

# A Panel Analysis of the Responsiveness of Commercial Banks' Profitability to its Capital Structure in the Nigerian Banking Sector

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**Abstract:** The broad objective of this research is to evaluate the responsiveness of commercial bank's profitability to its capital structure in the Nigerian banking sector, 2008-2017. Ex-post-facto research design was adopted. The traditional panel least square regression (PLSR) was used in the model. The study applied panel data models on annual data of the commercial banks within the scope. Panel data estimation allows for the control of individual-specific effects usually unobservable which may be correlated with other explanatory variables included in the specification of the relationship between dependent and explanatory variables using Hausmann test. Result from the Hausmann test statistics reveals that Shareholders' fund had a negative and significant impact on profitability of commercial banks in Nigeria. Debt/total asset had a positive and significant impact on profitability of commercial banks in Nigeria. Financial leverage had a positive and significant impact on profitability of commercial banks in Nigeria. The study recommended that commercial banks should imbibe trade off capital structure theory in financing its operations by either substituting gearing for shareholders' fund or shareholders' fund for gearing until an optimal and desired capital structure is arrived at.

**Key words:** capital structure, commercial bank, debt/total asset, financial leverage and shareholders' fund.

## I. Introduction

### 1.1 Background to the Study:

The best combination of capital structure (optimal mixture of debt and equity) is one of the most critical financial decisions for any firm because of its impact on shareholders risk and return. Such decisions are taken not only to maximize shareholders wealth, but also to make certain the firm's capacity to cope with the uncertain, volatile, competitive and versatile environment of business. The singular most important function of capital structure is that it aids in striking a balance between the risks and returns in the operations of the firm if properly managed (Zeitun&Tian, 2007). The asset of a company can be financed either by increasing the owner claims or the creditor claims. The owner claims increases when an organization (banks) sources for finance through ordinary shares or by using retained earnings; the creditors' source of funding increases through borrowing. The various avenues available for financing an organization, represents the financial structure of such organization. The left part of the statement of financial position (liabilities plus equity) represents the financial structure of such organization (Pandey, 2010).

The word capital structure is used when referring to the proportionate relationship between that exists between debt and equity. Equity includes paid-up capital, share capital, share premium, reserves and surplus (retained earnings), while debt includes public deposits, bonds or debentures (Pandey, 2010). The capital or financing structure decision is an important decision to be undertaken by a manager. It influences the shareholders' return and risk. Conversely, the market price of the shares may be affected by the sources of funding available to the firm. To this effect, analysts and policy makers have expressed diverse opinions as to which of the components of capital structure available to

commercial banks would enhance their profit margin. Scholars of corporate finance have put forth broadly three positions of capital structure.

First, a positive relationship between equity-to-debt ratio and firm's profitability, in this scenario, firms depend more on equity funds than borrowed funds. The second position is that between high debt-to-equity ratio and firm profitability such that companies rely more on borrowed funds compared to owners' funds. The last position entails a middle (relationship) position that exists between owner's funds and borrowed funds. The applicability of any given scenario at any particular point in time however, depends largely on the cost of financing, particularly of the borrowed funds (Yaaba, 2013).

### **1.2 Statement of the Problem**

As mentioned earlier the capital structure of commercial banks differ from that of firms and non-bank financial institutions in the sense that commercial banks primary responsibility is the acceptance of deposits, these deposits accepted become short term liabilities of those banks and those deposits also make up part of the debt component of the capital structure of commercial banks, which means that banks now use those deposits as loans given to borrowers seeking for loan facilities from the bank; this action accounts for the major reason why commercial banks' capital structure seems to be highly geared i.e (more of debt financing than equity). In an event of repayment of loans default, or bad debt, how do commercial banks cope in this scenario knowing fully well that these monies are depositors' money and also form part of their capital structure?

Different studies have made several attempts to examine the application of different theories of capital structure in the Nigerian banking sector and other financial institutions and their results are diverse. Many researchers have written on the impact that capital structure has on commercial banks' profitability, using different variables as proxies for commercial bank's profitability over time and arrived at different results and findings, some researchers such as Adeslan and Nwidobie (2015) and Adeleke, Ashogbon, Idode and Ogunlowore (2014) reported a positive relationship between ownership structure and commercial banks' profitability in Nigeria, while some researchers such as Opoku, Audu and Anarfi (2013) and Akeen, Terer, Kiyanjui and Kayode (2014) reported negative relationship, while some other researchers such as Olokoyo (2012) and Addae, Nyarko-Baasi and Hughes (2013) reported mixed findings.

The banking sector reform of 2006 (bank consolidation) changed the capital structure of commercial banks in Nigeria; banks were required to increase their capital base to N25 billion and as such, banks that could not meet up with the new capital base either had to merge with other banks or got acquired by bigger banks which could afford the new capital base, this reduced the numbers of commercial banks in Nigeria to 21 till date. The problem this research seeks to solve is to investigate if bank consolidation of 2006 with regard to capital structure has significant impact on the profitability of commercial banks in Nigeria. Also, this research is set out to probe past studies on this subject matter using various variables and estimation techniques different from past work to investigate the impact capital structure has on profitability of commercial banks in Nigeria and see if there would be differences in findings elicited from past studies compared to recent studies. With passage of time, new banking reforms have been implemented such as the Basel III accord and new Central Bank of Nigeria prudential guidelines which further affects the capital structure of commercial banks in Nigeria and also widen the gap not filled by past works. This research work aims to close the gaps left by others since this study was done in more recent time in relation to past research works.

### **1.3 Objectives of the Study**

The broad objective of this research is to evaluate the responsiveness of commercial bank's profitability to its capital structure in the Nigerian banking sector. The specific objectives are to:

1. Examine the impact of shareholders' fund on profitability of commercial banks in Nigeria.
2. Evaluate the effect of debt/total asset on profitability of commercial banks in Nigeria.
3. Investigate the impact of financial leverage on profitability of commercial banks in Nigeria.

### **1.4 Research Questions**

1. What is the extent of the impact of shareholders' fund on profitability of commercial banks in Nigeria?
2. How does debt/total asset impact on profitability of commercial banks in Nigeria?
3. To what extent does financial leverage impact on profitability of commercial banks in Nigeria?

### **1.5 Hypotheses**

- HO<sub>1</sub>: There is no significant impact of shareholders' fund on profitability of commercial banks in Nigeria.  
HO<sub>2</sub>: Debt/total asset does not have significant impact on the profitability of commercial banks in Nigeria.  
HO<sub>3</sub>: Financial leverage has no significant impact on profitability of commercial banks in Nigeria.

## **II. Review of Related Literature**

### **2.1 Conceptual Review**

#### **2.1.1 Capital Structure**

Capital structure is a finance term that shows how a firm would be able to fund its future investments projects via debt, equity or mixed. Capital structure was also defined by Roshan (2009), as a ratio of debt to equity capital maintained by a firm any organization at any point in time.

