

EFFECT OF ECONOMIC ENVIRONMENT ON PROFITABILITY OF QUOTED DEPOSIT MONEY BANKS IN NIGERIA

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Abstract

This study examines the effects of Economic Environment on profitability of quoted Deposit Money Banks in Nigeria due to the problem of fluctuating profitability and losses in the sector. Ex-post facto research designs were used for the study. The population of the study is the twelve (12) quoted DMBs in Nigeria as at 2020. Panel regression analysis was used on panel data collected from the CBN Statistical Bulletin and the Annual reports and accounts of the sampled banks for the period spanning 2011 through 2020. The study utilizes Interest rate, Inflation rate, and Exchange Rate and regressed against profitability in terms of ROA as explained variable. It was found from the panel regression result that interest rate is negatively related to profitability with statistical significance. In the case of inflation rate and profitability of quoted DMBs in Nigeria, the study finds an insignificant negative relation. Exchange rate reveals a significant positive effect on profitability of quoted DMBs in Nigeria. The study recommends among others that, Quoted DMBs in Nigeria should intensify efforts to reduce the lending rate to customers with a view to encouraging them to borrow since most of these banks depend on lending to customers to generate more revenue or income.

Keywords: *Economic Environment, Profitability, Deposit Money Banks, Nigeria*

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Introduction

Financial institutions play a major role in oiling the wheel of growth in any economy of the world. They intermediate between end users of deposit and various investors, and facilitate various business activities. Commercial banks in Nigeria have undergone a remarkable and a tremendous change over the years in terms of the number of institutions, ownership structures as well as depth and breadth of operations designed to position it as Africa's financial hub. Logic suggests that a major factor affecting company failure rate would be the overall economic circumstances

within which companies operate. An effective and efficient functioning of the financial sector requires sound and favorable macroeconomic environment in the country. However, in this era of globalization it is imperative for the financial sector to be strongly integrated with the global economy. Increased integration and growing macroeconomic fluctuations require more attention to be paid to the link between the “noise” that these fluctuations represent and the company’s own development.

Financial landscape has been produced as a result of the reforms, characterized by strong and large banks, improved financial infrastructure and efficient payment system. This is shown in the average capital adequacy ratio (CAR) of commercial banks which was 15.3 per cent as at the year 2018 (CBN news bulletin, 2018). The main objective of the reform is to ensure a sound and efficient financial system. The reforms are necessary to enable the banking system develops the required resilience to support the economic development of the nation by efficiently performing its function as the pillar of financial intermediation (Aburime, 2008 as cited in Osamwonyi & Michael, 2014).

In Africa, Nigeria is the second largest economy with respect to gross domestic product (GDP) and second to South Africa. Since 2003, GDP growth has averaged 6 to 7%. GDP per capita has moved from below \$700 in 2004 to \$1418 in December 2009 showing economic growth. Nevertheless, wealth distribution is heavily lopsided with 54% of the entire population classified as living below the poverty line (CBN Annual Report 2016). Owing to the tight monetary policy since 2011, an objective of single digit inflation has been focused on.

In December 2011, inflation declined to 10.3% and jumped to 12.6% in January 2012. This was as a result of the partial removal of fuel subsidy. Three different measures were put in place in January 2012 in order to reduce inflationary pressure. Cash reserve requirement (CRR) was raised from 1.0% to 8.0%, monetary policy rate (MPR) was raised from 6.25% to 12.0% and the Liquidity Ratio (LR) was raised from 25.0% to 50.0%. (CBN, Annual Report, 2012) shows that movement in money supply had been sluggish. The high interest rate is said to be as a result of the relatively high inflation in the economy.

Commercial banks in Nigeria increased their maximum lending rates from 22% - 33% to 25% -27% in May 2012, leading to high operating costs followed by decaying infrastructure. Rose (1999) as cited in Osamwonyi and Michael (2014) says that profitability is the net after – tax income of banks usually proxies by return on assets and return on equity ratios. This ratio is affected by numerous external factors real gross domestic product, level of import and export, Nigeria, commercial banks have always played major roles in the economic development and their operations are always affected by macroeconomic conditions (CBN news bulletin 2011).

