer to this important question.

Methodology and Purpose of the Study

Ex post facto research design method was adopted through the use of secondary source (historical audited annual reports and accounts of the selected banks).

The bank-specific information was extracted from the banks' annual audited financial accounts while the macroeconomic information was obtained from the various reports released by the apex regulatory institution, the Central Bank of Nigeria (CBN).

At 31st December, 2018 Nigeria had fourteen (14) deposit money banks that were listed on the floor of the Nigerian Stock Exchange. Using stratified sampling technique, ten banks with complete dataset necessary for this study were selected as sample. The sampled banks comprised four old-generation banks (Wema Bank Plc, First Bank of Nigeria Plc, Union Bank of Nigeria Plc and United Bank for Africa Plc) and six new-generation banks (Access Bank Plc, Diamond Bank Plc, Guaranty Trust Bank Plc, First City Monument Bank Plc, Zenith Bank Plc and Fidelity Bank Plc).

The purpose of this study is to empirically determine the factors that influence profitability of Nigerian deposit money banks

For the dependent variable, the study adopted the two commonest financial measures, Return on assets (ROA) and Return on equity (ROE). ROA reflects bank's management ability to generate return on a unit of the asset of the organization. In the same vein the ROE suggests the after tax profit generated from a unit of the equity capital employed by the organization. Both measures can be used to effectively appraise the performance of managers in terms of earnings and profitability generated from capital employed. Some prior studies such as Qin and Pastory (2012), Zawadi (2014) and Yao *et al.* (2018) employed either or both measures as profitability proxies.

Regarding independent variables, the present study decided to use 5 bank-specific (non-performing loan, capital adequacy, bank size, bank age and deposit growth) and 3 macroeconomic variables (interest rate, gross domestic growth rate and inflation rate) as potential factors that may influence the profits of Nigerian banks. These are briefly discussed hereunder.

Non-performing loan: Banks are expected to generate income from loans and advances extended to customers, but when these loans and advances are not repaid on time the likelihood of them becoming doubtful and bad is very high. If this happens, the solvency and long-run survival of the bank may be affected. In complying with financial reporting and institutional framework, profitability will also be affected negatively. The ratio of non-performing loans to total deposit is used as indicator for non-performing loan in this study. Empirically, Kargi (2011), Kolapo, Ayeni and Oke (2012), Tan, Christos and John (2016) and Kani (2017) reported an inverse association between non-performing loan and profitability in prior studies conducted. A negative relationship between the two variables is expected from the study. The following hypothesis is formulated:

H₁: Bank's non-performing loan ratio has a negative and *significant relationship with profitability.*

Capital adequacy: Capital adequacy ratio is adopted to proxy for capital adequacy. It measures the degree by which a bank can withstand risk associated with its nature of business. Theoretically, banks with excellent capital adequacy have improved profitability because such banks will be strong to absorb unforeseen bank run and huge loan default by customers. Although, the results of prior empirical studies produced mixed results (for instance, Soyemi, Ogunleye and Ashogbon, 2014, Nouaili, *et al.*, 2015, Chowdhury, 2015, Annor and Obeng, 2017 and Lotto, 2018 found direct association between capital adequacy ratio and profitability; some other studies such as Kurawa and Garba, 2014, Idowu and Awoyemi, 2014, Buchory, 2015, Mendoza and Rivera, 2017 produced negative relationship). The study expects a direct relationship between capital adequacy ratio and profitability. The following hypothesis is tested:

H₂: Bank's capital adequacy ratio has a positive and significant relationship with profitability.

Bank size: Following the argument of Bevan and Danbolt (2002) of "too big to fail" banks with larger total assets can derive benefit from economies of scale thereby impacting positively on their profitability. The logarithm of total assets is a measurement of size. Saeed (2014), Lipunga, 2014, Djalilov and Piesse (2016) reported a direct relationship between bank size and profitability and this is what the present study is expected. The following hypothesis is developed:

H₃: Bank size has a positive and significant relationship with profitability.

Bank age: Age is rarely discussed in empirical literature and it is presumed to have influence on profitability as a result of reputation, trust and goodwill from customers and the general public the bank would have garnered over the years. Based on this, an old-generation bank (being older) is expected to be more profitable than a new-generation bank. The study expects a direct association between bank age and profitability. The following hypothesis is tested:

H₄: Bank age has a positive and significant relationship with profitability.

Deposit growth: Interest income from loans and advances granted to customers is a major source of income to banks. But these loans do come from deposits received from customers. Theoretically, higher deposit should produce higher loans and advances and this should translate to higher bank interest income. Higher interest income is expected to translate to higher profitability. Buchory (2015) and Alshatti (2015) produced positive association between deposit and profitability in earlier studies. A positive association between deposit growth and profitability is expected. The following hypothesis is developed:

H₅: Growth in deposit of banks has a positive and significant relationship with profitability.

