

## DETERMINANTS OF COMMERCIAL BANKS' PROFITABILITY PANEL EVIDENCE FROM NIGERIA

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### Abstract

The study critically examines the factors that influence the profitability level of commercial banks in Nigeria. Panel data method was employed to analyze time series and cross-sectional data gathered from 2000 to 2013 on a sample of fourteen banks. Profitability is measured with return on assets as a function of some internal and external determinants, which includes; capital adequacy ratio, asset quality, management efficiency, liquidity ratio, inflation, and economic growth. The findings revealed that asset quality, management efficiency, and economic growth are the determinants of commercial banks' profitability. They were found to be statistically significant on profitability in both the fixed effect and random effect models. Asset quality was highly significant in all the models; thus concluding that credit risk is a major determinant of commercial banks' profitability.

**Keywords:** Commercial Banks, Profitability, Return on Assets, Panel Data, Nigeria.

### INTRODUCTION

Commercial banks as financial intermediaries are undisputedly a catalyst for economic growth because of the role of credit in boosting a nation's gross domestic product. The literature on the bank-lending channel has long shown that economic activity is seriously hampered if the commercial banks, the most prominent agents in the credit markets, cannot execute their lending function properly (Dietrich & Wanzenried, 2010). Their prominent role is to intermediate funds from the surplus units to the deficit units of the economy so as to achieve economic balance. By and large, the efficiency of a bank largely depends on the extent to which it has performed in the intermediation process either locally or globally. Banks through their intermediary role accrue profits and on the other hand, might incur losses if not efficient and effective in their operations.

There is no gainsaying that the strength of a bank is undoubtedly linked to its profitability, hence, the primary desire of the bank's management is to continually make profit as this would assure their continued existence and foster buoyancy for the nation. It is of noteworthy that bank managers should understand the key factors that affect bank profitability and these factors could be internal and external determinants. The internal determinants originate from bank accounts (balance sheets and/or profit and loss accounts) and therefore could be termed micro or bank-specific determinants of profitability while the external determinants are variables that are not related to bank management but reflect the economic and legal environment that affects the operation and performance of financial institutions (Athanasoglou, Brissimis & Delis, 2005).

The determinants of bank profitability vary from bank to bank because of difference in shareholder and managerial decisions and activities. Previous studies suggest that capital size, size of deposit liabilities, size and composition of bank's credit portfolio, interest rate policy, exposure to risk, management quality, labour productivity, bank size, bank age, ownership,

ownership concentration, and structural affiliation among others influences bank profitability. Level of profitability attained would depend on the variation of its determinants over time. The determinants of profitability are empirically well-explored, although the definition of profitability varies among studies. Disregarding the profitability measures, most of the banking studies have noticed that the capital ratio, loan-loss provisions and expense control are important factors in achieving high profitability.

The focus on the determinants of profitability for the Nigerian commercial banking sector is underscored by the fact that Nigeria has a bank-based financial system. Because of the nature of her financial system, the success of these banks measured in terms of their profitability determines the level of financial development which is a major prerequisite for economic growth. In this vein, the Central Bank of Nigeria (CBN) over the years has introduced various reforms with the aim to enhance banks' profitability and stability. The importance of bank profitability at both the micro and macro levels has made researchers, academics, bank managements and bank regulatory authorities to develop considerable interest on the factors that determine bank profitability (Athanasoglou, Brissimis & Delis, 2005). Achieving the profitability objective of a bank is a major concern for top-level management of banks and economic analysts. This concern relates to the significant impact of the profitability of commercial banks on the potential growth of the economy. A study to investigate the determinants of commercial banks' profitability would be of great significance to bank managers to plan in advance and deal with the rising uncertainty experienced in the banking business environment, thereby improving corporate performance. Empirical literature on the determinants of commercial bank profitability is extensive, however, little is known about the Nigerian commercial banking sector. This study provides policy implications which would assist bank regulatory authorities in Nigeria determine future policies and regulations to be formulated and implemented toward improving and sustaining banking sector profitability and stability. The objective of this study is to examine the determinants of commercial banks' profitability in Nigeria. The study is limited to 14 commercial banks in Nigeria out of the 21 existing presently. Utilizing panel data for the period 2000-2013, the study adopts panel data regression. The remainder of the paper is as follows: section two reviews literature, section three deals with the methodology, section four provides the empirical findings, and section five gives conclusion and recommendations.

