CHAPTER ONE
INTRODUCTION

1.1 Background to the Study

Prior to the emergence of behavioural finance, corporate financial decisions and financial management functions such as financial structure were mainly determined by the management and the internal operating factors of the business such as the firm size, composition of assets, ownership structure, financial structure, performance and board composition. The agency theory formulated by Jensen and Meckling (1973) separated the owners of the organization from the management. The management was entrusted with the business operation and with the objective of optimizing the interest of the owners without conflict of interest. Maximizing the interest of the shareholders is a critical management function that requires strategic and tactical planning such as optimal capital mix. Corporate organizations have financial goals and strategy which is the expression of a corporate mission and strategy that are determined by the long-term planning system as a trade-off among conflicting and competing interests. Corporate objective relates to four corporate fundamental goals of maximizing corporate performance, Returns on Investment, corporate growth and availability of funds (Pandey, 2005).

The classical authors such as Gordons (1959) opined that micro forces such as performance level of a business is an indication that the business is capable of adding value to shareholders The classical models of financial evaluation indicate that financial structure like the dividend policy is important, since optimal capital mix affect the value of the corporate entity. This is used as financial signalling to outsiders regarding the stability and growth prospects of the business enterprise (Ross, 1977). Financial structure is the mix of the sources of finances that is used by the firms to finance their operations and assets (Modigliani & Miller, 1958). The concept of

financial structure remained undiscovered until Modigliani & Miller (1958) explained it in their financial structure irrelevance theory. A bank for instance can finance its operations and assets either by issuing stocks, bonds or preferred stocks. Financial structure makes up the capital and reserve of the statement of affairs of the banks.

Determining the optimal financial structure of an organization is a critical financial management function. It involves the weighing of the pros and cons of various sources of financing and selecting the most advantageous keeping in check the target capital and its effect on the value of the organization. It is a continuous decision that is taken whenever a firm needs additional capital (Pandy, 2005). A firm's financial structure must be developed with an eye on the risk element because it has a direct link with the value (Krishnan and Moyer, 1997). Risk may be factored for two considerations: that financial structure must be consistent with the firm's business risk, and that financial structure results in a certain level of financial risk. The debt-equity mix can take any of the following forms: 100% equity: 0% debt, 0% equity: 100% debt and X% equity: Y% debt. From these three alternatives, option one is that of the unlevered business organization, which shuns the advantage of leverage (if any). Option two is that of an organization that has no equity capital (Olokoyo, 2012).

Unlike the classical theories of financial structure, modern theories take into account taxes, financial distress, agency cost, information asymmetry and the effect of market imperfections which are considered non-existent in the Miller and Modigliani assumptions. Unlike other corporate organizations, financial structure of the banking sector is determined by the regulatory authorities, credit risk, dividend policy, Bank size, growth of assets and performance. It comprises tier 1, tier II and tier III capital which is a combination of equity and debt. In the conventional corporate finance theories, a bank in equilibrium will desire to hold a privately optimal capital that just

trade-off cost and benefits, implying a zero relationship at the margin. Capital requirements, imposed by regulators, as they are bound by them, make banks to hold capital in excess of their private optimal and hence forces banks to go above their internal optimal capital ratio which imposes cost on banks.

Again, there may be a positive or negative relationship between capital and bank value in the short run depending on whether a bank is above or below its optimal capital ratio. The relationship between financial structure and the value of the organization has long been a point of controversy among scholars in corporate finance, since the seminal work of Miller and Modiglani in 1959 which noted that financial structure is irrelevant as opposed to Gordon's view that it is relevant. More of the empirical evidence supports the relevance view of Gordons, Cheng and Tzeng (2011), Rathinasany, Khrisnawawy and Mantripagada (2001), while other evidences support the irrelevance view like Aggarwary and Zhao (2007), Rayan (2008).

Moreover, capital requirement in the banking industry is closely related to deposit insurance. McCoy (2008) noted that deposit insurance can significantly reduce the incidence of bank runs, protecting benefits of depositors on one hand. On the other hand, if not implemented properly, deposit insurance can give banks incentives to take unnecessary risks. Making deposits safer provides banks a very cheap source of financing, encouraging them to borrow more and maybe engaged in more risky investments. In the light of this, banks are required to hold a minimum capital to alleviate the moral hazard of this insurance, thus reducing their flexibility in capital mix. The debate surrounding the choice of financial structure includes an extensive literature which considers the agency cost associated with the debt or equity financing. The seminal paper by Jensen and Meckling (1976) addresses the agency cost associated with external financing. The sale of equity to external investors

reduces the owner-manager's fractional interest in the firm, which increases the incentives to partake in excessive peak consumption, as the effective cost of such consumption is lowered.