In order to survive in the long run, it is important for a bank to identify factors affecting its profitability so that it can take initiatives to increase its profitability by managing the dominant determinants (Podder, 2012). Bank profitability is important for all stakeholders, such as the owners, the investors, the debtors, the creditors, the depositors, the managers of banks, the regulators and the government. The profitability of banks gives directions to the stakeholders in their decision making. As outlined by Podder (2012), it gives direction to the debtors and the investors to make decision whether they should invest money in bank or invest somewhere else. It also flashes direction to bank managers whether to improve its finance. Regulatory agencies and government are also interested in financial profitability for the regulation purposes.

The profitability of commercial banks can be affected by internal and external factors which can be classified into bank specific (internal) and Economic Environment (Flamini et al, 2009). The internal factors are individual bank characteristics which affect the bank's profitability, these factors are basically influenced by the internal decisions of management and board. The external factors are sector wide or country wide factors which are beyond the control of the company and affect the profitability of banks. The macroeconomic condition, which determines the level of credit worthiness of the borrowers, asset quality, increase and decrease in the value of collateral and other related factors, is the main source of macroeconomic shocks to the bank's portfolio. Furthermore, regulatory environment of an economy, level of financial development and level of concentration of the financial sector also explain its profitability. The instruments of monetary policy like inflation, real exchange rate,

and short-term interest rate act as important determinants of profitability of companies in a country.

According to Asimakopoulou, Samitas and Papadogonas (2009), financial sector institutions can capture a range of factors that impose risks on the financial system and devise ways to manage such factors. So, for long-term sustainability of the financial sector, banks should be capable of operating in a competitive environment while mitigating the risk factor.

All companies strive to be successful and sustainable. To achieve this goal, it is important that company profitability continues to grow. In this regard, a fundamental research question is "what are the main variables that drive continual profitability?" as Nigeria is dominated by Commercial Banks, it is of vital concern to associate their profitability with country's progress, and hence, a study to identify the impact of Economic Environment on the profitability of commercial banks would add to the strategies devised in the interest of the institutions' development. Thus, this study assesses the effect of Economic Environment on profitability of quoted DMBs in Nigeria.

Statement of the Problem

The researcher has observed that quoted deposit money banks in Nigeria have had inconsistent profitability records and many record losses from time to time which is not the ideal situation that they would expect or may have strategically planned for. This researcher believes that the banks have well trained and experienced management as well as members of staff. The banks also possess the financial resources to exist since they have been able to meet the Central Bank of Nigeria's regulations for existence as financial institutions. Therefore, the researcher perceives the problem to be from the economic (external) environment of business, hence the reason for carrying out the study.

Furthermore, from consequent literature search, the researcher noticed that available studies lack consensus on the effect of macroeconomic factors on bank profitability. For instance, Ongore and Kusa (2013) established that Economic Environment

insignificantly affect bank profitability. Similarly, Saksonova and Solovjova (2011) performed comparative analysis of five largest Latvian commercial banks during period of economic crises and found that GDP growth had positive contribution to profits, and inflation negatively affected ROA. Shaher, Kasawneh, and Salem (2011) distributed 320 questionnaires among bank-related individuals and response proved important association of GDP with earnings. Khrawish (2011) found negative impact of GDP and inflation with ROA and ROE. Alper and Anbar (2011) observed the returns of Turkish banks and inferred that GDP growth, real interest rate and inflation rate had an insignificant effect on banks' assets and equity returns. This lack of consensus of various studies and absence of a recent study in Nigeria indicates that such study needs to be carried out. This therefore justifies the rationale behind the current study.

The objective of this study is to examine the effect of Economic Environment on the profitability of quoted Deposit Money Banks (DMBs) in Nigeria. With a view to achieving the objective of the study, the following hypotheses are postulated:

H₀₁: Interest Rate has no significant effect on ROA of Quoted DMBs in Nigeria.

H₀₂: Inflation Rate has no significant effect on ROA of Quoted DMBs in Nigeria.

H₀₃: Exchange Rate has no significant effect on ROA of Quoted DMBs in Nigeria.

The current study contributes to the literature as it analyses the impact of Economic Environment on banks profitability in Nigeria. It is assumed that the variety of observations and factors that can affect banks profitability will provide a deeper insight into commercial bank performance. It is expected that the generalization of the findings will be possible and the observations that are obtained herein will be applicable to different cases and environments. The number of observations allows the researcher to expect that the findings of the study will be applicable to different companies. The results can be important and valuable to company managers who are interested in knowing how government policies affect their returns, market requirements and company objectives. Besides, it is expected that the findings can be used by policy makers who can adjust the appropriate regulations in order to address the issues that are related to the levels of growth in organizations.