## LITERATURE REVIEW

### Conceptual Framework

Profit maximization is a core objective of every organization, including banks. Profitability can be defined as an outcome which arises from the effectiveness of management and optimal utilization of resources at its disposal; thus leading to reaping of higher return on capital employed. The management of any firm should be able to identify its strength and weakness, likewise exploit opportunities and tackle threats if it is determined to make profits. A bank is said to be 'profitable' if it can accrue financial gains from the capital invested into the operational activity of the bank. The success of a bank is determined by how well the bank made profits in the course of a financial period. For banks to be profitable, they have to assume a reasonable level of risk. If management of a bank decides to be risk averse, then such decision is at the detriment of the bank's performance.

Banks face lot of risks, which are capable of adversely affecting their profitability. Banks are

exposed to a high degree of risk than any other business because they are involved in the management of assets and liabilities. Banks are exposed to risks in varied dimensions; however these risks emerge prominently in form of credit risk, interest rate risk, and liquidity risk because they are closely associated to the banks' lending activity from which a lion share of banks' profit is generated.

i. **Credit Risk:** It is the possibility of losing outstanding loan partially or totally due to credit events (default risk). Geiseche (2004) stated that credit risk is by far the most significant risk faced by banks and the success of their business depends on accurate measurement and efficient management of this risk to a greater extent than any other risk.

ii. **Interest Rate Risk:** It is the exposure of bank's financial condition to adverse movements in interest rate. A key source of interest rate risk results from a common characteristic of banks in borrowing short and lending long, leading to the maturity mismatch or re-pricing (Zainol & Kassim, 2010).

iii. **Liquidity Risk:** It is the sudden increase in withdrawals which may require the financial institutions to seek to liquidate its assets in a very short time period (Saunders & Cornett, 2006). It arises from the inability of a bank to accommodate decrease in liabilities or to fund increase in assets.

The knowledge of the banking environment is of paramount importance to banks because level of profitability hinges on it. The bank has the task of decisively analyzing its environment to know how to face challenges around them. Banks do not operate in isolation; thus banks find themselves in the following environments;

i. **Economic:** This environment reflects the influence of macroeconomic components such as demand, inflationary trend, interest rate, exchange rate, monetary policies, and fiscal policies among others on banks' operation.

ii. **Political:** The political situation of the country influences the operations of banks. Political instability tends to put banks in dilemma because government is always in the habit of formulating and implementing its policies in line with its own aims and objectives. Therefore, change in power means that banks would have to adjust to the dictates of the present government. In the political environment, the apex regulator in the banking system is the Central Bank of Nigeria (CBN) with Nigerian Deposit Insurance Corporation (NDIC) playing a complementary role.

iii. **Legal:** This environment provides the legal framework for banks. The legal framework encompasses laid down rules and regulations, principles and practices which govern the operations of banks. It is meant to safeguard the interest of various stakeholders. The legal framework for banks is mainly contained in Banks and Other Financial Institutions Act (1991) and its subsequent amendments. Also, the Central Bank of Nigeria Act (1959) and its subsequent amendments.

iv. **Industry:** A bank's industrial environment constitutes the bank's competitors, bank customers (individuals, organization) and operating guidelines such as Basel Accord in place to regulate and supervise these institutions. The banking industry influences banks to improve the quality of their financial products through competition and operate within the limits of its memorandum of association and article of association and according to existing banking laws in the industry environment.

v. **Proximate:** Bank relies on this environment for resources needed in the operation of its banking business. The proximate environment is constituted by raw materials, human and financial resources, and technology. This environment determines the day-to-day operation of

banks.

vi. Socio-cultural: The environment reflects the attitudes, values, education, performances, beliefs, and customs of the society in a bank is located. All these factors determine the patronage level for bank's products by members of the society in which it is operating.