The motive of every profit making organization is performance and to maximize shareholders wealth. Banks operate in a multi-faceted environment that can affect the operational efficiency and the performance of the industry. Performance is an indicator of sound banking system that can stand the operating environment. It is important to the banking public as well as the shareholders, the government and the customers. Bank performance can be seen as an input-output relationship. It measures the effectiveness and the efficiency of management in achieving returns on investor's fund (Aburime, 2010). It is a qualitative measure of return on investment, return on assets, return on capital employed, earnings per share, and profit after tax and interest income (Ngerebo & Lucky, 2016). Bank performance can be examined at the micro and the macro levels. At the micro level, bank performance is a function of management capacity, number of bank branches, assets composition, financial structure; while at the macro level bank performance is a critical function of monetary and the macroeconomic factors such as the regulatory instruments, inflation, economic growth, real income and interest rates (Nnanna, 2006). Optimal financial structure is a critical decision for any business organization. The decision is important not only because of the need to maximize returns to various organizational constituencies, but also because of the impact such a decision has on an organization's ability to deal with its competitive environment. Over the last four decades, the literature considering the issue of corporate financial structure has been dominated by the debate arising from the Modigliani/Miller (1958) irrelevance Hypotheses, which suggest that, in equilibrium, the financial structure of a firm is independent of, and

irrelevant to its performance and market value. Essentially, a bank should be indifferent as to the use of debt or equity to finance project as, the average cost of capital to any bank is completely independent of its financial structure and is equal to the capitalization rate of a pure equity stream of its class. (Amidu 2007).

The bank's financial structure directly affects its financial risk which has direct effect on the performance levels. The more fixed-cost financing, debt including financial leases and preferred stock, a business has in its capital structure, the greater its financial risk. Since the level of this risk and the associated level of returns are key inputs to the valuation process, the bank must estimate the potential impact of alternative financial structures on these factors and ultimately on value in order to select the best financial structure. The greater the bank's operating leverage-the use of fixed operating cost- the higher its business risk. Since the company's cost of capital is seen as a function of its financial structure, choice of optimal financial structure or adequate and appropriate financing and investment reduce company's cost of capital and increase its market value (Modarres & Abdoallahzadeh, 2008) and thus will increase shareholders wealth. This study incorporates the non interest income as one of the measure of performance which has not been captured in previous studies. Therefore this study examined the effect of financial structure on the performance of deposit money banks in Nigeria.

1.2 Statement of the Problem

There has been an aged long debate and point of departure among corporate finance researchers on the relationship between financial structure and the value of the business. While others like Cheng and Tzeng (2011), Rathinasany, Khrisnawawy and Mantripagada (2001) are of the opinion that financial structure is relevant, Modigliani and Miller (MM) are of the opinion that financial structure is irrelevant. Like the dividend policy theories, the assumptions of financial structure theories are based on

the well-developed financial policies as opposed to an emerging financial environment such as Nigeria. The theories suggest that firms select financial structure depending on attributes that determine the various costs and benefits associated with debt and equity financing. The divergences among scholars have deepened as more theories emerge with different opinions on the relationship between financial structure and performance of corporate organization.

The issue of adopting an adequate measurement of financial structure remains controversial in the literature. The literature has focused more on the classical classification of capital that comprises equity and debt. This study disaggregated the various measures of equity and debt to see the component that will be more robust and significant for the Nigerian banking sector. This robustness check allows us to establish whether the effect of financial structure on corporate performance is equally strong for various measures of financial structure. Many of the previous studies did not investigate the direction of causality between financial structure and financial performance and focus on the real sector of the economy. (Cheng & Tzeng 2011; Saeed 2013; Pratomo & Ismail 2006; Siddiqui & Shoaib 2011 and Taiwo, 2015). This work examined the banking sector financial structure and financial performance. Previous authors who ran cross sectional regressions on the effects of financial structure on corporate performance got conflicting results due to the problem of aggregating the various components of capital, time frame and other factors. (Babalola, 2014)

Several related studies reviewed neglected other measures of corporate performance such as non interest income and interest income but focused on the quantitative accounting measure such as return on assets, return on equity, profit after tax and return on investment. (Awunyo-Victor & Badu 2012). However, this study

incorporates net interest income and non net interest income as a measure of performance. This study aimed at examining the effects of financial structure on the performance of Nigerian Deposit money banks (DMBs) by investigating the relationship between the various components of DMBs financial structure and performance in Nigeria.

1.3 Objectives of the Study

The general objective of this study is to examine the effect of financial structure on the performance of deposit money banks in Nigeria while the specific objectives are as follows:

1. Examine the effect of financial structure and its determinants on Return on Assets of deposit money banks in Nigeria.
2. Determine the effect of financial structure and its determinants on Return on Equity of deposit money banks in Nigeria.
3. Ascertain the effect of financial structure and its determinants on Net Operating Income of deposit money banks in Nigeria.
4. Evaluate the effect of financial structure and its determinants on Interest Income of deposit money banks in Nigeria.
5. Assess the effect of financial structure and its determinants on Non Interest Income of deposit money banks in Nigeria.