Interest rate: Annual real interest rate as determined by the CBN is seen to have impact on individual interest rates of deposit money banks. Hence, when real interest rates are rising, the individual banks also increase interest rates on customers' loans and advances in order to compensate for the inherent risk. This inevitably leads to increase in banks' income and profitability. Most prior empirical studies (such as Gharaibeh, 2015 and Islam and Nishiyama, 2016) suggested a direct association between interest rate and profitability. A positive relationship between the two variables is also expected from this study.

H₆: Interest rate has a positive and significant relationship with profitability.

Gross domestic product growth rate: Growth within a system is determined by the GDP. Banks' activities such as borrowing, lending and provision of professional services are meant to influence economic activities and growth. Some prior empirical studies (Boitan, 2015, Deng, 2016 and Yao, *et al.*, 2018) found a direct association between

GDP growth and profitability and it is what this study expects. The following hypothesis is formulated:

H₇: Growth in GDP has a positive and significant relationship with profitability.

Inflation: Is regarded as persistent increase in the price index of consumer (CPI). Prior studies produced mixed results. While some studies documented a positive relationship (Noman, *et al.*, 2015, Islam and Nishiyama, 2016, Yuksel, *et al.*, 2018) others found negative relationship (Saeed, 2014 and Yao *et al.*, 2018). Following from this discussion, the study does not expect a certain relationship. The following hypotheses are postulated:

H_{8a}: Inflation rate has a positive and significant relationship with profitability.

H_{8b}: Inflation rate has a negative and significant relationship with profitability.

Theoretical Framework

The literature is awash which several theories of profitability and its determinants. However, only those ones that underpin this study will be discussed. First we consider the theories of profitability. These are Frictional theory of profitability and Finance theory (Capital asset pricing model). Later, the Modigliani and Miller (1958) proposition, Signalling hypothesis and Market-power hypothesis will be used to explain the link between profitability and some of its determinants’.

The Frictional theory suggests that there exists a normal rate of profit which is considered to be a reward or return for investing funds in an organization rather than consume or hoard these funds. Based on the tenet of this theory, investors will look for banks that can pay them huge dividend at the end of the financial year. Potential investors will peruse through annual financial reports of banks before they stake their money for investment (buying of equity shares or purchase of corporate bonds). The theory further argues that in a static economy where no unanticipated changes in demand or cost conditions occur, in the long run, firms can only make normal rate of profit on their capital. However, if there are occasional disturbances in the economy, firms can make either economic or negative profit depending on whether the distortion in the system is favorable or unfavorable.

The Finance theory of CAPM was developed by four economists, Sharpe, W. F., Litner, J. N., Treynor, J. and Mossin, J. independently between 1964 and 1966 in an attempt to simplify the

assumptions of Portfolio Theory as they relate to investment in corporate securities. In its simplest form, the model predicts that a firm's risk class, not the structure of the market within which it operates, determines profit rates (Slade, 2003).

By applying the assumption of perfect capital market, Modigliani and Miller (1958) affirm that market and book rates of returns of corporate entities in the same business risk class are identical. Thus, an increase in equity by substituting additional equity for debt reduces the risk of both securities and therefore lowers the market rate of return as long as investors are risk averse (Hoffmann, 2011). This hypothesis suggests a negative relationship between capital ratio and profitability. Nigeria operates in a business environment which can be considered as imperfect capital market; hence, the proposition of Modigliani and Miller may not be plausible.

The signaling hypothesis operates under situation of imperfect capital market situation. Here managers have private information on future cash flows of the organization, which shareholders and the public do not have. In order to attract more capital to the business, managers might be willing to signal part of the private information in their possession through capital decisions (Myers and Majluf, 1984). This will result in signaling equilibrium, with the expectation that banks that are highly capitalized will have better performance. This situation best suits the Nigerian business environment, where information about a company is usually held in secrecy. A positive relationship between capital ratio and profitability is envisaged by this hypothesis.

Market-power hypothesis argues that few corporations can either implicitly or explicitly gang up or collude to create monopolistic situation. This action can translate to more expensive loans and lower interest rates for investors and bank customers. The effect is having monopolistic profit (Bourke, 1989; Molyneux and Thornton, 1992). It is however to be noted that collusion will be difficult to do if number of banks are large (Goddard, Molyneux and Wilson, 2004). This hypothesis predicts a positive relationship between bank concentration and profitability.