Capital structure refers to the mixture or combination of debt and equity that an organization may employ in running the affairs of such organization, it is important to note that stakeholders needs is very vital to the choice of raising capital, available to firms. In financial term, it may be defined as an avenue of financing the assets of such organization (Saad, 2010). Since the inception of the work by Modigliani and Miller (1958), there have emerged many literatures on this subject matter, which have become a very sensitive and imperative subject matter in theory of finance. Capital structure studies have become an important subject matter in finance theory. How a firm is being financed is of great importance to both the managers of the firm and the providers of capital. This is due to the fact that, a wrong mix of finance employed can affect the performance and survival of the firm.

#### **2.1.2 Factors Determining Capital Structure**

Different previous studies have been indicating either negative or positive influence on firms leverage ratio. Factors like firms profitability, tangibility of assets, company growth and size are said to affect firm leverage. Profitable firms attracts debt financing because of their ability to settle company obligations, companies with large fraction of asset tangibility have the chance of attracting more financiers because noncurrent assets act as collateral for loan repayment purpose.

In terms of company size, bigger firms are more diversified and the chance for them to become bankrupt is less hence attracts more financiers. Narayanasary (2015) measured the determinants of capital structure using leverage as dependent variable against profitability, tangibility, growth, size and non debt tax shield as independent variables. Researcher used multiple regression analysis and revealed the positive impact of firm's profitability, firm's growth, size and non-debt tax shield on firms leverage while only tangibility of assets showed negative relationship.

#### **2.1.3 Determinants of Banks Capital Structures**

Capital structure of banks is determined by several factors, both internal and external. They may be classified as macroeconomic variables of the economy such as capital market condition, tax policy of government, inflation rate, constitute the external factors that affect the capital structure of a firm. The features of a single firm, which are named here as micro factors (internal), could also influence the capital structure of businesses.

### **2.2 Theoretical Review of Literature**

This research is hinged on the static- trade- off theory of capital structure; however, this study will be supported by the following theories of capital structure:

#### **2.2.1 Modigliani and Miller Theory**

The beginning of capital structure theory can be traced to the seminal work of Modigliani and Miller (1958). The authors opined that value of the firm is not dependent on its financial structure. In other words, a geared firm equals the value of an ungeared firm taking into consideration the effects of benefits of tax shield of debt, Modigliani and Miller (1963), relaxed their assumptions of no tax and transactions cost on the ground that debt can reduce the payment obligation related to corporate tax as this minimizes the Weighted Average Cost of Capital (WACC) and maximizes firms performance and value. The validity of these claims according to Tudose (2012) is verified only in the context of their assumptions which characterize an ideal situation. Nonetheless, their pioneer work serves as the initiating point and the foundation of modern finance.

#### **2.2.2 Trade-Off Theory**

Between 1960s and 1970s, corporate finance scholars (Kraus and Litzenberger, 1973; Miller, 1977; Scot, 1977 and Kin, 1978) reignited and modified the argument towards examining the way in which firms manage to balance the bankruptcy cost with the benefit of tax shields derived from leverage.

For instance, Miller (1977) hypothesized that the appropriate leverage of a firm is predetermined by the trade off arising between tax shield benefit enjoyed by debt and bankruptcy cost which would be offset by high degree of interest tax shield against the cost of financial distress. The work of Scott (1977) and Kin (1978) among others were later grouped under the static trade-off theory whose underlying claim is that firms set a target debt ratio which they attempt to reach

in order to maximize shareholders return. In other words, the theory argues that a firm substitute's debt for equity or equity for debt until the value of the firm is maximized. This theory assumes a positive relationship between a firms leverage and performance.

### **2.2.3 Agency Cost Theory**

In the Mid 1970s, research efforts shifted to agency cost, focusing on two categories of conflict of interest between managers and shareholders, on one hand, and creditors and shareholders, on the other hand (Jansen and Meckling, 1976). The former arise when shareholders fail to monitor the activities of managers. Thus, the theory assumes that in the presence of information asymmetry, the agents (in this case, the directors and managers) are likely to pursue interest and preference that may be detrimental to the principal or owner arguing that higher leverage can ameliorate conflicts arising between the owners of the firm and the agents regarding the level of risk a firm is to undertake (Jensen and Meckling, 1976) and the choice of investment it makes (Myers, 1977).

The latter arise from debt contract issue that makes the owners of the business not to invest too much. This is based on the assumption that optimal capital structure represents a proportionate position between the effect of high interest provided by tax, agency cost and cost of bankruptcy (Tudose, 2012). However, Jensen and Meckling (1986) argued that there are two main advantages a leveraged firm enjoys. The first is the tax shield, usually, interest accrued to debt is non-tax deductible and profits realized from the use of debt are taxed lower, hence, it is expected that debt would help in raising the overall value of the firm.

The second benefit is derived from the use to discipline managers. Besides, the law usually guarantees a right of partial information disclosure to the company's debt holders, which serves as additional manager's supervision tool. Consequently, managers of organizations become more responsible, prudent and transparent and have more motivation to increase the value for the equity owners which Jensen (1986) opined is the essence of steady streams of cash theory of capital structure.

From the foregoing, it is obvious that the agency cost theory proposed by Jensen and Meckling (1976) forecast a positive relationship to have existed between debt and profitability. As a matter of fact, providers of debt funds are desperate to see that managers of firms improve their performances through performance mechanism parameters. According to Jensen and Meckling (1976) these parameters include among others: monitoring by debtors, managers fear of bankruptcy and liquidation following misappropriation of business funds, which may lead to loss of jobs, reputation and salaries; untimely termination of debt agreement by the creditor; and reduction of proposed future investments. Thus, it is expected that as debt increases in the context of low agency cost, the level of efficiency will increase thereby raising firm performance.

### **2.2.4 Signaling Theory**

Ross (1973) looked at the debt within the signaling theory framework and found that firms with lower expected income stream service have a higher cost of debt. Consequently, big firms use debt as signals to the public about their good financial standing by acquiring more debt and commits itself with the repayment of the principal with interest upon maturity, this signals about its stable financial position and ability to make these loads payments in the near future. Similarly, Densetz (1973) and Berger and Bonaccorsidipati (2006) used the efficiency - risks hypothesis to argue that higher efficiency of the firm reduces expected costs of bankruptcy, and such firms may attract more creditor, according to the franchise value hypothesis, bigger, effective and efficient firms would like to protect economic shelter derived through their efficiency, and might choose leverage that appears to be lower.