This study is limited to quoted Deposit Money Banks in Nigeria. It assesses the effect of Economic Environment on the profitability of quoted Deposit Money Banks in Nigeria. The Economic Environment that the study focuses on are Interest rate, Inflation rate, and Exchange rate. The profitability indicator used in the study is ROA. The study period is ten years spanning 2011 through 2020. This period is considered the post global financial crisis era that banks operations took different dimensions.

Concept of Economic Environment

The external factors that can affect the bank's performance are usually beyond the control of company. This is due to the fact that these factors are sector-wide or country-wide (Ongore & Kusa 2013). According to Karkrah and Ameyaw (2010) Economic Environment form a larger part of the external profit determinants in most studies conducted. The most common external factors that have been identified includes among others competition/market share/firm size, inflation, GDP growth, and interest rate (Haron, 2004). Weersainghe and Perera (2013), Ongore and Kusa (2013) among others discussed the various external factors that impact bank profitability as outlined below.

Rasiah (2010) argues that the move by central banks in their quest to control inflation result in increased cost of borrowing as well as a fall in credit-creating capacity and subsequently the loans given to the commercial banks. This trickles down to a decline in the loans given by commercial bank. Furthermore, inflation has an adverse effect on commercial bank's profitability as it erodes the real value of bank's assets relative to their liabilities, hence it affects profits.

Interest Rate

As for the interest rate, the relationship between the interest rate and bank profits is said to be positive (Vejzagic & Zarafa, 2014). In general, the variable interest rate has been cited in most studies as profitability determinant of commercial banks. This is on the basis that net interest income which is a difference between interest income and interest expenses largely affects the commercial bank's profits. The real interest rate is the rate of interest an investor expects to receive after allowing for inflation. It can be described more formally by the Fisher equation, which states that the real interest rate

is approximately the nominal interest rate minus the inflation rate. A consumer price index (CPI) measures changes in the price level of a market basket of consumer goods and services purchased by households. The CPI in the United States is defined by the Bureau of Labor Statistics as a measure of the average change over time in the prices paid by urban consumers for a market basket of consumer goods and services.

Inflation

Inflation is a sustained increase in the general price level of goods and services in an economy over a period of time due to the devaluation of the fiat currency being used. Inflation is a continuous rise in the prices. Simply put, inflation depicts an economic situation where there is a general rise in the prices of goods and services, continuously. It could be defined as 'a continuing rise in prices as measured by an index such as the consumer price index (CPI) or by the implicit price deflator for Gross National Product (GNP)'. Inflation is frequently described as a state where "too much money is chasing too few goods". When there is inflation, the currency loses purchasing power.

Exchange Rate

The Federal Reserve Bank of St. Louis (2019) defined an exchange rate as the value of one nation's [currency](#) versus the currency of another nation or economic zone. For example, how many U.S. dollars does it take to buy one [euro](#)? As of July 31, 2020, the exchange rate is 1.18, meaning it takes \$1.18 to buy €1. Exchange Rate is the price of some foreign currency in terms of a home currency.

Concept of Profitability

Profitability of commercial banks is measured through the following variables such as ROA which is a major ratio that indicates the profitability of a bank. It is a ratio of Income to its total asset (Khrawish, 2011). It measures the ability of the bank management to generate income by utilizing company assets at their disposal. In other words, it shows how efficiently the resources of the company are used to generate the income. It further indicates the efficiency of the management of a company in generating net income from all the resources of the institution (Khrawish, 2011). Wen (2010), state that a higher ROA shows that the company is more efficient in using its resources.

Empirical Review

Interest Rate and Profitability

A study by Emase (2017) examined the effect of Economic Environment on profitability of Commercial Banks listed at the Nairobi Securities Exchange (NSE) for years 2009 to 2016. The objective was to determine the effect of real Gross Domestic Product on the profitability, examine the effect of interest rate on the profitability, evaluate the effect of inflation rates on the profitability and establish the effect of exchange rate on the profitability. Panel data for the 11 listed banks in the NSE was utilized. Panel data regression analysis with fixed effects was utilized on the data to examine the effects of these four Economic Environment which included: Gross Domestic Product (GDP), Real interest rate, Inflation rate and Exchange rate on Return on Asset (ROA) which proxies profitability. The study findings indicated that real GDP growth rate had positive significant effect on profitability of commercial banks as measured through Return on Assets (ROA). Real interest rates had a significant positive influence on profitability of listed commercial banks in Kenya. Inflation rate had a significant positive influence on profitability of listed commercial banks in Kenya. While the exchange rate had a negative significant effect on the profitability of listed commercial banks on Nairobi Securities Exchange.