## Theoretical Framework

The correlation between capital and profitability is explained by signaling theory, bankruptcy cost hypothesis and risk-return hypothesis. The signaling theory put forth that firms that is most profitable provide the market with more and better information. According to Ommeren (2011), the signaling theory suggests that a higher capital is a positive signal to the market value of a bank. Lower leverage indicates that banks perform better than their competitors who cannot raise their equity without further deteriorating the profitability. On the other hand, bankruptcy cost hypothesis argues that where bankruptcy costs are unexpectedly high, a bank holds more equity to avoid period of distress (Berger, 1995). The signaling theory and bankruptcy cost hypothesis support a positive relationship between capital and profitability. The risk-return hypothesis suggests that increasing risks, by increasing leverage of the firm leads to higher expected returns. However, if a bank expects increased returns (profitability) and takes up more risks, by increasing leverage, the equity to asset ratio (capital) will be reduced. Risk-return hypothesis revealed a negative relationship between capital and profitability (Sharma & Gounder, 2012).

Consequently, the Market Power (MP) and Efficiency Structure (ES) theories explain the relationship between the bank size and profitability. Olweny and Shiphoh (2011) observed that the market power posits that performance of banks is influenced by the market structure of the industry and that the Efficiency Structure hypothesis maintains that banks earn high profits because they are more efficient than the others. Olweny and Shiphoh (2011) argue that MP theory assumes that the profitability of a bank is a function of external market factors, while ES assume that profitability is influenced by internal efficiencies.

On the part of regulation and profitability, politicians assume that without any regulation, value-maximizing banks take on more risks than which is optimal and acceptable for depositors. Whilst risk taking is beneficial for average individual banks, one bank failure is highly undesirable for depositors and may spill over to the entire banking sector. Regulation that requires minimum capital ratios would likely negatively influence profitability as regulation constrains value-maximizing banks in risk taking and in reaching an optimal capital structure. According to Saunders and Cornett (2008), the net regulatory burden could also negatively influence bank performance. The net regulatory burden equals the cost minus the benefits of regulation. The theoretical explanation for the relationship between the ownership structure and profitability is based on the agency theory, first formalized by Jensen and Meckling (1976). Their study explained why managers of entities with different capital structures, choose different activities, in a relationship between owners and managers, a principal-agent relationship, both differs in needs and preferences. And obvious theoretical argument for the relationship between the ownership structure and profitability arise, capital market discipline could strengthen owner's control over management, giving banks' management more incentives to be efficient and profitable. The findings of Jensen and Meckling (1976) have implications for banks' profitability as it can be inferred that the ownership structure and corporate governance structure influence performance. Banks with

more stringent and value-based owners will likely have better profitability than mutual, cooperative or state-owned banks.

## Review of Empirical Studies

The determinants of bank profitability have been widely studied due to the importance of profitability as a major factor for corporate growth and an index of corporate performance. The empirical studies reviewed below shows the evidence obtained from academic scholars.

Chirwa (2003) investigated the relationship between market structure and profitability of commercial banks in Malawi using time-series data between 1970- 1994. Using co-integration and error correction mechanism, the results obtained supports the traditional collusion hypothesis of a long-run positive relationship between concentration and performance. The dynamic short-run analysis also shows a high speed of adjustment in profitability from disequilibrium and indicates a positive response in profitability to a negative deviation from a long-run equilibrium. Dermirguc-Kunt and Huizinga (1999) conducted a study on the determinants of commercial bank interest margins and profitability. Using bank-level data for 80 countries in the years 1988-95, they showed that the differences in interest margins and bank profitability reflect a variety of determinants: bank characteristics, macroeconomic conditions, explicit and implicit taxation, deposit insurance regulation, overall financial structure, and underlying legal and institutional indicators.

Deger and Adem (2011) examined the bank-specific and macroeconomic determinants of the banks' profitability in Turkey over the time period from 2002 to 2010. The bank profitability was measured by return on assets (ROA) and return on equity (ROE) as a function of bank-specific and macroeconomic determinants. Using balanced panel dataset, the results show that asset size and non-interest income have positive and significant effect on bank profitability. However, size of credit portfolio and loans under follow-up has a negative and significant impact on bank profitability. With regard to macroeconomic variables, only the real interest rate affects the performance of banks positively. Flamini, McDonald and Schumacher (2009) used a sample of 389 banks in 41 Sub-Saharan African (SSA) countries to study the determinants of bank profitability. They found that apart from credit risk, higher returns on assets are associated with larger bank size, activity diversification, and private ownership. Also, bank returns are affected by macroeconomic policies that promote low inflation and stable output growth does boost credit expansion.