### **2.2.5 Pecking Order Theory**

Myers (1984), Myers and Majluf (1984), in the 1980s developed the pecking order theory otherwise known as the asymmetric information model. This development refocused research thinking towards information asymmetry among investors and firms. The theory postulates that there is hierarchy in the firm's preference for financing investments and that compliance with the hierarchy represents the optimal financial structure. Thus, most firms have preference for internally sourced funds to external financing, although they would embrace the latter if necessary to finance real investments which have the tendencies to generate positive net present values. Since issuing new shares is detrimental to existing shareholders interest, managers will prefer to finance investments from internal sources (first, by retained earnings), if this source proves insufficient, they will then opt for external sources (first, by less risky debt, followed by risky debt, and then equity). The theory postulates a negative relationship between debt financing and firm performance. In this regards, firms that are more profitable can earn higher return on investment that can in turn be retained and makes the firm desist from taking too much debt as against less profitable companies which do not have the luxury of enjoying the same and are therefore compelled to employ more debt in order to finance ongoing activities.

### **2.2.6 Bankruptcy Cost Theory**

Bankruptcy cost measure the incurred once the perceived chance that the firm can default funding is larger than zero. The potential cost of bankruptcy is also each direct and indirect. Instance of direct bankruptcy cost measure the legal and cost associated with management within the bankruptcy method. Haugen and Senbet (1978) argue that bankruptcy cost should be trivial or nonexistent if one assumes that capital market costs measure are competitively determined by rational investors.

An instance of indirect bankruptcy costs are the loss in earnings incurred by the firm as a result of the reluctance of customers to do engage in business activities with them. Stakeholders' dependency on a firm's product and services and the high chance of bankruptcy affect the liquidity of organisations (Titman, 1984).

## **2.3 Empirical Literature Review**

### **2.3.1 Capital Structure and Firm Performance: A Negative Relationship**

Most studies have provided evidence of negative and significant impact that capital structure has on the performance of firms. For instance, Soumandi and Hayajneh (2010) investigated to ascertain if there was an effect of capital structure on profitability of 76 (53 industrial and 23 service) out of 129 firms that are listed on the floor of Amman Stock Exchange of Jordan for the period 2001 through 2006. The study which employed financial leverage, tangible assets and firm growths as proxies for capital structure (independent variables); return on equity and Tobin's Q as measure of firm's performance; Firm size as a control variable, uses multiple regression analysis model represented by ordinary least squares (OLS): Firms because of their capital structure characteristics provides evidence of a significant negative relationship between capital structure and performance of both classes of firms. The results which also that there was a negative and significant impact of capital structure on organization's performance of high and low leveraged firms and high and low growth firm, showed no significant differences between the performances on high and low leveraged and high low growth firms.

In an effort to further add to existing empirical work, Iavorskyi (2013) investigated the impact of capital structure on the performance of 16,500 Ukrainian firms between 2001 and 2010. Institutional inherent factors which include; firm size, industry and exit or entry were also employed. The study which hypothesized that financial leverage positively affects firm's activity through disciplining of managers, tax shield and signaling effects uses (least square Dummy variable regression) that constitute robust and standard errors so as to take into consideration effects that are fixed and address possible cases of heteroskedasticity. The findings reported that there was a negative relationship that existed between firms that are leverage and their performance, this finding is in negation with the static trade-off theory of capital structure but incongruence with the hypothesis of the pecking - order theory.

Mathewos (2016) examined the effect that capital structure had on profitability of selected commercial banks situated in Ethiopia through a five (5) year period (from 2011 to 2015) employing secondary data elicited from financial accounts of the commercial banks considered in the study. Data elicited were then analyzed through a quantitative approach by using multiple regression analysis models. The study employed two conventional accounting measures of profitability (i.e. return on equity (ROE) and return on assets (ROA)) as dependent variables and five capital structure measures (including debt ratio, debt to equity ratio, loan to deposit, bank's size and asset tangibility) as independent variables. The results suggested that profitability, which is measured of both ROA and ROE, were negatively and significantly correlated with capital structure proxies such as DER, SIZE and TANG whereas DR had negative impact.

Ebaid (2009) poised to evaluate the impact or the effect that capital structure had on performance of companies listed at the floor of Egyptian stock exchange. In order to meet its objectives the researcher considered short term debt (STD), long term debt (LTD) and total debt (TD) data over the period of 1999 to 2005 and analyzed them by using least square regression model. The expected impact of the independent variables were return on asset (ROA), return on equity (ROE) and gross profit margin (GPM).

The study by Ebaid (2009) revealed that short term debt and total debt are significantly negative influence on the financial performance proxied by return on asset but no significant relationship was recorded between long term debt and return on asset. He also postulated that there is no significant impact of debt on financial performance proxied by both gross profit margin and return on equity. Ebaid also pointed that the firm size was observed not to have significant effect on financial performance.

### **2.3.2 Positive Relationship between Capital Structure and Firm Performance**

Yakubu, Baba and Ibrahim (2016) examined the effect that capital structure has on the profitability of commercial banks: this study was conducted in Nigeria, using ex-post facto research design, applying Auto Regressive Distributed Lag (ARDL) Model on a sample of 13 financial institution banks in Nigeria from 2005 to 2014. The study revealed that about 83 per cent of capital employed by commercial banks in Nigeria is not financed by equity, rather

with debt, supporting the theory that banks are highly geared financial institutions. However, this is in agreement with the agency and static trade-off theories of capital structure and earlier research findings elicited in Nigeria, the results further revealed result of a significant and positive effect of both equity and debt funds on profitability. However, debt funds were observed to be more influential in boosting and increasing the performance of commercial banks in Nigeria during the period under review.

Similarly, Idode, Adeleke, Ogunlowore and Ashogbon, (2014) examined the influence of capital structure on profitability of Nigerian banks from 2008 to 2012 using ex-post facto research design and multiple regression technique. The study employed return on assets (ROA) measured as earnings before taxes (EBT) divided by total assets as a measure of bank performance and total debt to total assets ratio and total equity to total assets ratio as independent variables. The findings show that capital structure has a significant positive influence on profitability of Nigerian banks. On the basis of these findings, the study recommends that directors and management should use both equity and debt in financing their business activities as supported by the pecking order and agency theory.

Similarly, Adeslan and Nwidobie (2015) examined the impact that aftermath of banking sector consolidation had on capital structure on the profitability of 10 Nigeria commercial banks for the period between 2005 and 2012. The study which utilized profit before tax as a dependent variable, equity and debt as independent variables and ordinary least squares as a regression technique revealed that capital structure has a significant and positive relationship with the profitability of commercial banks in Nigeria quoted on the floor of the exchange. The authors suggest among others the use of debt and equity capital in financing Nigerian banks to improve earnings.