Ngure (2014) sought to determine the effect of interest rates on financial performance of commercial banks in Kenya. The study used descriptive research design using secondary data obtained from Central Bank of Kenya for the period of five years from 2009 to 2013. The study concluded that bank size and interest rate volatility had effect on profitability of commercial banks. The study also found that the model containing interest rates and size of commercial bank can explain 64% of the changes in commercial banks profitability. The study recommended that in times of poor performance of commercial banks and the need to boost their profitability may be necessary for their role in economy, Central Bank of Kenya should come up with monetary policy that will lead to rise in interest rates and hence improving banks profitability. But with the cap on interest rates extended by the CBK policies, it may be very difficult to change the poor performance of the commercial banks through upward adjustment of inter

Ndichu (2014) established the effect of interest rate spread and on the financial performance of deposit taking micro-finance banks in Kenya. The research study utilized descriptive research design and embraced systematic random sampling technique on selecting the four-deposit taking micro-finance banks in Kenya out of the nine existing in the country. Secondary data was analysed and presented in form of tables and figures to provide a clear picture of how interest rates spread contribute in the success or failure of the deposit taking micro-finance business and to show the various characteristics and relationships among the variables in consideration. Findings further showed that interest rate spread is statistically significant at 95% and 99% significant level with a negative correlation thus as interest rates spread increases the financial performance of deposit taking micro-finance banks decreases.

Inflation Rate and Profitability

Hooshyari and Moghanloo (2015) evaluated the impact of inflation on profitability of banks. The population was the state and private banks in Iran that information and financial statements was available on their sites. In order to analyse the data resulted from collected questionnaires deductive and descriptive statistical methods were used. The j-statistic was used to test whether all the non-zero coefficients Wald Test is used. The study concluded that there is a strong correlation between inflation and profitability of banks in Iran. In inflation there is more economic activities assumed by many different players meaning they earn more, and the funds are stored in banks which increases the profitability of commercial banks.

Chioma, Adanma and Clementina (2014) study was designed to empirically examine the relationship between inflation and banks' performance and how the outcome influences the lending decision of such banks. The research design adopted in this study is ex-post factor research design which relies mainly on the use of secondary data. The target population were all the commercial banks quoted in Nigerian Stock Exchange. The result revealed that there is positive but not significant relationship between inflation, banks' performance and the investment decision of commercial banks operating in Nigeria. This implies that the impact of inflation on bank's

performance vis-à-vis investment decision of banks was positive but not statistically significant.

Omondi (2014) conducted a study on the relationship between annual inflation rate and Kenya Commercial Bank base lending rate, new lending volumes and loans defaulting. The study adopted descriptive research design with the target population comprising of 450 KCB employees. Secondary data was obtained from banks administrative records and documentation while data on inflation rates was obtained from the Kenya National Bureau of Statistics, through email. Primary data was mainly obtained from KCB employees using self-administered questionnaires. Secondary data was obtained from banks administrative records and documentation while data on inflation rates was obtained from the Kenya National Bureau of Statistics, through email. Primary data was mainly obtained from KCB employees using self-administered questionnaires. The major finding was the positive relationship between inflation rate and the base lending rate charged by the bank, as inflation levels rises, so did the bank's base lending rate both from the key informant figures and the regression analysis of the secondary data, showing that inflation has a significant effect on KCB base lending rate.

Exchange Rate and Profitability

Ujuju and Etale (2016) analysed the determinants of commercial banks' lending policy in Nigeria using econometric approach. The study utilizes Economic Environment such as Gross Domestic Products, Prime lending rate, exchange rate, and consumer price index (CPI) to regress against loans and advances to customers of quoted Deposit Money Banks in Nigeria. Data were collected for the period of 30 years spanning through 1985 to 2014. These data were collected from the CBN Bulletin for analysis in secondary form. Ordinary least square method of regression was used and found out that Gross Domestic Products, exchange rate, and consumer price index (CPI) have positive correlation with commercial banks' lending behaviour in Nigeria. In the case of prime lending rate, a significant negative effect was found on lending of commercial banks in Nigeria. This study dwelled up to 2014 however attention could be made to 2020 to expand the horizon. Furthermore, the study utilizes OLS to look at the

aggregate effects instead of the cross sectional effect. Thus, panel regression could be used to enhance the quality of the work by looking at the cross-sectional effects of these variables.