1.4 Research Questions

The under listed research questions are formulated from the above specific objectives of the study.

1. How significant is the effect of financial structure and its determinants on return on assets of deposit money banks in Nigeria?

2. To what extent does financial structure affect and its determinants return on equity of deposit money banks in Nigeria?
3. To what degree does financial structure and its determinants affect net operating income of deposit money banks in Nigeria?
4. To what extent does financial structure and its determinants affect interest income of deposit money banks in Nigeria?
5. To what extent does financial structure and its determinants affect non interest income of deposit money banks in Nigeria?

1.5 Research Hypotheses

The under listed null hypotheses are formulated from the above specific objectives of the study:

1. Financial structure has no significant effect on return on assets of deposit money banks in Nigeria.
2. Financial structure has no significant effect on return on equity of deposit money banks in Nigeria.
3. Financial structure has no significant effect on net operating income of deposit money banks in Nigeria.
4. Financial structure has no significant effect on interest income of deposit money banks in Nigeria.
5. Financial structure has no significant effect on non interest income of deposit money banks in Nigeria.

1.6 Scope of the Study

This study centres on the effect of financial structure on the performance of all the deposit money banks licensed by Central Bank of Nigeria and insured by Nigeria Deposit Insurance Corporation. The time scope, based on available data of the variables in the objectives cover 1999 – 2015 which is 17 years. The period is

justified as it covers the period of various banking sector reforms (era of universal banking, banking sector consolidation and the Sanusi banking reform) in Nigeria. Secondary data from the Central Bank of Nigeria banking supervision and Nigeria Deposit Insurance Corporation were utilized. In the light of this, the result of the analysis depends on the totality of the data from the aforementioned sources. The pecking order theory was the bases for which this study is pursued and result interpreted.

1.7 Limitations of the Study

The period of study was limited to seventeen years based on available data of the variables covered in the study. The result of the analysis will depend completely on data as obtained from Central Bank of Nigeria and Nigerian Deposit Insurance Commission. The Nigerian financial market is encompassing but the study only covered the effect of financial structure and its determinants on deposit money banks in Nigeria. The performance variables used in the study have been limited to only five accounting based performance measures and determinants of financial structure according to the objectives of the study.

1.8.1 Significance of the Study

The study will be beneficial to the following stakeholders:

Financial Managers: Financial managers belong to the top management and are responsible for making financial decisions for their organisations. They determine the proportion of equity and debt capital to obtain the debt financing mix that will optimise the value of the firm that is an optimal financial structure. The assumptions of Modigliani and Miller of a perfect market has been seen as an error. Finance managers therefore have significant role to play in achieving optimal financial structure that will add value to the banks.

Research: The study, will also contribute to the literature by examining the effect of the various components of financial structure on the performance of Nigerian deposit money banks. This will help us to understand the effect of institutional factors on Nigerian banks financial structure choices and how it affects their performance.

Shareholders: It will help the shareholders to know the concept of financial structure and therefore desist from mounting excessive pressures on the management of their banks to violate rules put in place by the regulators. It will also help them to know the value of return accrued to them as shareholders of the banks.

Creditors: The study can help the creditors to access the banks and ensure that the returns on investment will be well utilized.

Financial Analysts: The study will enable the managers of the Nigerian Deposit money banks to undertake financial analysis and to know the optimum financial structure that will not only minimize costs but will also maximize the return to the shareholders.

Customers: The customers can also do a critical analysis of their banks from time to time based on the information at their disposal. It will help the regulators to put in place an efficient regulatory framework that will foster healthy competition and co-operation and work efficiency among banks.

Government: The government can create a conducive business environment for banks to thrive, remain competitive and benefit the masses.

CHAPTER TWO
REVIEW OF RELATED LITERATURE

2.1 Conceptual Issues

2.1.1 Concept and Overview of Financial Structure

Velnampy and Ninesh (2012) referred to financial structure as the way which the business enterprise finances itself by means of debts, equity and securities. The firm requires a composition of debts and equity to finance its assets. This way stakeholders' needs can be satisfied. Saad (2010) described the concept of financial structure as combining debt and equity in order to make up the total capital of the firm. Capital is a vital part of the statement of affairs of an enterprise because the overall position of the enterprise is reflected regarding all types of assets, and liabilities. The term capital structure of an enterprise according to Kathaf (2013) is actually a mix of long term debts preference shares and equity shares. A company should therefore plan its financial structure to be successful.