### **2.3.3 Capital Structure and Firm Performance: A Review of Mixed Findings**

Olokoyo (2012) investigated the holistic effect capital structure (Leverage) on profitability of 101 companies that were listed on the floor of Nigerian stock market from 2003 to 2007. The study, which utilized panel data methodology by comparing and choosing the best estimation technique among fixed effect estimation, Random effect estimation and pooled Regression model, the findings elicited revealed that companies leverage have significant and negative impact on its profitability measured using (ROA) it was also discovered that all the leverage measures had positive and highly significant relationship with market performance which was proxied by (Tobin's Q). The study submitted that companies in Nigeria are either majorly financed by equity or a mixture or combination of equity funds and short term debt. The study further shows that the maturity structure of debts affect company's profitability significantly and that the size of the firm had a significant and positive impact on its profitability.

Hasan, Ahsan, Rahaman and Alam (2014) carried out a research to ascertain the effect capital structure has on performance of about 36 Bangladeshi companies that were listed on the Dhaka Stock Exchange from the period 2007 to 2012. The study which excludes financial services firms owing to their different capital structures and operations uses four performance measures; earnings per share (EPS), return on equity (ROE), return on assets (ROA) and Tobin's Q as measures of firm performance as well as three predominant capital structure ratios; short-term debt, long-term debt and total debt as independent variables. Using panel data estimation techniques, the authors find that whereas EPS is significantly positively related to short-term debt, same is also significantly negatively related to long-term debt. The results also reveal a significant and negative effect of capital structure on ROA. However, the results did not provide proof of a significant effect of capital structure on profitability of the companies proxied by ROE and Tobin's Q. Thus, the study submitted that capital structure had a negative impact on company's profitability, a finding that is consistent with the pecking order hypothesis.

Addae, Nyarko-Baasi and Hughes (2013) employed panel data methodology approach to investigate that relationship between capital structure and profitability of 34 out of 35 listed firms in Ghana for a five year period (2005 - 2009) using a performance measure - return on equity (ROE), three capital structure ratios - short-term debt to total capital; long-term debt to total capital and total debt to total capital and two control variables - logarithm of sales and sales growth. The researches embarked on the study to ascertain if Ghanaian quoted firms were keenly debt dependent. The results pointed out a positive and significant correlation that existed between profitability and total long-term debt. The further revealed that Ghanaian listed firms relied more on short-term debt than long-term debt with the average short-term debt to total capital ratio was about 52 percent and long-term debt to capital ratio was about 11 percent.

Velnampy and Niresh (2012) investigated the causal relationship that existed between capital structure and performance of ten listed Sirilankan banks over the period, 2002 through 2009 this study employed descriptive statistics and Pearson product correlation methodology. The study utilized debt to equity and debt to total funds as proxies of capital structure and net profit, return on capital employed, return on equity and net interest margin as proxies for company's profitability. The findings elicited showed that there was a negative relationship that existed between capital structure and company's profitability except the associate between debt to equity and return on equity which was positive yet insignificant. However, whilst debt to equity was found to have a negative and significant correlation with

net interest margin, debt to total funds was found to have a negative and significant correlation with net profit and net interest margin. The results further suggest that 89 percent of total assets in the Sirilankan banking sector are represented by debt confirming the theory which stated that banks are highly geared institutions. The researchers concluded that the outcomes of this study will serve as guide to banks, loan-creditors and policy planners to formulate better capital structure policy.

### III. Methodology

#### 3.1 Research Design

According to Zikmund (1994), research design is the master plan specifying the method and procedures for collecting and analyzing the needed information. In this study therefore, an *ex-post facto* research design was employed. This design is suitable for this study as it deals with facts and matters that had already taken place and the data were readily available for use.

#### 3.2 Population of the Study

The population of this study comprised 21 Nigerian commercial banks between 2008 and 2017.

#### 3.3 Sample and Sampling Technique

The study adopted a Purposive (non-probability) sampling technique as only banks that were listed on the NSE throughout the study period and have available data were selected. In other words, banks that were quoted after 2008 as well as those that were delisted from the Nigerian stock market in between the study period were not included in the study. Thus, a total number of 14 banks were used as samples.

#### 3.4 Sources of Data

The data used in this research are mainly secondary data. This is due to the nature of the study. Specifically, data were obtained from the Central Bank of Nigeria (CBN) Statistical Bulletin 2017 and financial statements of selected commercial banks in Nigeria within the period under study.

#### 3.5 Model Specification

To examine the impact of capital structure on profitability of commercial banks in Nigeria over a 10 year period (2008-2017), the traditional pooled regression estimation (OLS) was used. This study adapted and modified the empirical model used by Mathewos (2016). The model was used to analyze the impact of capital structure on profitability of commercial banks in Ethiopia between 2011 and 2015. The model was specified as;

$$ROE_{i,t} = \alpha + \beta_1 DR_{i,t} + \beta_2 DER_{i,t} + \beta_3 LD_{i,t} + \beta_4 SIZE_{i,t} + \beta_5 TANG_{i,t} + \mu_{i,t} \text{-----} (1)$$

Where:

a = constant

$\beta_1$ - $\beta_5$  = coefficient of independent variable

ROE<sub>i,t</sub> = return on equity on the year t

DR = debt ratio

DER = debt to equity ratio

LD = loan to deposit ratio

SIZE = firm's size

TANG = tangibility of asset

$\mu_{i,t}$  = Error term which is assumed to have a normal distribution.

The econometric model for this study differed from the adapted model in the sense that this study employed panel data estimation framework. In order to circumvent endogeneity problems, panel estimation techniques of fixed and random effects are adopted in this study, in addition to the traditional pooled regression estimation (OLS). Panel data estimation allows for the control of individual-specific effects usually unobservable which may be correlated with other explanatory variables included in the specification of the relationship between dependent and explanatory variables (Hausman and Taylor, 1981).

Following both the theoretical and empirical literature earlier reviewed, it is pertinent to submit that the relationship between capital structure and profitability of commercial banks in Nigeria as studied by this research can best be mathematically represented as:

$$ROE_{i,t} = \beta_0 + \beta_1 SF_{i,t} + \beta_2 D/TA_{i,t} + \beta_3 LEV_{i,t} + U_{i,t} \text{-----} \text{eqn (2)}$$

Where:

ROE= Bank's profitability proxied by Return on equity

SF=Shareholders' fund

D/TA= Debt/Total asset

LEV = Financial leverage

$\mu$  = error term

t = Time dimension

i = Numbers of commercial banks

$\beta_0$  = Constant

$\beta_1$  to  $\beta_3$  = Coefficients

**Hypothesis One**

Shareholders' fund did not positively and significantly impact on the profitability of commercial banks in Nigeria.

$$ROE_{it} = \beta_0 + \beta_1 SF_{it} + \varepsilon_{it} \text{-----eqn (3)}$$

**Hypothesis Two**

Total asset did not positively and significantly impacted on the profitability of commercial banks in Nigeria.

$$ROE_{it} = \beta_0 + \beta_1 D/TA_{it} + \varepsilon_{it} \text{-----eqn (4)}$$

**Hypothesis Three**

Financial leverage did not positively and significantly impacted on the profitability of commercial banks in Nigeria.

$$ROE_{it} = \beta_0 + \beta_1 LEV_{it} + \varepsilon_{it} \text{-----eqn (5)}$$

**3.6 Apriori Expectation**

Shareholders' funds, debt/total assets and financial leverage are all expected to have positive and significant impact on return on equity.