Literature Review

Empirical literature widely documented studies on factors that influence banks' profitability. Some of these findings suggested that bank-specific or internal factors are not the only factors that determine

banks' profit but also external factors or macroeconomic variables. Some of the related studies are discussed in turn.

Obamuyi (2013) assessed the factors that affect the performance of 20 Nigerian banks for 2006-2012. The study adopted fixed effects regression model as estimation technique. Findings suggested a direct relationship between profitability and three variables (capital, interest rate and GDP) and negative relationship with two variables (bank size and expenses management).

Zawadi (2014) assessed the effects of factors that influence performance of 23 Tanzanian banks by applying data derived from the banks' annual reports over the period 2009-2013. Results revealed that banks' profitability is influenced by management decision (internal factors) as macroeconomic factors have insignificant relationship with profitability.

Nouaili, Abaoub and Ochi (2015) studied the internal and external determinants of 17 universal banks in Tunisia over 16 year-period (1997-2012). Using Random effects model, with generalized least squares as estimation techniques, results provided a direct relationship between profitability and capital, privatization, quotation and growth rate of GDP. Size, inflation and risk index have negative association with profitability.

In the study on profitability determinant conducted using an unbalanced panel dataset and regression as estimation technique, Menicucci and Paolucci (2016) revealed an inverse relationship between asset quality and profitability. A direct association was observed between profitability and capital ratio, size and deposit ratio.

Tam and Tang (2017) investigated the determinants of 9 commercial banks for the period 2007-2013 in Vietnam. By applying the Random effects model as estimation technique, results revealed a direct and statistically significant association between performance proxies (ROA, ROE and NIM) and capital, interest rate; and growth in GDP. It further revealed an indirect and significant association between profitability and size, management expenses. Credit risk however has a negative and significant relationship with ROE and ROA, while inflation is positively related with NIM and ROE.

Nuhiu, Hoti and Bektashi (2017) studied profitability determinants of banks in Kosovo between 2010 and 2015. With the use of regression analytical technique, findings revealed that profitability of Kosovo banks is only driven by factors that are specific to each bank. Macroeconomic

factors (GDP and inflation) produced insignificant relationship with profitability.

Kohisheen, Murcia and Contreras (2018) analyzed the factors that determine profitability of 534 banks in 19 emerging economies for a period of 15 years. Results showed that profitability of the selected banks was affected by so many factors. Specifically, higher long-term interest rates tend to affect profitability positively while reverse situation is for higher short-term rates. Growth in credit facility was also seen to be important for bank profitability than growth in GDP.

Yuksel, Mukhtarov, Mammadov and Ozsari (2018) assessed the determinants of bank profitability in 13 former Soviet countries for the period of 1996-2016. Results from the regression revealed that profitability was influenced by loan advanced, non-interest income and GDP.

Yao, Haris and Tariq (2018) analyzed the influence of identified variables on 28 Pakistani banks for 2007-2016. GMM system estimator analytical tool revealed that credit quality, operational efficiency, banking sector development, inflation and industry concentration affect bank profitability negatively.

The model used in the study is in form of panel methodology and is as stated in equations 1 and 2.

$$ROA_{it} = \beta_0 + \beta_1NPL_{it} + \beta_2CAR_{it} + \beta_3BSZ_{it} + \beta_4AGE_{it} + \beta_5GRWD_{it} + \beta_6INT_{it} + \beta_7GGDP_{it} + \beta_8INF_{it} + e_{it} \dots\dots (1)$$

$$ROE_{it} = \beta_0 + \beta_1NPL_{it} + \beta_2CAR_{it} + \beta_3BSZ_{it} + \beta_4AGE_{it} + \beta_5GRWD_{it} + \beta_6INT_{it} + \beta_7GGDP_{it} + \beta_8INF_{it} + e_{it} (2)$$

Where;

ROA = return on asset

ROE = return on equity

NPL = non-performing loan

CAR = capital adequacy ratio

BSZ = bank size

AGE = age of bank

GRWD = growth in deposit

INT = interest rate

GGDP = growth in GDP

INF = inflation rate

$\beta_1 \dots\dots \beta_8$ = regression coefficients

e_{it} = the error term

The study variables and their measurements are presented in table no. 1.