Ahmed (2015) examined the effect of foreign exchange exposure on the financial performance of commercial banks in Kenya. The study utilizes both primary and secondary data for analysis. The listed commercial banks in Kenya form the population of the study, as data were collected from Nairobi stock exchange. Descriptive research design was adopted and regression analysis was used. It was found from the regression result that, interest rate has insignificant positive effect on financial performance of banks in Kenya. It was also found that foreign exchange exposure has negative effect on performance of banks in Kenya. The work of Ahmed (2015) was limited to Kenya, and the study was based on financial performance as it was not specific to lending behaviour of banks. This therefore, provides a gap to be filled by looking at Nigeria situation and being particular to lending behaviour as against financial matrix used in the study.

Kiganda (2014) conducted a study on the effect of macroeconomic factors on commercial banks profitability in Kenya as in the case of Equity bank limited. This study was modeled on the theory of production and based on correlation research design. Sample size consisted annual data spanning 5years from 2008- 2012. To accomplish this task the study used Cobb-Douglas production function transformed into natural logarithm. This study employed OLS to establish the relationship between macroeconomic factors and bank profitability. The results indicated that macroeconomic factors (real GDP, inflation and exchange rate) have insignificant effect on bank profitability in Kenya with Equity bank in focus at 5% level of significance.

Theoretical Framework

The Neutralists' Theory

The chief proponent of this theory was Central Bank of Nigeria (2014). On their effort to reconcile the neutralist analysis of investment decision and inflationary effects

assert that inflation has no visible impact on investment. The theory agreed that actually inflation is an un-impiously evil phenomenon but it has not been obviously proved by economists that inflation is totally a bad thing to any economy. It has often been argued for example, that a price level which is changing at a constant proportional rate and which is fully anticipated and acted upon by all economic actors acts as a good signal to investors for decision making. In support of this theory (Clark, 1982) in his study on *"Business Cycles, Inflation and Forecasting"* noted that there is no convincing evidence of any clear picture whether positive or negative between inflation and the rate of economic development vis-à-vis investment in any economy. Based on this notion, this school warned that it is naïve to conclude that any economy is either blessed or harmed by inflation, until econometric calculations are made. Until then, no one can say categorically with impunity whether inflation is a helpful or harmful element to a specific entity's performance. Taken this to be true, the neutralists' theorists concluded that a firm's decision on investment is indifferent to inflationary effect (Jarrett & Selody, 1982).

Summing up all these assumptions, the three schools seem to agree on one issue concerning the relationship between inflation and investment decision. Their point of agreement centers on the fact that a little amount of price increase motivates producers to produce more and such move is necessary for more investment vis-à-vis economic growth. But the major line of contrast lies on what should be the agreed trade-off between desired level and the point at which inflation becomes disastrous to investment and the economy at large. To buttress this notion, the study carried out by (John Seizer, 1977) revealed that rapid economic growth has taken place in countries with high rates of inflation and in countries with low rates of inflation. Though, this study was of ancient periods, but a more recent study by (Miller and Benjamin, 2004) on a *"Transaction Cost Approach to the Theory of Investment Decision"* suggests that an inflation of single digit of between 2% and 9% is ideal to bring a positive relationship between investment and economic growth. Whereas double digit inflation of 10% and above discourages investment hence retard economic growth. Based on this fact the policy makers should formulate the economic policy that should embrace moderate

rate of inflation which can stimulate saving and encourage investment hence, economic growth.

Methodology

The study employs ex-post facto research design using panel data of ten years (2011-2020) to explore the effect of independent variables (Interest rate, Inflation rate, and Exchange rate) on the dependent variable (ROA) and the nature of the relationship that exist between the variables.

The population of the study is 12 banks quoted on the floor of the Nigerian stock exchange as at 2020 who had the required data for the study. Then, a non- probability method in form of purposive sampling technique was employed to select banks based on the following criteria;

- i. The availability of consistent data-set over the period.
- ii. The banks were not involved in any merger during the study period and with at least a branch in all states of the federation.
- iii. The banks are listed and quoted on the Nigeria Stock Exchange.

The study utilizes the secondary data from banks' annual reports, CBN Bulletin and the Nigeria Stock Exchange Market Fact Book.