**3.7 Description of Model Variables**

Annual data extracted from the annual report and accounts of the sampled commercial banks spanning from the period 2008 through 2017 were used for this study. This study utilized return on equity as the dependent variable which is also measure of commercial banks profitability, while debt/asset, share holders' fund and financial leverage were employed as the independent variables which also represented capital structure variables.

Return on equity: This is a measure of financial performance calculated by dividing net income by shareholders' equity.

Shareholders' fund: For the purpose of this research work, shareholders' funds would be employed as proxy for equity ratio. Equity refers to a financial ratio indicative of the relative proportion of equity applied to finance the assets of a company

Debt/Total asset: debt/total asset is a ratio that indicates the proportion of a company's debt to its total assets. It shows how much the company relies on debt to finance assets.

Financial leverage: Financial leverage is a financial ratio indicating the relative proportion of entity's equity and debt used to finance an entity's assets.

**IV. Data Analysis**

**4.1 Tests of Unit Root Using Philip and Peron**

In an attempt to confirm the order of integration of the series under study thereby confirming their suitability for a linear combination in the form of a model, the unit root test following the form specified as LN, Perseran and Shin test was used. Table 4.1 below represents a summary of the panel unit root result that was stationary using individual unit root

Table 4.1: Summary of Ln, Perseran and Shin-W Test Unit Roots Test

Variable	LN,PERSARANAND SHIN-W TEST	Probability Value	Inference
ROE	-2.9370	0.0017	I(1)
SF	-3.2517	0.0006	I(1)
D/TA	-3.9051	0.0000	I(1)

LEV	-4.5456	0.0000	1(1)
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Source: Author's analysis using e-view 10 output with data in Appendix

From the result of LN, Perseran and Shin unit root test contained in table 4.1, all the variables are integrated at 1(1) meaning that is stationary at first difference. Given this same orders of integration, the pooled panel Least Square Regression Method was used

#### 4.2 Tests of Autocorrelation Using Correlogram Q-Statistics

Table 4.2 Tests of autocorrelation

Correlations are asymptotically consistent approximations

ROE,SF(-i)	ROE,SF(+i)	i	lag	Lead
****   .	****   .	0	-0.4141	-0.4141
****   .	***   .	1	-0.4150	-0.3396
****   .	***   .	2	-0.3798	-0.2699
****   .	**   .	3	-0.3461	-0.2124
***   .	. *   .	4	-0.3100	-0.1442
***   .	. *   .	5	-0.2571	-0.0729
**   .	.   .	6	-0.2043	-0.0373
**   .	.   .	7	-0.1540	-0.0227
. *   .	.   .	8	-0.1073	-0.0176
. *   .	.   .	9	-0.0558	-0.0019
		1		
.   .	.   .	0	0.0000	0.0000
		1		
.   .	.   .	1	0.0000	0.0000
		1		
.   .	.   .	2	0.0000	0.0000
		1		
.   .	.   .	3	0.0000	0.0000
		1		
.   .	.   .	4	0.0000	0.0000
		1		
.   .	.   .	5	0.0000	0.0000
		1		
.   .	.   .	6	0.0000	0.0000
		1		
.   .	.   .	7	0.0000	0.0000
		1		
.   .	.   .	8	0.0000	0.0000
		1		
.   .	.   .	9	0.0000	0.0000
		2		
.   .	.   .	0	0.0000	0.0000

Source: Author's analysis using e-view 10 output with data in Appendix

From table 4.2 above, it shows auto correlation testing using Gjung box Q- statistics. Jung box Q- statistics is higher order autocorrelation tests that are used to test the reliability of the data set used in estimation. When the probability of the Q-

Statistics is < 5%, it means significant. From the study above, Result reveals that all the probability of the Q-stat is significant meaning that there is no autocorrelation.

### 4.3 Tests of Covariance Distribution Cross Sectional and Idiosyncratic Identifiers

Table 4.3 Tests of covariance distribution

Covariance Analysis: Ordinary

Included observations: 140

Correlation	ROE	SF	D/TA	LEV
ROE	1.000000			
SF	-0.414116	1.000000		
D/TA	0.609798	-0.994244	1.000000	
LEV	0.578156	-0.725248	0.721907	1.000000
t-Statistic	ROE	SF	D/TA	LEV
ROE	-----			
SF	-5.344570	-----		
D/TA	5.277530	-109.0187	-----	
LEV	8.324035	-12.37457	12.25520	-----
Probability	ROE	SF	D/TA	LEV
ROE	-----			
SF	0.0000	-----		
D/TA	0.0000	0.0000	-----	
LEV	0.0000	0.0000	0.0000	-----

Source: Author's analysis using e-view 10 output with data in Appendix

Correlation is a way to index the degree to which two or more variables are associated with or relate to each other. The result above shows that profitability of commercial banks in Nigeria proxied by return on equity (ROE) is positively and significantly correlated with debt/total asset and financial leverage negatively and significantly correlated with shareholders' fund. However, return on equity was correlated with debt/total asset at 61%, with financial leverage at 58% and with shareholders' fund at -41.4%.

The result however, is in agreement with the findings of Adeslan and Nwidobie (2015) and Idode, Adeleke, Ogunlowore and Ashogbon, (2014) who reported a positive relationship between capital structure and net profit. This is contrary to the findings of Opoku, Audu and Anarfi (2013) and Akeen, Terer, Kiyanjui and Kayode (2014) who reported a negative relationship between capital structure and net profit.

### 4.4 Test of Hypotheses

The formulated hypotheses were tested using the panel least square test for hypotheses

In a stepwise testing process, the following steps were adopted in this study:

Step I: Restatement of the hypotheses in null and alternate forms,

Step II: Presentation and discussion of the results arrived at using the estimation technique

Step III: Statement of Decision criteria.

Step IV: Taking a decision on the rejection or acceptance of the null or alternate hypothesis.

#### 4.4.1 Test of Hypothesis One

H<sub>0</sub>: There is no significant impact of shareholders' fund on profitability of commercial banks in Nigeria.

H<sub>1</sub>: There is significant impact of shareholders' fund on profitability of commercial banks in Nigeria.