Table no. 1. Measurement of Variables

Variable	Abbreviation	Measurement
Return on asset	ROA	$\frac{\text{Profit after tax}}{\text{Current} + \text{Non-current assets}}$
Return on equity	ROE	$\frac{\text{Profit after tax}}{\text{Number of equity shares in issue}}$
Non-performing loan	NPLDR	$\frac{\text{Non-performing loan}}{\text{Total deposit}}$
Capital adequacy ratio	CAR	$\frac{\text{Shareholders' fund}}{\text{Total assets}}$
Bank size	BSZ	Log of total assets
Age	AGE	Log of number of years of the bank
Growth in deposit	GRWD	$\frac{\text{Deposit}_t - \text{deposit}_{t-1}}{\text{Deposit}_{t-1}}$
Interest rate	INT	Log of annual interest rate
Growth in GDP	GGDP	$\frac{\text{GDP}_t - \text{GDP}_{t-1}}{\text{GDP}_{t-1}}$
Inflation rate	INF	$\frac{\text{CPI}_t - \text{CPI}_{t-1}}{\text{CPI}_{t-1}}$

Source: Various Empirical Studies (2018)

Results

Table no. 2 presents the study's descriptive statistics. As seen in Table no. 2, the mean return on asset (ROA) is 0.010 indicating that on the average the banks make profit of 1% on every unit of total asset employed by these organizations.

Table no. 2. Descriptive Statistics

Variable	Mean	Min	Max	Std. Dev	Skewness	Kurtosis
ROA	0.010	-0.296	0.106	0.048	-4.511	24.514
ROE	0.815	-20.827	7.881	2.685	-5.326	43.362
NPL	0.051	0.006	0.371	0.070	2.921	8.679
CAR	0.135	-0.308	0.284	0.085	-2.495	10.431
BSZ	12.051	11.113	12.920	0.371	-0.384	-0.165

AGE	1.553	1.255	2.090	0.243	0.873	-0.317
GRWD	0.244	-0.325	1.674	0.329	1.820	4.273
INT	1.225	1.190	1.264	0.019	0.177	0.230
GGDP	0.055	-0.016	0.095	0.030	-1.026	0.662
INF	0.141	-0.341	1.148	0.447	1.143	0.325

Source: Authors' calculation using E-views software, version 9.0

The average return on equity (ROE) is 0.815 and it varies from minimum value of -20.827 to maximum value of 7.881. The average non-performing loan is 0.051, indicating that about 5.1% of the banks' total deposits which was granted to customers as loans and advances became bad during the period of study. It ranges between 0.6% and 37.1%. Average capital adequacy ratio (CAR) has an average value of 13.5% (which is greater than the statutory requirement value of 10%) and it varies from -0.308 to 0.284. The bank size has an average value of 12.051 (that is, over N1,124 billion or US \$3.69 billion). The average age of the bank is about 36 years (that is log inverse 1.553) and this varies from minimum of 18 years (log inverse 1.255) to maximum of 123 years (log inverse 2.090). Growth in deposits (GRWD) has an average of 24.4% with minimum of -32.5% and a maximum of 167.4%. On average, the effective interest is 16.8% (log inverse 1.225) with the least standard deviation among the variables of 0.019. The mean index of growth in GDP (GGDP) is 0.055 and ranges between -0.016 and 0.095. The mean persistent change in the consumer price index (INF) is 14.1%. The variable with the highest variation from the mean is ROE with standard deviation of 2.685. Table no. 3 depicts the result of multicollinearity test conducted on the study's explanatory variables using Variance Inflation Factor (VIF) approach.

Table no. 3. Result of Multicollinearity Test

Variable	VIF	1/VIF
NPL	2.603	0.384
CAR	1.868	0.535
BSZ	1.540	0.649
AGE	1.199	0.834
GRWD	1.301	0.769
INT	1.455	0.687
GGDP	1.466	0.682
INF	1.426	0.701
Average	1.607	0.622

Source: Authors' calculation using E-views software, version 9.0

Gujarati (2003) suggested a cut-off value of 10.0 for VIF. This means that any explanatory variable having VIF of more than 10.0 shows high multicollinearity with other explanatory variables. As revealed in Table no. 3, the VIF results vary from 1.199 (age variable) to 2.603 (non-performing loan variable), with average value of 1.607, clearly suggests no multicollinearity in the variables used. Regression results using both the Fixed effects least squares and Random effects GLS estimation techniques are presented in Table no. 4. The Hausman (1978) specification test was employed to help select the better analytical tool that will provide unbiased inference between the Fixed and Random effects. Following the submissions of Gujarati (2003), Gujarati and Porter (2005) and Wooldridge (2009), the prob value of the specification's Chi-square is used as discriminant point. If it is significant at 5% ($p = 0.05$), Fixed effects model is better, otherwise Random effects should be adopted. Hausman test result summary is reported in Table no. 4. The prob values of the Chi-square for the two Models are not significant at 5% ($p = 0.227$ and 0.632 for models 1 and 2, respectively). Thus, the Hausman specification test prefers Random effects to the Fixed effects technique in making inferences in this study.