Aburime (2008) conducted a study to identify significant company-level determinants of bank profitability in Nigeria. Using a panel data set comprising 91 observations of 33 banks over the 2000-2004 period, regression results revealed that capital size, size of credit portfolio and extent of ownership concentration are significant company-level determinants of bank profitability while size of deposit liabilities, labour productivity, state of information technology, ownership, control-ownership disparity and structural affiliation are insignificant. Sayilgan and Yildirim (2009) explored the determinants of return on assets (ROA) and return on equity (ROE) for banks in Turkey in 2002-2007 period using monthly data and aggregate balance sheet of the banks, through multi-variable single equation regression method. The regression results demonstrated that consumer price index inflation and first difference of ratio of off-balance sheet transactions to total assets affect profitability indicators negatively in a statistically significant manner, while first differences of industrial production index, the ratio of budget balance to industrial production index and the ratio of equity to total assets affect profitability indicators positively in a statistically significant way.

Naceur (2003) investigated the impact of bank's characteristics, financial structure and macroeconomic indicators on bank's net interest margins and profitability in the Tunisian banking industry for the 1980-2000 period. Using a balanced panel data for a sample of 10 banks, it was found that high net interest margin and profitability tend to be associated with banks that hold a relatively high amount of capital, and with large overheads. Secondly, it was revealed that macroeconomic indicators such as inflation and growth rates have no impact on bank's interest margins and profitability. Lastly, it was found that concentration is less beneficial to the Tunisian commercial banks than competition and stock market development has a positive effect on profitability. Salloum and Hayek (2012) conducted a study to identify the internal and external determinants of the profitability of commercial banks operating in Lebanon over the period 2000-2010. The empirical results generated by GMM method show a persistence of profitability and revealed how the internal and external factors affect positively or negatively the profitability of banks operating in Lebanon.

Babalola (2012) investigated the determinants of banks' profitability in Nigeria. Factors which are macroeconomic, financial and bank-specific in nature were employed and their significant impacts on return on assets were considered. The findings show that, in the short run analysis, capital adequacy ratio is actually the determining factor for banks' profitability while in the long-run relationships; the size as well as the tangibility of the banks is the determining factors of performance. Ramlall (2009) analyzed the determinants of profitability for the Taiwanese banking system using bank-specific, industry-specific and macroeconomic factors, under a quarterly dataset, for the period 2002 to 2007. The results showed that while credit risk triggers a negative impact on profitability, capital tends to consolidate profits. Overall, the results suggested that Taiwanese banking system is well-diversified. The implication of the findings is that it may be difficult to mitigate the pro-cyclicality of banks' profitability in Taiwan subject to a non-concentrated banking system.

Vong and Chan (2009) examined the impact of bank characteristics as well as macroeconomic and financial structure variables on the performance of the Macau banking industry. Employing five cross-sectional units involving 15 years data, the regression results estimated by the fixed effect model show that capital strength of a bank is of paramount importance in affecting its profitability. Also, asset quality, as measured by loan-loss provisions, affects the performance of banks adversely. With regard to macroeconomic variables, only the rate of inflation exhibits a significant relationship with banks' performance. Dietrich and Wanzenried (2010) analyzed the profitability of 453 commercial banks in Switzerland over the period from 1999 to 2008. The study also took into account the impacts of the recent financial crisis. The profitability determinants include bank-specific characteristics as well as industry-specific and macroeconomic factors. The results clearly showed that there exist large differences in profitability among banks in the study sample and that a significant amount of this variation can be explained by factors included in the analysis. It was revealed that cost-income ratio is relevant for the return on assets before the crisis only and the negative impact of loan loss provisions relative to total loans is much stronger during the crisis. In addition, if a bank's volume is growing faster than the market, the impact on bank profitability is positive, at least before the crisis. Also, it was found that banks with a higher interest income share are less profitable, which holds again for the pre-crisis period only and the negative effect of state ownership on bank profitability does not hold any more during the crisis, and the same holds for foreign bank ownership.