The panel regression method was used with the aid of E-Views Version 9 to examine and analyze the effect of Interest rate, Inflation rate, and Exchange Rate on ROA of quoted DMBs in Nigeria. The study is validated using the fixed effect and random effect models (panel regression models). The Hausman test is applied to choose the most appropriate and suitable model between fixed and random effect to derive this relationship as the study has more than one independent variable across sections (Hakim & Shimko, 1995).

The Models for the Panel Regression are:

$$ROA_{it} = \alpha + \beta_1 INTR_{it} + \beta_2 INF_{it} + \beta_3 EXCR_{it} + \mu_{it}$$

Where:

α = constant

β = slope of the regression line with respect to explanatory variables

ROA = Return on Assets (Profitability)

INTR = Interest Rate

INF = Inflation Rate

EXCR = Exchange Rate

i = Cross-sectional Dimension

t = time series Dimension

μ_{it} = error term of the explanatory variable

ε_{it} = new cross-sectional error term with Zero mean which is independent of the individual observation error term (μ_{it})

Decision Rule

In order to estimate the regression analysis model, E-Views will be used. The procedure involved specifying the dependent and independent variables; in this case, Interest rate, Inflation rate, and exchange rate are the independent variables, while ROA is the dependent variable. E-Views is run and from the output, the values of the constant (α) coefficient of regression (β) are obtained. In addition, the output shows the T statistics and P values for the coefficient which will result in either rejecting or failure to reject the hypotheses at a specify level of significance. The P-value is a probability of getting a result that is at least extreme as the critical values. The null hypotheses is rejected if the P-value is less than the critical value.

Findings

Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
ROA	120	1.431	3.668	-29.64	9.536
INF	120	16.443	29.612	-4.321	103.823
INR	120	4.912	16.631	-42.31	23.706
EXR	120	198.425	61.82	148.902	306.1

Source: Researcher's Computation (2021)

The table above is the Descriptive Statistics with respect to ROA, INTR, EXR and INFR. The table describes the variables in terms of their number of observations, Mean, Maximum, Minimum, and Standard Deviation. The table shows that all observations for all the variables is 120 each, showing that the data is a balanced panel data of 10 years and 12 firms.

The table also shows that the mean ROA for the banks is 1.431 while the standard deviation is 3.668 while the minimum and maximum values are -29.64 and 9.536 respectively. For INFR, the mean value is 16.443 and the standard deviation is 29.612 while the minimum and maximum values are -4.321 and 103.823 respectively. For INTR, the mean value is 4.912 and the standard deviation is 16.631, while the minimum and maximum values are -42.31 and 23.706 respectively. Finally, for EXCR, the mean value is 198.425 and the standard deviation is 61.82, while the minimum and maximum values are 148.902 and 306.1 respectively.

The values do not indicate the presence of outliers in the data set of the study based on the kinds of data that were collected and analysed for the study. This showed that the data was good for further analyses.

Correlation Analysis

	EXCR	INTR	INFR
EXCR	1.0000	-0.0977	-0.0045

INTR	-0.0977	1.0000	-0.1173
INFR	-0.0045	-0.1173	1.0000

Source: Researcher's Computation (2021)

The table above represents the correlation matrix in relation to the study. The table shows that there is a negative relationship between EXCR and INTR, EXCR and INFR, INTR and INFR, with coefficients of -0.0977, -0.0045, and -0.1173 respectively. The negative relationships imply that when there is an increase in one of the variables, then a corresponding decrease will be experienced in the related variable. In other words, there is an inverse relationship among the independent variables of the study.

Furthermore, the correlation results show that all the relationships that exist between the variables are low as can be seen from the correlation coefficients. This depicts evidence of no multicollinearity problem amongst the independent variables of the study. In other words, there is no chance of the variables being replicas of one another based on the data analysed by the study.

The result of the Hausman specification test indicated that, fixed effect model is more appropriate to random effect model given the Chi-Square and its probability value of 0.0018 which is less than critical value of 0.05 (5%).