Table no. 4. Regression Results

	Fixed Model 1 (ROA)	effects Model 2 (ROE)	Random Model 1 (ROA)	effects Model 2 (ROE)
Constant	-1.227 {0.223}	0.754 {0.453}	-1.292 {0.200}	0.762 {0.448}
NPL	-2.758*** {0.007}	-3.182*** {0.002}	-2.904*** {0.005}	-3.218*** {0.002}
CAR	3.403*** {0.001}	0.879 {0.382}	3.561*** {0.001}	0.889 {0.376}
BSZ	-0.032 {0.974}	-1.618 {0.110}	-0.004 {0.997}	-1.636 {0.106}
AGE	0.575 {0.567}	1.545 {0.126}	0.579 {0.564}	1.562 {0.122}
GRWD	0.844 {0.401}	-0.644 {0.521}	0.900 {0.371}	-0.652 {0.516}
INT	1.179 {0.242}	-0.477 {0.635}	1.230 {0.222}	-0.482 {0.631}
GGDP	0.238 {0.812}	0.797 {0.428}	0.244 {0.808}	0.806 {0.423}
INF	-0.519 {0.605}	0.869 {0.388}	-0.535 {0.594}	0.879 {0.382}

R ²	.476	.385	.477	.385
Adj. R ²	.368	.258	.368	.258
Durbin-Watson	2.833	3.144	2.830	3.144
F-stat	4.387***	3.022***	4.397***	3.022***
(Prob value)	{0.000}	{0.000}	{0.000}	{0.000}
Hausman Chi-sq	6.922	3.441		
(Prob value)				
Observations	0.227	0.632		
	100	100	100	100

Source: Authors' calculation using E-views software, version 9.0

Note: Significant at 1% (***), 5% (**) and 10% (*) level of significance

Discussion

With regard to Model 1, as reported in Table no. 4, the R² is 0.477 indicating that about 47.7% variation in the dependent variable (ROA) can be jointly explained by the explanatory variables while the remaining 52.3% is due to some other factors not covered in the model. The Durbin-Watson value of 2.830 shows no presence of serial autocorrelation in the model since result is within acceptable threshold. The F-stat result of 4.397 (p = 0.000), significant at 1% level, shows that the model as a whole is fit. Almost similar results were shown in Model 2: R² is 0.477, Durbin-Watson value, 3.144, F-statistics value, 3.022 (significant at 1%). All these confirmed absence of serial autocorrelation and the model is a good fit.

Starting with bank-specific factors, the relationship between non-performing loan to deposit ratio (NPL) and both ROA and ROE is indirect and significant at 1% for the 2 Models. This result is supported by some prior empirical works (Kolapo *et al.*, 2012; Nisar, 2015; Ariyadasa, Siddique and Saroja, 2016; Opoku, Angmor and Boadi, 2016; Hanna, 2016; Tan *et al.*, 2016 and Kani, 2017) and provides empirical evidence that non-performing loan is an important factor that influence Nigerian banks' profitability. Hypothesis 1 is hereby validated.

The capital adequacy ratio (CAR) has a direct and statistically significant relationship with ROA at 1% level. It confirmed theoretical explanation that a bank with solid capital adequacy tends to be profitable because it will be strong and capable of averting unforeseen bank run (excessive cash withdrawal) and huge loan default from customers. Empirically, the outcome of the study is consistent with

some prior studies such as Khatun and Siddiqui (2016), Ozili (2016), Annor and Obeng (2017) and Lotto (2018). Based on this finding, Hypothesis 2 is hereby confirmed and capital adequacy is an important factor that influences bank profitability in Nigeria. However, in Model 2, CAR has a positive but insignificant relationship with ROE.

Size (BSZ) has an indirect but insignificant influence on bank's profit as shown from the results of the two models. This result is consistent with some prior studies (Samad, 2015; Anarfi, Abakah and Boateng, 2016 and Kolapo *et al.*, 2016) and does not provide empirical evidence to support size as a predictor of profitability of banks in Nigeria. Hypothesis 3 is hereby rejected.

Age of banks (AGE) has a positive but insignificant association with profitability. This clearly indicates that age does not matter in banking business as customers are indifferent to the generation the bank belongs to. What matter most is the prompt service the bank can render to customers. This is in line with studies of Kajola (2015) and Kajola, Agbanike and Adelowotan (2016). Hypothesis 4 is hereby rejected.

Growth in deposits (GRWD) produced mixed results with the two profitability indicators. It showed a direct relationship with ROA and inverse relationship with ROE. However, insignificant relationship was reported in both cases. This finding, although supported by some prior studies (Anarfi *et al.*, 2016) suggests that deposit growth is not a factor that influences bank profitability in Nigeria. Hypothesis 5 is hereby rejected.