Debt capital, preferred stock and common equity are mostly used by firms to raise needed funds. Financial structure policy seeks a trade-off between risk and expected return. The firm must consider its business risk, tax positions, financial flexibility and managerial conservatism or aggressiveness, while these factors are crucial in determining the target financial structure. Operating conditions may cause the actual financial structure to differ from the optimal financial structure. A critical decision for any business organization is a decision for an appropriate financial structure; the decision is not only because of the need to maximize returns to various organizational constituencies, but on an organization's ability to deal with its competitive environment. The prevailing argument, originally developed by Modigliani and Miller (1958), is that an optimal financial structure exists which balances the risk of bankruptcy with the tax savings of debt. Once established, this

financial structure should provide greater returns to stock holders than they would receive from an all-equity firm.

In theory, modern financial techniques would allow top managers to calculate accurately optimal trade-off between equity and debt for each firm. However, in practice; many studies found that most firms do not have an optimal financial structure. This is due to the fact that the managers do not have an incentive to maximize firm's performance because their compensation is not generally linked to it. Moreover, since managers do not share the firm's profits with shareholders, they are very likely to increase company's expenditures by purchasing everything they like and surrounding themselves with luxuries and amenities. Hence, the main concern of shareholders is ensuring that managers do not waste firm's resources and run the firm in order to maximize its value, which entails finding a way to solve the principal-agent problem.

2.1.2 Types of Financial Performance Measures

The goal of every business is to achieve its goals of corporate performance, which makes the determination of performance one of the most interesting and challenging areas in finance literature. Owing to the complexity in measuring performance, it is difficult to ascertain the perfect index of measuring performance. The performance measures according to Kerstein (2007) are divided into two general groups, market based and accounting-based measures. The market based measure relies on market data and accounting based measure is hinged on accounting information in the balance sheet. There is also hybrid measures of performance which comprises both market based and accounting-based measures.

Market-based Performance Measures

Market-based measures have been widely used in different studies. The market based measure tries to determine firm's performance using its value in the market. The most popular market based indicator is Tobin's Q. Other may include price earnings ratio, dividend yield, market value added, market to book value, etc. This measurement of performance does not recourse to the financial figures in the balance sheet or annual statement of account. Cumulated abnormal return (CAR) with the idea to measure potential abnormal market returns related to a particular event is an excellent market based measurement followed by market return (Kerstein, 2007).

The market return refers to the growth in stock value over a specific period assuming that dividends were reinvested and thereby captures the income of shareholders in form of dividends and capital gains from stock price changes and rarely used in empirical studies. According to Demsetz and Lehn (1985), the rare application of market return empirical studies is on premises that stock market rates of return presumably adjust for the ownership structure and its effects on performance. Stock prices incorporates changes in expectations about future cash flows and the cost of capital. To this effect, higher stock prices may be attributed to changes in ownership structure. Capital gains due to stock price changes do not reflect a preferable ownership structure, as soon as the ownership information is reflected in the stock price (Kertein, 2007). Market returns should be equal for all firms with equal risks in periods when expectations are constant. Hence, they give only valuable information about the relationship of ownership and performance in the case of an unexpected event.

Accounting-based Performance Measures

In literature, the accounting base measurement dominates all facets of performance as they are widely used in empirical studies and assessing the health of a firm. The accounting performance indicators include return on assets, return on equity, net operating income, gross profit margin, net interest margin, etc. Studies have shown that return on assets and return on equity are the most widely used account performance measure. Return on equity measures only returns of shareholder while return on assets deals with aggregate return of equity holders and debtholders. Kerstein (2007) observed that return on equity is preferred over return on assets owing to first, generally financial performance is based on the shareholder value concept, which is stronger reflected in the pure equity focus of the return on equity than by the diluted equity returns of the return on assets. Second, regarding the effect of performance on equity ownership the pecuniary benefits of shareholders play an important role. These depend stronger on the return on equity than on the return on assets also including the debt-holders' return. As a result, the return on equity should lead to a more significant relationship of ownership and performance improving the results. Thirdly, also other benefits gained by shareholders through their control rights can only be derived from residual profits. However, the rents for corporate debt are paid according to predetermined contracts and therefore not part of the residual profits.

Accounting-based performance measures such as the return on investment or the earnings per share, are not prevalent in empirical studies. In calculating accounting-based variables the return measure or the kind of income to be used, has to be carefully defined, for instance, book return can be divided into three facets: income from ordinary operating activities, income from extraordinary activities, and non-

operating income. The latter stems from non-operating activities, such as rents and patents but also from return on non-operating financial assets. It could be argued that these returns are arbitrary and mainly elude from the management's influence and are therefore not related to ownership structure. The inclusion of non-operating results would bias the actual performance measure. An objection is that managers decide on the assets creating non-operating income.