**Table 4.4.1 Table of Panel least square showing ROE and SF in Nigeria**

Correlated Random Effects - Hausman Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	1.103019	1	0.2936

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
SF	-5.281099	-5.810331	0.253927	0.2936

Cross-section random effects test equation:

Dependent Variable: ROE

Method: Panel Least Squares

Periods included: 10

Cross-sections included: 14

Total panel (balanced) observations: 140

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	2.416193	0.263631	9.165072	0.0000
SF	-5.281099	2.011979	-2.624828	0.0098

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.874282	Mean dependent var	1.747244
Adjusted R-squared	0.860202	S.D. dependent var	2.134696
S.E. of regression	0.798154	Akaike info criterion	2.487927
Sum squared resid	79.63126	Schwarz criterion	2.803103
Log likelihood	-159.1549	Hannan-Quinn criter.	2.616005
F-statistic	62.09220	Durbin-Watson stat	0.398043
Prob(F-statistic)	0.000000		

Source: Author's analysis using e-view 10 output with data in Appendix

**Decision criteria**

Accept  $H_0$  if the p-value of the coefficient of the parameter estimates is  $>0.05$ , otherwise reject  $H_0$  and accept  $H_1$  when the coefficient of the parameter estimates is  $<0.05$ .

Given the coefficient of the parameter estimates of shareholder fund at  $-5.28\%$  and the probability of t-statistics of  $0.00 < 0.05$  which is significant, it shows that it is negatively signed and statistically significant.

**Taking a Decision on the Rejection or Acceptance of the Null or Alternate Hypothesis**

Result reveals that shareholder fund is negatively signed; the study rejected the Null hypothesis and accepted the alternate hypothesis thereby concluded that Shareholders' fund negatively and significantly impacted on the profitability of Commercial banks in Nigeria.

**4.4.2 Test of Hypothesis two**

$H_0$ : Debt/total asset does not have significant impact on the profitability of commercial banks in Nigeria.

$H_1$ : Debt/total asset have significant impact on the profitability of commercial banks in Nigeria.

**Table 4.4.2 Table of Panel least square showing ROE and D/TA in Nigeria**

Correlated Random Effects - Hausmann Test

Equation: Untitled

Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	1.152727	1	0.2830

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
D/TA	5.052338	5.574193	0.236250	0.2830

Cross-section random effects test equation:

Dependent Variable: ROE

Method: Panel Least Squares  
 Periods included: 10  
 Cross-sections included: 14  
 Total panel (balanced) observations: 140

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.668503	1.734642	-1.538359	0.1265
D/TA	5.052338	1.983209	2.547557	0.0121

Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.873900	Mean dependent var	1.747244
Adjusted R-squared	0.859777	S.D. dependent var	2.134696
S.E. of regression	0.799366	Akaike info criterion	2.490962
Sum squared resid	79.87331	Schwarz criterion	2.806138
Log likelihood	-159.3673	Hannan-Quinn criter.	2.619040
F-statistic	61.87698	Durbin-Watson stat	0.396711
Prob(F-statistic)	0.000000		

Source: Author's analysis using e-view 10 output with data in Appendix

**Decision criteria**

Accept  $H_0$  if the p-value of the coefficient of the parameter estimates is  $>0.05$ , otherwise reject  $H_0$  and accept  $H_1$  when the coefficient of the parameter estimates is  $<0.05$ .

Given the coefficient of the parameter estimates of total assets at 5.05% and the probability of t-statistics of  $0.00 < 0.05$  which is significant, it shows that it is positively signed and statistically significant.

Taking a Decision on the Rejection or Acceptance of the Null Or Alternate Hypothesis

Result reveals that debt/total asset is positively signed; the study rejected the Null hypothesis and accepted the alternate hypothesis thereby concluded that debt/total assets positively and significantly impacted on the profitability of Commercial banks in Nigeria.

**4.4.3 Test of Hypothesis three**

$H_0$ : Financial leverage has no significant impact on profitability of commercial banks in Nigeria.

$H_1$ : Financial leverage has significant impact on profitability of commercial banks in Nigeria.

**Table 4.4.3 Table of Panel least square showing ROE and LEV in Nigeria**

Correlated Random Effects - Hausman Test  
 Equation: Untitled  
 Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.760828	1	0.3831

Cross-section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
LEV	0.052971	0.053890	0.000001	0.3831

Cross-section random effects test equation:

Dependent Variable: ROE

Method: Panel Least Squares

Periods included: 10

Cross-sections included: 14

Total panel (balanced) observations: 140

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.009065	0.099213	10.17065	0.0000
LEV	0.052971	0.005961	8.886072	0.0000

#### Effects Specification

Cross-section fixed (dummy variables)

R-squared	0.918706	Mean dependent var	1.747244
Adjusted R-squared	0.909601	S.D. dependent var	2.134696
S.E. of regression	0.641826	Akaike info criterion	2.051958
Sum squared resid	51.49258	Schwarz criterion	2.367134
Log likelihood	-128.6371	Hannan-Quinn criter.	2.180036
F-statistic	100.9023	Durbin-Watson stat	0.674816
Prob(F-statistic)	0.000000		

Source: Author's analysis using e-view 10 output with data in Appendix

#### Statement of Decision criteria

Accept  $H_0$  if the p-value of the coefficient of the parameter estimates is  $>0.05$ , otherwise reject  $H_0$  and accept  $H_1$  when the coefficient of the parameter estimates is  $<0.05$ .

Given the coefficient of the parameter estimates of total assets at 5% and the probability of t-statistics of  $0.00 < 0.05$  which is significant, it shows that it is positively signed and statistically significant.

Taking a Decision on The Rejection or Acceptance of the Null or Alternate Hypothesis

Result reveals that financial leverage is positively signed; the study rejected the Null hypothesis and accepted the alternate hypothesis thereby concluded that financial leverage positively and significantly impacted on the profitability of Commercial banks in Nigeria.

## **V. Summary, Conclusion and Recommendations**

### **5.1 Summary of Findings**

The research was carried out to evaluate the responsiveness of commercial bank's profitability to its capital structure in the Nigerian banking sector. From the analysis, some findings were made as follows:

1. Shareholders' fund had a negative and significant impact on profitability of commercial banks in Nigeria.
2. Debt/total asset had a positive and significant impact on profitability of commercial banks in Nigeria.
3. Financial leverage had a positive and significant impact on profitability of commercial banks in Nigeria.

### **5.2 Conclusion**

Changes in the capital structure of commercial banks in Nigeria arising from the banking sector consolidation in (2005) gave rise to the modification of regulatory capital requirements. The ratio of Tier 1 capital to risk weighted assets, for example, rose from 8.0 per cent as enshrined in the Basel II Accord to 10.0 per cent for banks that operate within Nigeria. Whilst banks that had international correspondence were required to have Tier 1 capital at 15.0 per cent, the systemically important banks were mandated to keep Tier 1 capital at 16.0 per cent (CBN, 2010).