Regression Analysis

Fixed Effect Model

Dependent Variable: ROA

Total panel (balanced) observations: 120

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.563694	7.105950	0.360781	0.7189
INTR	-0.185286	0.091685	-2.020897	0.0409
INFR	-0.077477	0.115236	-0.672334	0.5026
EXCR	0.328736	0.018340	17.924536	0.0000

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.364541	Mean dependent var	1.431121
Adjusted R-squared	0.271554	S.D. dependent var	3.688103
S.E. of regression	0.489882	Akaike info criterion	5.615946

Sum squared resid	1766.674	Schwarz criterion	5.973145
Log likelihood	-376.1162	Hannan-Quinn criter.	5.761101
F-statistic	6.569433	Durbin-Watson stat	1.848943
Prob(F-statistic)	0.001543		

Source: Researcher's Computation (2021)

Table 4.4 is the fixed effect regression result. The line of the regression is $ROA = 2.5636 - 0.1852 - 0.0774 + 0.0741 + 0.3287$, and this depicts that, Profitability of quoted DMBs in Nigeria decreases with increase in Interest Rate (INTR), decreases also with increase in Inflation Rate (INFR), but increases as Exchange Rate (EXCR) increase.

The respective P-values except for INFR indicates insignificant effect on ROA. This implies that, ROA of quoted DMBs in Nigeria is not majorly influenced by INFR. However, the result depicts that the serious or significant influence of INTR and EXCR on ROA. This means that, ROA of quoted DMBs in Nigeria is a product of INTR and EXCR.

The R-Square of 0.364 indicates that, about 36% of variation in Profitability of quoted DMBs in Nigeria can be explained by INTR, INFR, and EXCR. The remaining 64% can be explained by other variables that are not captured in the regression line (error term). The F-statistics and its probability value of 0.001, which is less than the t-value of 0.05 depicts the fitness of the model.

It is evident from the results and analyses that, interest rate is negatively related to profitability with statistical significance. This implies that, profitability of quoted DMBs in Nigeria decreases with increase in interest rate (Lending Rate). This is sufficed to say that, the customers of quoted DMBs in Nigeria are scared to borrow from the banks when they noticed an increase in the bank lending rate. Thus, since most banks core revenue generating activities is lending to customers for profitability, the profitability will be impaired so long as they cannot extent credit to customers as a result of high interest rate. This finding is consistent with the findings in the previous studies such as Emase (2017) who also found a significant effect.

In the case of inflation rate and profitability of quoted DMBs in Nigeria, the study finds an insignificant negative relation. This infers that, the profitability of quoted

DMBs in Nigeria decreases with increase in inflation, but the decrease is not majorly affected by the inflation. This finding is inconsistent with the findings in previous studies such as Hooshyari and Moghanloo (2015) who found a significant effect.

Exchange rate reveals a significant positive effect on profitability of quoted DMBs in Nigeria. This implies that, profitability of quoted DMBs increases as EXCR increases. This finding is consistent with the findings in previous studies such Ujuju and Etale (2016).

Conclusion and Recommendations

Based on the significant negative effect of interest rate on profitability of quoted DMBs in Nigeria, the study concludes that, banks customers are seriously discouraged to borrow from banks when the interest rate is high and that results to poor profitability since most banks depend on lending to customers to make more profits. It is also concluded in relation to the insignificant negative effect of inflation rate on profitability of banks that, inflation has no visible impact on investment as argued in the Neutralist theory. The theory agreed that actually inflation is an un-impiously evil phenomenon but it has not been obviously proved by economists that inflation is totally a bad thing to any economy. It is also concluded in line with the positive and significant effect of exchange rate on profitability that, more investment opportunities moved into the country when the exchange rate is high. This creates more jobs and employment opportunities which in turn results to enhanced profitability in the Nigerian banks.

In the light of the findings and the conclusions drawn from the study, the following recommendations are made:

- i. For interest rate, the DMBs and regulatory bodies in Nigeria should intensify efforts to reduce the lending rate to customers with a view to encouraging them to borrow since most of these banks depend on lending to customers to generate more revenue or income. The decrease in the interest rate will develop the zeal in customers to borrow more from the banks which will result to high turnover and better profits. Furthermore, the regulatory authority like the CBN

should reduce the prime lending rate with a view to encouraging customers to patronise the banks.

- ii. For inflation rate, the prices of commodities in the market can be reviewed upward from time to time to since inflation is not in total a bad thing. People and companies tend to make more money in inflationary period that boost the banking activities. Thus, as these prices are adjusted upward, banks could make more profit for sustainability.
- iii. Finally for exchange rate, the naira can be devaluated for the purpose of encouraging foreign investors to come and invest in the country. This will make people of the country to have something doing which will result to enhanced profits in the banks.

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