Hybrid Performance Measure

The hybrid accounting performance is a combination of market and accounting performance measures. The market-to-book ratio (M/B) and the Tobin's Q are comprised of both accounting and market based ingredient of measuring performance. In market to book ratio, the amount of market value is generated by the stock of invested capital. It is arrived at by dividing market value of the firm's liabilities by the accounting value of these liabilities. Market to book ratio would be obtained via market value of stock divided by the shareholders' equity, or market value of stock and debt divided by total assets. Second, market data cannot be manipulated by management, as accounting data can. Nevertheless, as the M/B includes book values, it is not completely free of the accounting bias. In addition, the reliance on market data creates also a disadvantage of the M/B. Sudden outburst and speculative market movements that are not motivated by changes in the expectations can make it less representative as performance measure. The advantages and disadvantages do not only apply to the M/B but also to the second hybrid measure, the Tobin's Q. Tobin (1969) introduced the concept of the Tobin's Q as the ratio of market value to replacement values of a firm's assets. Since then it has been frequently used as performance measure in the ownership literature.

2.1.3 Structure of Bank Regulatory Capital

The Central Bank of Nigeria (CBN) guidance notes on the calculation of regulatory capital divulges the following information:

Tier 1 Capital: This includes only permanent shareholders' equity (issued and fully paid ordinary shares/common stock and perpetual non-cumulative preference shares) and disclosed reserves (created or increased by appropriations of retained earnings or other surpluses). In the case of consolidated accounts, this also includes minority interests in the equity of subsidiaries which are not wholly owned. This basic definition of capital excludes revaluation reserves and cumulative preference shares. There is no limit on the inclusion of Tier 1 capital for the purpose of calculating regulatory capital. For this purpose, the equity shares with the following characteristics are included in Tier 1 capital: Issued directly by the bank;

- Clearly and separately identified in the balance sheet.
- Have no maturity (are perpetual);
- Fully paid;
- Cannot be refunded beyond the possibility of the liquidation of bank or reduction of share capital;
- Do not give to the holder rights to a minimum remuneration nor are there any clauses that require the compulsory payment of dividends.
- The dividends are paid solely out of distributable profits or retained earnings distributable; classified as equity instruments in accordance with IFRS.

Tier 2 Capitals

Revaluation Reserve

Fixed Asset Revaluation Reserve: This relates to revaluation of fixed assets in line with market values reflected on the face of the balance sheet. Prior approval of the CBN must be obtained by any bank before the recognition of the revaluation surplus on fixed assets in its books, which can only be done taking into consideration the following:

The valuation must be made by qualified professionals and the basis of the revaluation as well as the identities of the values must be stated. The difference between the market and historic values of the eligible fixed assets being revalued shall be discounted by 55%. The revaluation of fixed assets is applicable to own premises only; and the revaluation of fixed assets (own premises only) is permissible within a minimum period of seven years after the date of the purchase of the asset or the last revaluation.

Other revaluation reserves: The inclusion of other revaluation reserves created by the adoption of the international Financial Reporting Standards (IFRS) as part of the Tier 2 capital shall be subject to the limitations that will be specified by the CBN from time to time.

General provisions/General loan-loss reserves For the purpose of the standardized credit risk measurement approach, provisions or loan-loss reserves held against future (presently unidentified), losses are freely available to meet losses which subsequently materialize and therefore qualify for inclusion in Tier 2 capital. Provisions ascribed to specific or identified deterioration of particular assets or known liabilities, whether individual or grouped (collective), are excluded. Furthermore, general provisions/general loan-loss reserves eligible for inclusion in Tier 2 will be limited to

a maximum of 1.25 percentage points of credit risk weighted assets and subject to the approval of the CBN.

Hybrid (Debt/equity) capital instruments: These include financial instruments which combine characteristics of equity and debt capital. Essentially, they should meet the following requirements:

- They are unsecured, subordinated and fully paid-up;
- They are not redeemable at the initiative of the holder or without the prior consent of the CBN.
- They are available to participate in losses without the bank being obliged to cease trading (unlike conventional subordinated debt);
- Although the capital instrument may carry an obligation to pay interest that cannot permanently be reduced or waived (unlike dividends on ordinary shareholders equity), it should allow service obligations to be deferred (as with cumulative preference shares) where the performance of the bank would not support payment.
- Hybrid capital instruments that are redeemable must have a maturity of at least 10 years. The contract must clearly specify that repayment is subject to authorization by the Central Bank of Nigeria. Cumulative preference shares, having these characteristics, would be eligible for inclusion in this category.

Subordinated term debts Subordinated debts issued by banks shall form part of the Tier 2 capital provided that the contracts governing their issue expressly envisage that:

- In the case of the liquidation of the issuer, the debt shall be repaid only after all other creditors not equally subordinated have been satisfied.
- The debt has an original maturity of at least five years; where there is no set maturity; repayment shall be subject to at least five years' prior notice.