However, this policy affects the contribution of the components of capital and hence profitability of commercial banks in the country. This prompted several empirical studies on the impact of the new capital structure on banks' financial performance. However, most of the studies considered bank performance variables such as return on assets, return on equity, profit before and after tax among others. Therefore, this study used return on equity which is a measure of financial performance calculated by dividing net income by shareholders' equity. The study applied panel data models on annual data of 14 commercial banks from 2008 through 2017 and discovered that financial leverage and debt to total assets were positive and significant in impacting profitability of commercial banks in Nigeria.

### **5.3 Recommendations**

As a result of the findings of this study, the study recommended the following policy measures that commercial banks in Nigeria should imbibe and implement in order to maximize return on equity.

1. Debt/total asset had a positive and significant impact on profitability of commercial banks in Nigeria. Since debt/total asset impacted positively on return on equity, commercial banks should employ more of borrowed funds in their capital structure in order to enjoy more profit since debt/total asset impacted positively on return on equity of commercial banks in Nigeria.
2. Financial leverage had a positive and significant impact on profitability of commercial banks in Nigeria. When faced with shortage of funds, management of commercial banks in Nigeria should first of all, try to raise such needed funds through internal sources of financing such as reserves and retained earnings, before exploring external sources of funding such as bonds, loans or debentures. Commercial banks in Nigeria should curb excessive appetite for risk, by not over gearing their capital structure in order to reduce bankruptcy cost and control cases of moral hazards of managers and enhance the confidence of shareholders for continuous investment in the banks.
3. Finally, this study also suggested that commercial banks should employ financial leverage (debt-to-equity ratio) in their capital structure since financial leverage yielded more profit to the bank than shareholders' fund.

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#### APPENDIX 1

##### DATA COMPUTED FROM FINANCIAL STATEMENTS OF SELECTED COMMERCIAL BANKS IN NIGERIA

YEAR	BNKS	D/TA	SF	LEV	ROE
2008	ZENITH	0.826025112	0.173974888	4.747955986	0.474339239
2009	ZENITH	0.82019559	0.17980441	4.561598845	0.449689059
2010	ZENITH	0.901553776	0.192131731	4.692373158	0.512389202
2011	ZENITH	0.816768027	0.183231973	4.457562794	0.516116735
2012	ZENITH	0.833577672	0.166422328	5.008809099	0.51914352
2013	ZENITH	0.823808767	0.176191233	4.675651292	0.592431644
2014	ZENITH	0.827367204	0.172632796	4.792642083	0.736135204
2015	ZENITH	0.82626012	0.17373988	4.755730913	0.790827614
2016	ZENITH	0.821972864	0.178027136	4.617121195	0.824186789
2017	ZENITH	0.824699449	0.175300551	4.70448864	0.805636441
2008	UBA	0.908350388	0.091649612	9.911120983	0.964046313

2009	UBA	0.909616734	0.090383266	10.06399497	0.902791424
2010	UBA	0.909292242	0.090707758	10.02441538	0.883222424
2011	UBA	0.904499761	0.095500239	9.471178004	0.843249791
2012	UBA	0.910217988	0.089782012	10.13808859	0.896304427
2013	UBA	0.906613086	0.093386914	9.708138406	0.825924999
2014	UBA	0.901739669	0.098260331	9.177046889	0.819200412
2015	UBA	0.901205899	0.098794101	9.122061813	0.87415474
2016	UBA	0.898511819	0.101488181	8.853364122	0.847155441
2017	UBA	0.892553819	0.107446181	8.306985085	0.831407503
2008	WEMA	0.984821553	0.015178447	64.8828928	6.841498313
2009	WEMA	0.984310335	0.015689665	62.73622365	6.748348804
2010	WEMA	0.982601848	0.017398152	56.47736749	5.490667234
2011	WEMA	0.981036419	0.018963581	51.73265505	5.486247551
2012	WEMA	0.983180585	0.016819415	58.45510003	5.688574642
2013	WEMA	0.864182336	0.135817664	6.362812544	3.659481107
2014	WEMA	0.857952735	0.142047265	6.039910248	3.619274066
2015	WEMA	0.853991421	0.146008579	5.848912619	3.598391108
2016	WEMA	0.863109872	0.136890128	6.305128689	3.820581335
2017	WEMA	0.857652058	0.142347942	6.025040119	3.679497169
2008	FIDELITY	0.793541059	0.206458941	3.843578087	0.759399619
2009	FIDELITY	0.770031466	0.229968534	3.34842098	0.677018644
2010	FIDELITY	0.782757138	0.217242862	3.60314319	0.795740526
2011	FIDELITY	0.785351165	0.214648835	3.658772089	0.699171902
2012	FIDELITY	0.761755302	0.238244698	3.197365173	0.672839471
2013	FIDELITY	0.73314384	0.26685616	2.747337146	0.631690958
2014	FIDELITY	0.746777885	0.253222115	2.949102148	0.655184919
2015	FIDELITY	0.746584524	0.253415476	2.946088906	0.666130027
2016	FIDELITY	0.746104635	0.253895365	2.938630384	0.65859268
2017	FIDELITY	0.738517675	0.261482325	2.824350267	0.637751247
2008	DIAMOND	0.852397291	0.147602709	5.774943394	0.539677425
2009	DIAMOND	0.849851344	0.150148656	5.660066262	0.551660142
2010	DIAMOND	0.864896573	0.135103427	6.40173673	0.599178679
2011	DIAMOND	0.87768396	0.12231604	7.175542664	0.620252239
2012	DIAMOND	0.874100142	0.125899858	6.942820702	0.675132387
2013	DIAMOND	0.895818596	0.104181404	8.598642039	0.692341928
2014	DIAMOND	0.895088668	0.104911332	8.531858767	0.674447545
2015	DIAMOND	0.89940738	0.10059262	8.941087108	0.742986348
2016	DIAMOND	0.909459502	0.090540498	10.04478135	0.676203182
2017	DIAMOND	0.907434444	0.092565556	9.803154494	0.688995104
2008	UNION	0.949676551	0.050323449	18.87145195	3.910205757
2009	UNION	0.959404034	0.040595966	23.63298955	2.7932635
2010	UNION	0.963950766	0.036049234	26.73984046	4.655046708
2011	UNION	0.973342592	0.026657408	36.51302498	6.830962304
2012	UNION	0.980765623	0.019234377	50.99024581	8.849900871
2013	UNION	0.981782273	0.018217727	53.8915907	9.115787473
2014	UNION	0.981119567	0.018880433	51.9648865	9.268668944
2015	UNION	0.980438462	0.019561538	50.12072477	9.391387298