The results for the macroeconomic factors of interest rate (INT), growth in GDP rate (GGDP) and growth in composite index (inflation rate, INF) are also presented in Table no. 5. It can be seen that all the three macroeconomic variables have insignificant association with the two profitability indicators. Thus, INT, GDP and GGDP are not important profitability determinant factors in Nigeria. This outcome is supported by some prior studies (Kiganda, 2014; Samad, 2015; Javaid, 2016; Ahmad, Koh and Shaharuddin, 2016; Nuhiu *et al.*, 2017). Hypotheses 6, 7, 8a and 8b are rejected.

Conclusion

The study empirically examined the profitability determinants of ten listed banks in Nigeria. The study employed both bank-specific and macroeconomic variables in panel data over ten years (2007-2016).

Results of GLS Random effects regression revealed that two out of five bank-specific variables, non-performing loan and capital adequacy, are the factors that drive the profitability of Nigerian banks. Specifically and consistent with theoretical expectations, there was an indirect and statistically significant relationship between non-performing loan and bank profitability. Further, the result revealed a positive and statistically significant relationship between capital adequacy and profitability. The study could not however provide support of any of the three macroeconomic variables (interest, growth in GDP and inflation rates) as important factors that drive profitability of banks in Nigeria.

Following from the outcome of the study, corporate managers of Nigerian banks are advised to take utmost interest in non-performing loan and capital adequacy factors when policy prescriptions concerning banks' profitability are looked into. Further, macroeconomic factors, such as interest, growth in GDP and inflation rates, show no impact on banks profitability; hence management should worry less about these factors.

For future line of study, increasing the sample size and the study time frame will likely produce a more robust result and policy prescriptions.

Bibliography

- Ahmad, R., Koh, E. H. Y., Shaharuddin, S. S. (2016). "Determinants of Bank Profitability: A Comparative Study of East Asia and Latin America". *International Journal of Banking, Accounting and Finance*, Vol. 7, pp. 34-51.
- Alshatti, A. S. (2015). "The Effect of Liquidity Management on Profitability of Jordanian Commercial Banks". *International Journal of Business and Management*, Vol. 10, pp. 62-71.
- Anarfi, D., Abakah, E. J., Boateng, E. (2016). "Determinants of Bank Profitability in Ghana: New Evidence". *Asian Journal of Finance and Accounting*, Vol. 8, pp. 194-204.
- Annor, E. S., Obeng, F. S. (2017). "Impact of Credit Risk Management on the Profitability of Selected Commercial Banks Listed on the Ghana Stock Exchange". *Journal of Economics, Management and Trade*, Vol. 20(2), pp. 1-10.

- Ariyadasa, C. E., Siddique, M. A. B., Saroja, S. (2016). "On the Profitability of Commercial Banks: The Sri Lankan Case": *Applied Economics*, pp. 1-11.
- Ayanda, A. M., Christopher, E. I., Mudashiru, M. A. (2013). "Determinants of Banks' Profitability in Developing Economy: Evidence from Nigerian Banking Industry". *Interdisciplinary Journal of Contemporary Research in Business*, Vol. 4, pp. 155-181.
- Beven, A., Danbolt, J. (2002). "Capital Structure and its Determinants in the use of a Decompositional Analysis". *Applied Financial Economics*, Vol. 12, pp. 159-170.
- Boitan, I. A. (2015). "Determinants of Sustainable Banks' Profitability: Evidence from EU Countries". *Financial Studies*, Vol. 19, pp. 21-39.
- Bourke, P. (1989). "Concentration and other Determinants of Bank Profitability in Europe, North America and Australia. *Journal of Banking & Finance*, Vol. 13, pp. 65-79.
- Buchory, H. A. (2015). "Determinants of Banking Profitability in Indonesian Regional Development Bank. Paper presented at the First international conference on Actual Economy: Local Solutions for Global Challenges (ACE-2015), Pataya, Thailand, July pp. 2-3.
- Chowdhury, R. H. (2015). "Equity Capital and Bank Profitability: Evidence from the United Arab Emirates". *Afro-Asian Journal of Finance and Accounting*, Vol. 5, pp. 1-20.
- Deng, A. (2016). "Determinants and Differences of Domestic and Foreign Commercial Bank Profitability". Unpublished Master Thesis, University of New Hampshire, Durham, USA.
- Djalilov, K., Piesse, J. (2016). "Determinants of Bank Profitability in Transition Countries: What Matters Most?" *Research in International Business and Finance*, Vol. 38, pp. 69-82.
- Gharaibeh, A. M. O. (2015). "Empirical Evidence of the Determinants of Commercial Banks' Profitability in Bahrain". *Journal of Emerging Trends in Economics and Management Sciences*. Vol. 6(5), pp. 299-314.
- Goddard, J., Molyneux, P., Wilson, J. (2004). "The Profitability of European Banks: A Cross-sectional and Dynamic Panel Analysis". *The Manchester School*, Vol. 72, pp. 363-381.