Athanasoglou, Brissimis and Delis (2005) examined the effect of bank-specific, industry-

specific and macroeconomic determinants on bank profitability, using an empirical framework that incorporates the traditional Structure-Conduct-Performance (SCP) hypothesis. Applying the GMM technique to a panel of Greek banks from the period 1985-2001, the estimation results showed that profitability persists to a moderate extent, indicating that departures from perfectly competitive market structures may not be that large. Also, all bank-specific determinants, with the exception of size, affect bank profitability significantly in the anticipated way. However, no evidence was found in support of the SCP hypothesis. Dawood (2014) evaluated the profitability of the 23 commercial banks operating in Pakistan for the period of 2009 to 2012. The study used the Ordinary Least Square (OLS) method to look into the impact of cost efficiency, liquidity, capital adequacy, deposits and size of the bank on profitability (ROA). The empirical findings showed that cost efficiency, liquidity, and capital adequacy are those variables that decide profitability while deposits and size of the bank did not demonstrate any impact on profitability.

Aminu (2013) conducted a study to find out the impact of bank specific and macroeconomic factors on the profitability of seven banks from Nigeria for a period from 2005 to 2011. Using panel regression, the results showed that management efficiency has been the driving force in determining the profitability of banks in Nigeria. The findings also indicated that GDP growth had a negative impact on the profitability of Nigerian banks.

Ani, Ugwunta and Imo (2012) examined the determinants of bank profitability in Nigeria from 2001 to 2010. A sample of 15 deposit money banks (DMBs) was drawn which consisted of stand-alone banks and banks that retained their brand names after the 2005 bank consolidation exercise. Internal factors such as size, asset composition and quality, and capital adequacy was used in the model. The study found out that size has significant negative relationship and asset composition shows a significant positive relationship with profitability. Capital adequacy showed a positive correlation.

## METHODOLOGY

This study utilizes the econometric model in the analysis of the determinants of commercial bank's profitability in Nigeria. It focuses mainly on secondary annual data taken from fourteen (14) commercial banks in Nigeria from 2000 to 2013. These banks were selected with respect to availability of their financial data obtained from the individual website and African financials for the selected banks. The selected banks include; Access Bank, Diamond Bank, EcoBank, Fidelity Bank, First Bank, First City Monument Bank, Guaranty Trust Bank, Stanbic IBTC Bank, Skye Bank, United Bank for Africa, Union Bank, Unity Bank, Wema Bank and Zenith Bank. The model is estimated employing the panel data approach.

### Hypothesis of the Study

The focal point in this paper is to test the determinants of commercial banks' profitability in Nigeria. The significance of each variable portends that it is a determinant of profitability. The hypotheses formulated are stated in nulls;

- i. Capital Adequacy does not have significant effect on banks' profitability in Nigeria.
- ii. Asset Quality does not have significant effect on banks' profitability in Nigeria.
- iii. Management Efficiency does not have significant effect on banks' profitability in Nigeria.
- iv. Liquidity does not have significant effect on banks' profitability in Nigeria.

- v. Inflation does not have significant effect on banks' profitability in Nigeria.
- vi. Gross Domestic Product does not have significant effect on banks' profitability in Nigeria.

### Model Specification

The model was structured from the CAMEL model to capture internal determinants and taken macroeconomic variables as external determinants. Profitability represented with Return on Assets (ROA) as a function of Capital Adequacy Ratio (CAR), Asset Quality (ASQ), Management Efficiency (EFF), Liquidity Ratio (LQR), Inflation (INF), and Gross Domestic Product (GDP). The econometric form of the model is presented below;

$$ROA = \beta_0 + \beta_1 CAR + \beta_2 ASQ + \beta_3 EFF + \beta_4 LQR + \beta_5 INF + \beta_6 GDP + \mu \dots\dots\dots (1)$$

### Description of Variables

**Return on Assets (ROA)**-Return on asset is primarily a measure of profitability. It can be presented by dividing net income of the bank by the total asset. It shows what earnings have been produced from the invested capital or asset.