2016	UNION	0.986639614	0.013360386	73.8481345	9.859060837
2017	UNION	0.879979866	0.120020134	7.331935386	9.383129053
2008	SKYE	0.819954626	0.180045374	4.554155491	0.753412314
2009	SKYE	0.82053395	0.17946605	4.57208454	0.738774866
2010	SKYE	0.822188492	0.177811508	4.623932945	0.804160091
2011	SKYE	0.83014745	0.16985255	4.887459457	0.836336722
2012	SKYE	0.827308548	0.172691452	4.790674583	0.840793398
2013	SKYE	0.825305514	0.174694486	4.724279119	0.82307881
2014	SKYE	0.8398164	0.1601836	5.242836362	0.884549555
2015	SKYE	0.820676131	0.179323869	4.576502464	0.917354226
2016	SKYE	0.82135389	0.17864611	4.597658954	0.8391658
2017	SKYE	0.826636035	0.173363965	4.76821142	0.849137745
2008	FCMB	0.866224686	0.133775314	6.475220708	1.089687091
2009	FCMB	0.887497828	0.112502172	7.888717294	1.962999177
2010	FCMB	0.898574788	0.101425212	8.859481455	1.20048864
2011	FCMB	0.913725083	0.086274917	10.59085437	0.980961644
2012	FCMB	0.913740968	0.086259032	10.59298894	1.476271029
2013	FCMB	0.928777386	0.071222614	13.04048437	1.496155127
2014	FCMB	0.93843102	0.06156898	15.24194518	1.598077547
2015	FCMB	0.933691048	0.066308952	14.08092004	1.539908172
2016	FCMB	0.933512551	0.066487449	14.04043256	1.581109311
2017	FCMB	0.933476502	0.066523498	14.03228219	1.563531319
2008	ACCESS	0.867008599	0.132991401	6.519283144	3.337140682
2009	ACCESS	0.870071575	0.129928425	6.696545241	3.508024742
2010	ACCESS	0.858679215	0.141320785	6.076099955	3.347697002
2011	ACCESS	0.855007253	0.144992747	5.896896729	3.268607775
2012	ACCESS	0.854907016	0.145092984	5.892132004	3.381012291
2013	ACCESS	0.877482433	0.122517567	7.162094841	3.219374994
2014	ACCESS	0.861596206	0.138403794	6.225235483	4.588378282
2015	ACCESS	0.86919989	0.13080011	6.645253509	2.918073
2016	ACCESS	0.868745565	0.131254435	6.618790172	3.100423941
2017	ACCESS	0.87590998	0.12409002	7.058665801	3.06222085
2008	STERLING	0.911755643	0.088244357	10.33216932	0.446582849
2009	STERLING	0.788169881	0.211830119	3.72076399	0.502036423
2010	STERLING	0.966489539	0.033510461	28.84142774	0.489760094
2011	STERLING	0.852855356	0.147144644	5.796033994	0.574813289
2012	STERLING	0.858044164	0.141955836	6.044444444	0.933333333
2013	STERLING	0.841865757	0.158134243	5.323741007	0.899280576
2014	STERLING	0.885625416	0.114374584	7.743201211	1.075059021
2015	STERLING	0.885854754	0.114145246	7.760767838	1.160721414
2016	STERLING	0.887286361	0.112713639	7.872040749	1.297178059
2017	STERLING	0.889259297	0.110740703	8.030103406	1.327118905
2008	KEYSTONE	0.88701786	0.11298214	7.85095642	0.46751591
2009	KEYSTONE	0.891241539	0.108758461	8.194686929	0.500797469
2010	KEYSTONE	0.893995947	0.106004053	8.433601543	0.466183518
2011	KEYSTONE	0.879857181	0.120142819	7.323427167	0.390901233
2012	KEYSTONE	0.887359234	0.112640766	7.877780511	0.37315865

2013	KEYSTONE	0.90093732	0.09906268	9.094618858	0.410739086
2014	KEYSTONE	0.899519836	0.100480164	8.95221303	0.367010178
2015	KEYSTONE	0.894801904	0.105198096	8.505875448	0.369176616
2016	KEYSTONE	0.898828726	0.101171274	8.884228583	0.296787296
2017	KEYSTONE	0.906311549	0.093688451	9.673674192	0.309684534
2008	ECOBANK	0.49220876	0.50779124	0.969313215	0.732866107
2009	ECOBANK	0.788681936	0.211318064	3.732203104	0.717021576
2010	ECOBANK	0.79238773	0.20761227	3.816670995	0.754781137
2011	ECOBANK	0.800505738	0.199494262	4.012675491	0.774689976
2012	ECOBANK	0.774612154	0.225387846	3.436796464	0.584510421
2013	ECOBANK	0.769084907	0.230915093	3.330596097	0.531966048
2014	ECOBANK	0.76424072	0.23575928	3.241614588	0.526561896
2015	ECOBANK	0.753894323	0.246105677	3.063295127	0.625027843
2016	ECOBANK	0.736622392	0.263377608	2.796829992	0.742246898
2017	ECOBANK	0.734413046	0.265586954	2.76524518	0.750619529
2008	FIRST	0.862565827	0.137434173	6.276210684	1.093984024
2009	FIRST	0.868095753	0.131904247	6.58125704	1.104958419
2010	FIRST	0.861636032	0.138363968	6.227315118	1.133632637
2011	FIRST	0.870098249	0.129901751	6.69812565	1.051575319
2012	FIRST	0.868945904	0.131054096	6.63043684	0.999380212
2013	FIRST	0.875883882	0.124116118	7.056971278	1.029270047
2014	FIRST	0.868960276	0.131039724	6.631273714	0.975187311
2015	FIRST	0.896096175	0.103903825	8.62428472	0.998608244
2016	FIRST	0.8894802	0.1105198	8.048152498	0.964358282
2017	FIRST	0.887483806	0.112516194	7.88760957	0.9329168
2008	GTBANK	0.977458103	0.022541897	43.361839	0.705116856
2009	GTBANK	0.975906623	0.024093377	40.50518207	0.62192753
2010	GTBANK	0.97478607	0.02521393	38.66061642	0.625164409
2011	GTBANK	0.977555058	0.022444942	43.55346749	0.683183975
2012	GTBANK	0.980200403	0.019799597	49.50607867	0.78689448
2013	GTBANK	0.98069021	0.01930979	50.78720316	0.760854671
2014	GTBANK	0.981364315	0.018635685	52.66048951	0.797719382
2015	GTBANK	0.980802292	0.019197708	51.08955077	0.811324353
2016	GTBANK	0.981628003	0.018371997	53.43066363	0.865151428
2017	GTBANK	0.981085079	0.018914921	51.86831619	0.855206282