- Early repayment of the liabilities may take place only at the initiative of the issuer and shall be subject to approval of the CBN.
- The contracts shall not contain clauses whereby, in cases other than those referred to in points a) and c), the debt may become redeemable prior to maturity.
- During the last five years to maturity, a cumulative discount (or amortization) factor of 20% per year will be applied to reflect the diminishing value of these instruments as a continuing source of strength. Unlike instruments included in hybrid capital above, these instruments are not normally available to participate in the losses of a bank which continues trading. For this reason, these instruments will be limited to a maximum of 50% of Tier 1 Capital.

The United Arab Emirate Bank Guideline, Capital Adequacy Standard of November, 2009 envisages the following points for Tier 3 capital for implementation of Basel II accord.

Tier 3 Capital

The principal form of eligible capital to cover market risks consists of shareholders' equity and retained earnings (Tier 1 capital) and supplementary capital (Tier 2 capital). But, subject to prior approval from the Basel II, banks may employ a third tier of capital (Tier 3), consisting of short term subordinated debt as defined in paragraph 49(xiv) of Basel II, for the sole purpose of meeting a proportion of the capital requirements for market risks, subject to the conditions in paragraph 49(xiii) and 49(xiv) of Basel II accord.

Deductions from total of tier 1 capital and tier 2 capital

Normal accounting practice prescribes the consolidation of the assets and liabilities of all members of a group when preparing group accounts. Where a group excludes

subsidiaries, deduction from capital is essential to prevent the multiple uses of the same capital resources in different parts of a group. The following deductions should be made from the sum of tier 1 and tier 2 capital to take account of this and in those instances where banks have cross shareholdings in other banks:

Banking, securities and other financial subsidiaries

Under Basel II, banking and financial subsidiaries should be consolidated, and if not consolidated, the investment should be deducted from the capital base. International Accounting Standards define subsidiaries as companies incorporated in their home country or abroad which the bank controls (directly or indirectly holds 50% or more of the ordinary share capital) or in which the bank has a controlling influence (for example, via the composition of the board of directors) where it holds less than 50% of the ordinary share capital. All banking and financial subsidiaries should be consolidated, except in certain cases as described in International Accounting Standard No.27, Consolidated Financial Statements and Accounting for Investments in Subsidiaries (issued by the International Accounting Standards Committee) which requires or permits exclusion from consolidation, for example, when:

- Control of the subsidiary is temporary; or
- Control does not exist in reality; or
- Control is impaired by restrictions on the transfer of funds.
- Significant minority investments in banking and other financial entities

Investments in banking and other financial entities of 20% and above, up to 50% should normally be deducted from the capital base.

Investments in other banks or financial institutions

This represents cross shareholdings between two or more banks or financial institutions wherein they hold a similar amount of each other's Capital. In such circumstances, these amounts must be deducted from the total of the capital base.

Investments in insurance entities

For investments in insurance entities, an investment in such an entity of 10% or above would lead to deduction from the capital base. Banks may recognize surplus capital in insurance subsidiaries as per the criteria and disclosure requirements explained in Paragraph 33 and footnote 10 of Basel II.

Significant investments in commercial entities

Significant minority and majority investments in commercial entities that exceed materiality levels of 15% of the bank's capital for individual significant investments in commercial entities, and 60% of the bank's capital for the aggregate of such investments will be deducted from the capital base. The amount deducted would be the portion of the investment above the materiality level. Investments in significant minority-owned /majority-owned and controlled commercial entities below the materiality levels noted above will be risk-weighted at no lower than 100% for banks using the standardized approach. As a transitional arrangement, banks holding such investments at 1st January 2008, that exceed the materiality levels stated above, will be permitted to reduce the excess of their investments over a period not extending beyond 1st January 2011. The impact would be that banks with these investments will not be required to deduct the excess over 15% from capital but will risk weight at 100%

Other Deductions - Securitized Assets

Exposures to securitized assets under the Standardized Approach are detailed under Paragraph 538 to 605 of Basel II. Such exposures that are rated B+ and below (Long-Term), below A-3/P-3 (Short-term), or are un-rated must be deducted from the capital base.

Deduction of investments in accordance with above requirements

Where deductions of investments are made pursuant to this part on scope of application, the deductions will be 50% from Tier 1 and 50% from Tier 2 capital.

2.1.4 Views of Bank Capital

Regulatory View

Although both banks and non-bank financial institutions are regarded as component of the financial system, the mode of operation of deposit money banks differs greatly from non-bank financial institutions. However, this difference in mode of operation is not translated in the financial mix as both would require capital to fund business operation and make profit. The capital of financial institutions are subjected to strict regulation because of the sensitive nature of banking business in an economy compared to non-financial services firms. Moreover, the regulatory requirements is also based on a need to mitigate those moral hazard incentives from deposit insurance, which implies that banks should choose extreme levels of leverage. Bank capital according to Anjan (2014) occupies centre page in global regulatory capital accords that seek to constrain and provide common guidelines of capital requirements set by national regulators. Bank capital is the mix of sources of funds which the bank chooses to finance itself. What qualifies as regulatory capital includes all the sources of financing including debts, equity and preferred stock. The value of a bank's capital affects its risk management attitude and determines banks ability to withstand

economic instability. This is because banks take on a lot of risk in order to provide valuable economic services through qualitative asset transformation.