**Capital Adequacy Ratio (CAR)**-Capital adequacy ratio is mostly used as a measure of the financial strength of a bank or any financial institution. The ratio can be computed by dividing the total capital to total assets of the bank.

**Asset Quality (ASQ)**-This is an evaluation or assessment of the credit risk concerned with a particular asset. It shows the exposure of the bank to credit risk, which can be derived by dividing total loans and advances to the total assets. According to Kolapo, Ayeni and Oke (2012), credit risk is an internal determinant of bank performance

**Management Efficiency (EFF)**-It shows how bank management have utilized resources at its disposal. It is calculated as interest income divided by interest expenses.

**Liquidity Ratio (LQR)** –It shows the bank's ability to repay short-term creditors out of its total cash. It is the ratio of current assets divided by current liabilities.

**Inflation (INF)** -It shows the rate at which the general price level of goods and services keep rising while their purchasing power is moving on the other direction. It is a measure of macroeconomic stability.

**Gross Domestic Product (GDP)** -It is usually considered the main indicator of a country's economic growth. It shows the level of productivity in an economy.

### EMPIRICAL FINDINGS

This study investigates the determinants of commercial banks' profitability, using fourteen Nigerian commercial banks as case study. The data are analyzed using the pool regression analysis of the ordinary least square to test the relationships existing between the dependent variable and independent variables under the constant, fixed and random effects. The dependent variable which is profitability measured with Return on Assets (ROA) as a function of Capital Adequacy Ratio (CAR), Asset Quality (ASQ), Management Efficiency (EFF), Liquidity Ratio (LQR), Inflation Rate (INF), and Gross Domestic Product (GDP).

#### Constant Effect Model

The table 1 shows the regression of the ordinary least square results conducted on the specified model. The OLS of constant effect results reveal the relationship that exists between



the dependent variable and each of the independent variables. Table 1 shows OLS regression results.

**Table 1: Summary of Results\_ Constant Effect Model**

Variable	Coefficient	P-value
C	9.690003	0.0015*
CAR	0.228142	0.1464
ASQ	-0.884755	0.0014*
EFF	-0.275512	0.1943
LQR	-0.113199	0.7591
INF	-0.248755	0.2795
GDP	-0.233597	0.1687

$R^2 = 0.153644$  F-Statistic = 3.963535\* Prob(F-statistic)=0.001123 \* significant at 5% level

The relationship between the dependent variable (ROA) and the independent variables (CAR, ASQ, EFF, LQR, INF and GDP) in the table above, this can be expressed mathematically as;

$$ROA=9.690003+0.228142CAR-0.884755ASQ-0.275512EFF-0.113199LQR-0.248755INF-0.233597GDP+\mu$$

### Fixed Effect Model

The fixed effect results reveal the relationship between the dependent variable and each of the independent variable. The fixed effect is due to the fact that though the intercept may differ across the selected banks, each bank's intercept does not vary over time i.e. time invariant. The fixed result is presented below with the cross section of each bank. Table 2 reports the result of the fixed effect model.

**Table 2: Summary of Result\_Fixed Effect Model**

Variable	Coefficient	P-value
CAR	0.169404	0.3038
ASQ	-0.677456	0.0305*
EFF	-0.421951	0.0853**
LQR	0.081036	0.8635
INF	-0.301450	0.1641
GDP	-0.279771	0.0902**
ACCESS—C	9.543927	
DIAMOND—C	10.17832	
ECO—C	9.707727	
FIDELITY—C	9.984334	
FBN—C	10.18570	
FCMB—C	9.692194	
GTB—C	10.69842	
STANBICBTC—C	10.44476	
SKYE—C	9.543006	
UBA—C	9.511082	
UNION—C	10.42792	
UNITY—C	11.16057	
WEMA—C	10.25721	
ZENITH—C	10.33485	

$R^2 = 0.354100$  F-Statistic=12.93818\* Prob(F-statistic) =0.000000 \* significant at 5%

level, \*\* significant at 10% level

From the Table 2, the relationship between the dependent variable (ROA) and the independent variables (CAR, ASQ, EFF, LQR, INF and GDP) can be expressed mathematically as;

$$ROA=0.169404CAR-0.677456ASQ-0.421951EFF+0.081036LQR-0.301450INF-0.279771GDP+\mu$$

### Random Effect Model

The random effect model results reveal the relationship between the dependent variable and each of the independent variable. The random effect is due to the fact that though the intercept may differ across the selected banks, each bank's intercept does not vary over time. The result is shown in Table 3.