- Gujarati, D. N. (2003). “*Basic Econometrics*”, New York: McGraw-Hill/Irwin.
- Gujarati, D. N., Porter, D. C. (2009). “*Basic Econometrics*”, New York: McGraw-Hill/Irwin.
- Hanna, G. (2016). “Factors Affecting Bank Profitability During War Conflicts: Evidence from Syria”. Master Thesis, JIBS, Business Administration, Jonkoping University, Jonkoping, Sweden.
- Hausman, J. A. (1978). “Specification Tests in Econometrics”. *Econometrica*, Vol. 46(6), pp. 1215-1271.
- Hoffmann, P. S. (2011). Determinants of the Profitability of the US Banking Industry. *International Journal of Business and Social Science*. Vol. 2(22), pp. 255-269.
- Idowu, A., Awoyemi, S. O. (2014). “The Impact of Credit Risk Management on the Commercial Banks Performance in Nigeria”. *International Journal of Management and Sustainability*, Vol. 3(5), pp. 295-306.
- Islam, M., Nishiyama, S. (2016). “The Determinants of Bank Profitability: Dynamic Panel Evidence from South Asian Countries”. *Journal of Applied Finance and Banking*, Vol. 6, pp. 77-97.
- Javaid, M. E. (2016). “Bank-Specific and Macroeconomic Determinants of Bank Profitability”. *Journal of Management*, Vol. 10, pp. 38-54.
- Kajola, S. O. (2015). “Determinants of Capital Structure of Nigerian Quoted Companies”. Unpublished Ph.D Thesis, Ladoke Akintola University of Technology, Ogbomosho, Nigeria.
- Kajola, S. O., Agbanike, T. F., Adelowotan, M. O. (2016). “Relationship between Firm Size and Financial Performance: Evidence from Nigerian Listed Firms”. *Fountain University Journal of Management and Social Sciences*, Vol. 5(1), pp. 38-52.
- Kani, S. (2017). “Credit Risk and Banks Performance: Evidence from WAEMU Countries”. *IOSR Journal of Economics and Finance*, Vol. 8(1), pp. 5-11.
- Kargi, H. S. (2011). “Credit risk and the Performance of Nigerian Banks”. Unpublished Article, Department of Accounting, Faculty of Administration, Ahmadu Bello University, Zaria, Nigeria.

- Khatun, M., Siddiqui, S. (2016). "Size, Equity Backing and Bank Profitability: A Case Study Using Panel Data from Bangladesh". *Journal of Applied Finance and Banking*, Vol. 6, pp. 1-14.
- Kiganda, E. O. (2014). "Effect of Macroeconomic Factors on Commercial Banks Profitability in Kenya: Case of Equity Bank Limited". *Journal of Economics and Sustainable Development*, Vol. 5, pp. 46-56.
- Kohischeen, E., Murcia, A., Contreras, J. (2018). "Determinants of Bank Profitability in Emerging Markets". Bank for International Settlements (BIS) Working Papers No. 686, (Available on-line via www.bis.org: accessed on July 20, 2018).
- Kolapo, T. F., Ayeni, R. K., Oke, M. O. (2012). "Credit Risk and Commercial Banks' Performance in Nigeria: A Panel Model Approach". *Australian Journal of Business and Management Research*, Vol. 2(2), pp. 31-38.
- Kurawa, J. M., Garba, S. (2014). "An Evaluation of the Effect of Credit Risk Management on the Profitability of Nigerian Banks". *Journal of Modern Accounting and Auditing*, Vol. 10(1), pp. 104-115.
- Lipunga, A. M. (2014). "Determinants of Profitability of Listed Commercial Banks in Developing Countries: Evidence from Malawi". *Research Journal of Finance and Accounting*, Vol. 5, pp. 41-49.
- Lotto, J. (2018). "The Empirical Analysis of the Impact of Bank Capital Regulations on Operating Efficiency". *International Journal of Financial Studies*, Vol. 6(34), pp. 1-11.
- Mendoza, R., Rivera, J. P. R. (2017). "The Effect of Credit Risk and Capital Adequacy on the Profitability of Rural Banks in the Philippines". *Scientific Annals of Economics and Business*, Vol. 64(1), pp. 83-96.
- Menicucci, E., Paolucci, G. (2016). "The Determinants of Bank Profitability: Empirical Evidence from European Banking Sector". *Journal of Financial Reporting and Accounting*, Vol. 5, pp. 41-49.
- Modigliani, F., Miller, M. (1958). "The Cost of Capital, Corporation Finance and the Theory of Investment". *The American Economic Review*, Vol. 68, pp. 261-297.
- Molyneux, P., Thornton, J. (1992). "Determinants of European Bank Profitability: A Note". *Journal of Banking & Finance*, Vol. 16, pp. 1173-1178.