Buffer View

The buffer view is based on the principle that it is necessary for deposit money banks to have capital in excess of regulatory requirement to serve as buffer for unforeseen circumstances. Berger (1995) noted that buffer view has been extensively examined in various applications, where the argument is that banks hold capital well above the regulatory requirement in order to avoid the cost of having to issue equity at short notice as a consequence of violating the minimum capital requirements hence, such a capital buffer protects the bank against costly and unexpected shocks, if the costs of financial distress stemming from holding low amounts of capital are substantial and the transactions costs of raising new capital quickly are very high. This was transform by Keppo and Peura (2006) to mean that banks hold capital buffers to mitigate the asset risks needing to be managed, such that the bank can satisfy its minimum capital requirement even under relatively adverse future scenarios. From the assumptions of the buffer theory of capital adequacy, due to changing environmental uncertainties, deposit money banks capital level may be altered or may fall below the minimum required level. These costs are both explicit and implicit, where the implicit costs of regulation may stem from regulatory interference, whereas explicit costs relate to penalties and/or restrictions imposed by the supervisory authorities due to a breach of the regulatory requirements, which might even lead to bank closure.

Standard Corporate Finance View

The standard corporate view of capital adequacy tends to relate capital to the various theories associated with financial structure as it applies most especially to non-financial services firms. The introduction of the irrelevance theory of financial

structure in 1958 has resulted in an unending debate on the right source of capital for operation. This led to the development of many theories such as pecking order, trade-off theory, agency cost, etc. all in an attempt to explain the nexus between financial structure and performance. The focal point will be the capital structure theories as they were originally put forth in the context of non-financial firms, after which comments on the possible relevance to banks will be made where appropriate and possible. These theories would not be discussed here as the theoretical framework effectively dwelt on it. Santos (2001) is of the opinion that the Basel Accords initiating with the reasoning behind the existence of regulation of financial institutions, one recognizes that in the absence hereof, the risk of market failures, such as externalities, market power, or information asymmetry between buyers and sellers, could potentially be severe. This has resulted in many countries sustaining and implementing different reforms regarding bank capital to ensure the survival of the financial system, particularly in developing countries.

2.1.5 Banks's Specific/Micro Determinants of Financial Structure

The bank specific determinant are factors within the banks that are capable of influencing or sharping the financial structure. Some of these banks specific factors based on results of empirical studies are precisely discussed as follows:

Collateral

Collateral is an asset or security pledge to the banks by a customer before a loan is advanced to him/her. Deposit money banks rely on the monetary value of any collateral to recover any loan should there be a default. Following the assumptions of the agency cost theory and trade-off theory, with collateral, risk of financial distress and agency cost on the side of deposit money banks are drastically reduced thus leverage capacity of deposit money banks are enhanced. (Frank & Goyal 2005).

Dividend Payout

Dividend pay-out is adjudged as the percentage of a firm's profit paid out to shareholders as a reward for the equity capital contributed in the business operation of the firm. A highly profitable firm normally pays dividend mainly on annual basis, and investors are so delighted to receive dividend from their investment as such a firm is considered as ideal and worthy of investing. Firms that do not regularly pay dividend are considered as not performing well and based on the bankruptcy theory, a firm that cannot pay dividend has a risk of going bankrupt as inability to pay dividend implies rise in equity base for debt capital. Hinging on the bankruptcy theory, high level of debt in the financial structure suggests low bankruptcy whereas high level of equity implies high bankruptcy. In the light of the pecking order theory, debt is positively related with dividend pay-out on the argument that a profitable firm instead of paying dividend will plough such fund into business as retained earnings, which cancels the need for debt. Frank and Goyal (2005) asserted that a dividend-paying company which is large and mature can rely on its reputation to raise external capital, hence would reduce borrowing. Following Frank and Goyal (2005), Gropp and Heider (2007) deposit money banks that indulge in paying dividends are expected to face lower cost of issuing equity as they are well known to the outsiders, preferring equity financing.