**Table 3: Summary of Result \_\_Random Effect Model**

Variable	Coefficient	P-value
C	9.983555	0.0007*
CAR	0.183140	0.2415
ASQ	-0.721454	0.0129*
EFF	-0.387182	0.0887**
LQR	0.049410	0.9074
INF	-0.290060	0.1659
GDP	-0.271178	0.0880**
ACCESS—C	-0.483717	
DIAMOND—C	0.053867	
ECO—C	-0.336601	
FIDELITY—C	-0.100785	
FBN—C	0.047331	
FCMB—C	-0.354719	
GTB—C	0.499000	
STANBICBTC—C	0.275143	
SKYE—C	-0.467657	
UBA—C	-0.512619	
UNION—C	0.245361	
UNITY—C	0.892180	
WEMA—C	0.134416	
ZENITH—C	0.178703	

R2 = 0.322829 \* significant at 5% level, \*\* significant at 10% level

Table 3 above reveal the relationship between the dependent variable (ROA) and the independent variables (CAR, ASQ, EFF, LQR, INF and GDP) including the constant parameter can be expressed linearly as;

$$ROA=9.983555+0.183140CAR-0.721454ASQ-0.387182EFF+0.049410LQR-0.290060INF-0.271178GDP+\mu$$

### Interpretation of Results

From the constant effect model result in the above table 1, the coefficient of constant

parameter of the banks shows a positive figure of 9.690003, which implies that if all the explanatory variables held constant, the dependent variable ROA increase by 9.690003 units. Also, the coefficient of CAR is positively related to ROA with an estimate of 0.228142, this implies that an increase in the capital adequacy level of a bank leads to an increase in ROA by 0.228142 units. The coefficient of ASQ shows a negative figure of 0.884755, meaning that an increase in the asset quality leads to 0.884755 units decrease in the ROA. EFF shows an inverse relationship with ROA having a negative coefficient of 0.275512, this means that an increase in the level of management efficiency of the commercial banks lead to decrease in the ROA of banks by 0.275512 units. Also, LQR is negatively related to ROA having a negative coefficient of 0.113199, this means that an increase in the liquidity ratio of commercial banks lead to decrease ROA of banks by 0.113199 units. The coefficient of INF is negatively related to ROA with an estimate of 0.248755, which means that an increase in inflation of a country leads to decrease in the ROA of banks by 0.248755 units. The coefficient of GDP shows a negative relationship with ROA with a figure of 0.233597, this implies that an increase in economic growth rate brings about a decrease in profitability (ROA) by 0.233597 units.

The constant parameters of cross sectional effects of each commercial banks been extracted from the fixed pool data result in the above table 2, shows similar relationship with dependent variable having positive coefficient of 9.543927 for Access Bank, 10.17832 for Diamond Bank, 9.707727 for Eco Bank, 9.984334 for Fidelity Bank, 10.18570 for First Bank, 9.692194 for First City Monument Bank, 10.69842 for GTB, 10.44476 for Stanbic IBTC Bank, 9.543006 for Skye Bank, 9.511082 for United Bank for Africa, 10.42792 for Union Bank, 11.16057 for Unity Bank, 10.25721 for Wema Bank and 10.33485 for Zenith Bank; hence, showing that if all independent variables are held constant, the dependent variable (ROA) increase by 9.543927, 10.17832, 9.707727, 9.984334, 10.18570, 9.692194, 10.69842, 10.44476, 9.543006, 9.511082, 10.42792, 11.16057, 10.25721 and 10.33485 units on the banks respectively. The coefficient of CAR is positively related to ROA with an estimate of 0.169404, this implies that an increase in the level of capital adequacy level leads to an increase in ROA by 0.169404 units. The coefficient of ASQ shows a negative value of 0.677456, meaning that an increase in the level of ASQ leads to 0.677456units decrease in the ROA. EFF exerts a negative influence on ROA having a coefficient of 0.421951, this means that an increase in EFF leads to decrease in the ROA by 0.421951units. LQR shows a direct relationship with ROA having a coefficient of 0.081036, this means that an increase in LQR lead to increase in ROA by 0.081036units. The coefficient of INF is negatively related to ROA with an estimate of 0.301450, this means that an increase in inflation will result to a decrease in ROA by 0.301450 units. Also, the coefficient of GDP is negatively related to ROA with an estimate of 0.279771, which means that an increase in growth rate will result to a decrease in ROA by 0.279771 units.