- Myers, S., Majluf, N. (1984). "Corporate Financing and Investment Decisions when Firms have Information that Investors do not have. *Journal of Financial Economics*, Vol. 13, pp. 187-221.
- Nigerian Stock Exchange (2007-2016). "*Fact Book*", Lagos.
- Nisar, S. (2015). "Determinants of Bank's Profitability in Pakistan: A Least Panel Data Evidence". Ph.D Thesis, Shenzhen Graduate School, Shenzhen, China.
- Nouaili, M., Abaoub, E., Ochi, A. (2015). "The Determinants of Banking Performance in Front of Financial Changes: Case of Trade Banks in Tunisia". *International Journal of Economics and Financial Issues*, Vol. 5(2), pp. 410-417.
- Nuhiu, A., Hoti, A., Bektashi, M. (2017). "Determinants of Commercial Banks Profitability through Analysis of Financial Performance Indicators: Evidence from Kosovo". *Business Theory and Practice*, Vol. 18, pp. 160-170.
- Obamuyi, T. M. (2013). "Determinants of Banks' profitability in a developing economy: Evidence from Nigeria". *Organisations and Markets in Emerging Economies*, Vol. 4(2), pp. 97-111.
- Opoku, R. T., Angmor, P. I., Boadi, L. A. (2016). "Credit Risk and Bank Profitability: Evidence from Ghana Stock Exchange". *Journal for Studies in Management and Planning*, 2, pp. 89-96.
- Ozili, P. K. (2016). "Bank Profitability and Capital Regulation: Evidence from Listed and Non-listed Banks in Africa". *Journal of African Business*, pp. 1-26.
- Qin, L., Pastory, D. (2012). "Commercial Banks Profitability Position: The Case of Tanzania". *International Journal of Business and Management*, Vol. 7(13), pp. 136-144.
- Saeed, M. S. (2014). "Bank-related, industry-related and macroeconomic factors affecting bank profitability: A case of the United Kingdom". *Research Journal of Finance and Accounting*, Vol. 5, pp. 42-50.
- Samad, A. (2015). "Determinants of Bank Profitability: Empirical Evidence from Bangladesh Commercial Banks". *International Journal of Financial Research*, Vol. 6(3), pp. 173-179.
- Slade, M. E. (2003). Models of Firm Profitability. Preliminary Draft, Department of Economics, University of Warwick, Coventry, UK.

- Soyemi, K. A., Ogunleye, J. O., Ashogbon, F. O. (2014). "Risk Management Practices and Financial Performance: Evidence from the Nigerian Deposit Money Banks". *The Business and Management Review*, Vol. 4(4), pp. 345-354.
- Tam, L. T., Trang, P. (2017). "Determinants of Bank Profitability: The Case of Commercial Banks Listed on the Vietnam's Stock Exchange". *Journal of Business Sciences*, Vol. 1(2), pp. 1-12.
- Tan, A. Y., Christos, F., John, R. A. (2016). "The Profitability of Chinese Banks: Impacts of Risk, Competition and Efficiency". *Review of Accounting and Finance*. (CrossRef).
- Tobias, O., Themba, M. S. (2011). "Effects of Banking Sectorial Factors on the Profitability of Commercial Banks in Kenya". *Economics and Finance Review*, Vol. 1(5), pp. 1-30.
- Wahdan, M., Leithy, W. (2017). "Factors Affecting the Profitability of Commercial Banks in Egypt over the Last 5 Years (2011-2015)". *International Business Management*, 11(2), pp. 342-349.
- Wooldridge, J. M. (2009). *Introductory Econometrics: A Modern Approach*, 4th Edition, Cambridge: USA Cengage Learning.
- Yao, H., Haris, M., Tariq, G. (2018). "Profitability Determinants of Financial Institutions: Evidence from Banks in Pakistan". *International Journal of Financial Studies*, pp. 1-28.
- Yuksel, S., Mukhtarov, S., Mammadov, E., Osari, M. (2018). "Determinants of Profitability in the Banking Sector: An Analysis of Post-Soviet Countries". *Economies*, Vol. 6 (41), pp. 1-15.
- Zawadi, A. (2014). "Determinants of Banks' Profitability in a Developing Economy: Empirical Evidence from Tanzania". *European Journal of Business and Management*, Vol. 6(31), pp. 363-375.