The constant parameters of cross sectional effects of each commercial banks been extracted from the random pool data result in the above table 3, shows different relationship with dependent variable having both positive and negative coefficient of -0.483717 for Access Bank, 0.053867 for Diamond Bank, -0.336601 for Eco Bank, -0.100785 for Fidelity Bank, 0.047331 for First Bank, -0.354719for First City Monument Bank, 0.499000 for Guaranty Trust Bank, 0.275143 for Stanbic IBTC Bank, -0.467657 for Skye Bank, -0.512619 for United Bank for Africa 0.245361 for Union Bank, 0.892180 for Unity Bank, 0.134416 for Wema Bank and 0.178703 for Zenith Bank, showing that if all independent variables are held

constant, the dependent variable (ROA) increase or decrease by -0.483717, 0.053867, -0.336601, -0.100785, 0.047331, -0.354719, 0.499000, 0.275143, -0.467657, -0.512619, 0.245361, 0.892180, 0.134416 and 0.178703 units respectively depending on the sign of the coefficient and the combined constant parameter of these banks shows a positive coefficient of 9.983555, which implies a direct relationship with ROA, showing that if all explanatory variables are held constant, ROA increase by 9.983555units. The coefficient of CAR is positively related to ROA with an estimate of 0.183140, this implies that an increase in the level of capital adequacy level leads to an increase in ROA by 0.183140units. The coefficient of ASQ shows a negative figure of 0.721454, meaning that an increase in the ASQ leads to 0.721454units decrease in the ROA. EFF have a negative relationship with ROA having a coefficient of 0.387182, this means that an increase in the EFF lead to decrease in the ROA by 0.387182units.LQR shows a direct relationship with ROA having a coefficient of 0.049410, this means that an increase in the LQR leads to increase in the ROA by 0.049410units. The coefficient of INF is negatively related to ROA with an estimate of 0.290060, which means that an increase in the level of inflation leads to a decrease in ROA by 0.290060 units. Also, the coefficient of GDP indicates a negative relationship with ROA with an estimate of 0.271178, which means that an increase in economic growth rate leads to a decrease in ROA by 0.271178 units.

## CONCLUSION AND RECOMMENDATIONS

This study empirically investigated the determinants of commercial banks' profitability operating in the Nigerian banking industry using the panel regression analysis for fourteen commercial banks spanning 2000 to 2013. The internal determinants of profitability were structured from CAMEL model and the external determinants were macroeconomic stability and economic growth. From the findings in the fixed effect model, asset quality, management efficiency, and Nigeria's economic growth are statistically significant on commercial banks' profitability; hence suggesting that they are the major determinants of banks' profitability. This showed that the internal determinants are asset quality and management efficiency while the external determinant is economic growth. Government policies in Nigerian banking sector must encourage banks to regularly raise their capital and provide the enabling environment that will accelerate economic growth in the country. The Central Bank of Nigeria should control inflation so as to ensure macroeconomic stability. Policies should be directed towards enhancing the efficiency of the financial institutions with the aim of intensifying the stability of the banking sector in Nigeria. Also, banks should also have strong capitalization which in turn can help to reduce the expected cost of financial distress and possibly make capital adequacy have a better effect in the profitability of banks. Banks should ensure an effective credit administration and avoid mismatching of assets and liabilities. The limitation of this study is that it covers a period of 14 years on 14 banks out of the 21 commercial banks (Deposit Money Banks) presently operating in Nigeria. This study suggests that further research in this area should investigate whether monetary policies, financial risks and some macroeconomic variables apart from economic growth and inflation can determine bank profitability. Also, a wider coverage should be considered by increasing the number of banks in the sample and the span of study.

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