Assets Size

The size of a firm normally captured with the monetary value of total assets has been empirically confirmed to improve performance. The trade-off theory and pecking order theory postulate a positive relationship between size of a firm and performance. From the standpoint of the trade-off theory, large firms with lower bankruptcy costs and more stable cash flows would have higher capacity for debt financing. With

references to past studies on linkage between size and financial structure and anchored on either pecking order theory or trade-off theory, Frank and Goyal (2005), Aggarwal and Suthisit (2003), and Booth, Aivazan, Demirgue, and Maksimovic. (2001) found the existence of positive relationship between firm's size and financial structure. Conversely, Rajan and Zingales (1995) are of the opinion that disclosing of more information to the public, increasing its transparency, reducing information asymmetry costs which are attributes of large firms favours equity financing.

Assets risk

The inability of deposit money banks to meet customer's obligation is very challenging and banks strive by acceptable means to avoid the occurrence of this risk. The probability of default on a loan granted could affect the financial structure of the bank as fund that would not be recovered (bad debt counted as loss) would be accounted for from profit based on the banking regulation applicable to the Nigerian environment. This is the reason why the Central Bank of Nigeria requires all deposit money banks in Nigeria to maintain a prescribed level of risk to ensure that they meet their obligation as at when due. The agency cost theory and bankruptcy theory maintained that the risk that abounds in banking operation negatively affects its financial structure. For bankruptcy theory, frequent volatility in earnings increases the probability of going bankrupt as the weight of bankruptcy will be higher on the firm's financial structure decisions. With regards to the agency cost theory, as the level of debt decreases, occasioned by fluctuation in earnings, assets risk increases. This assumption by these theories have been empirically affirmed by the findings of Ullah and Mohammed (2008), Pandey (2001), and Harris and Raviv (1991) that firms with high level of assets risk use less debt in financing business operations.

Market to Book Value

The market to book ratio value of a firm as determined by comparing the book value of the firm and its market value is critical to financial structure decisions of firms management. A high market to book value ratio according to the pecking order theory shows that the firm has high financial muscle to fund its operation from its retained earnings or equity, hence no need for external financing that would require the firm to service cost of capital. The postulation of the pecking order theory on the negative relationship between market to book value ratio and financial structure has been confirmed by the empirical works of Gropp and Heider (2007), Frank and Goyal (2005), Aggarwal and Suthisit (2003), and Rajan and Zingales (1995), Arguing based on the trade-off theory, large and profitable firms would have high market to book value ratio and such firms can easily seek for debt without fear of solvency. Encompassing, the market timing hypothesis, if the share price of a firm is high in the stock market, the firm can easily source fund by issuing out shares if there is an unavoidable need for fund instead of debt.

Profit

The capacity of the bank to make profit is very critical for its survival being one of the sectors that is highly regulated in the country. Resting on the trade-off theory, a firm that is extremely profitable would have high muscle to accommodate debt and less risk to debt holders, thus a negative relationship between financial structure and performance. From the perspective of the pecking order theory, high profitability is an indication of heavy reliance on internal financing as against debt. Bulk of empirical studies tend to lay credence to the pecking order assumption. From Modigliani and Miller (1963), the effect of corporate tax on performance would make firms to go for debt as a means of tax shield. Furthermore, on the premises of the pecking order

assumptions, agency costs of managerial decisions are mitigated by increasing the level of debt in the financial structure as a profitable firm would deep its hand in retained earnings first whenever financing need arises.

Tangibility

Tangibility is the ratio of a firm's fixed assets to total assets. The ability of a firm to effectively and efficiently utilize it assets would improve performance. Both the pecking order theory and trade-off theory have postulated the existence of a positive relationship between tangibility and performance. Lenders are in most cases faced with problem of moral hazard and adverse selection owing to the conflict of interest between providers of debt and equity-shareholders. With this in mind, a lender will require a firm to pledge a collateral before extending funds to it, which ultimately affects the debt level in the borrower's financial structure. Liquidation value depends entirely on how tangible a firm assets is. Large firms have the financial capacity to employ more debt as there are assets to be pledged as collateral.

2.1.6 Country/Macro Determinants of Financial Structure

GDP growth

The economic health of a country would have some effect on the financial structure of firms operating in the economy. In period of economic boom, firms perform wonderfully and may not have recourse to borrowing. In the same way, firms are exposed to a lot of investment opportunities capable of improving profitability during economic boom. On the other hand, during economic depression or recession as it is currently witnessed in Nigeria today, banks are bound to borrow in the interbank market to meet up with shortfall. The degree of bankruptcy is bound to be high during economic recession as most banks would face fund constraints. Logically, economic

growth is positively related with financial structure as have been documented by the works of De Jong et al. (2008), Deesomsak et.al (2004), and Mitton (2008).

Inflation

Inflation is a general rise in the price of goods and services in a country owing majorly to high volume of money in circulation. Inflation reduces the purchasing power of money and results in higher cost of capital, which ultimately affects the debt level in the financial structure of a firm. On the argument of the trade-off theory, inflation increases the tax benefits associated with debt. The share prices of firms in the stock exchange are undervalued in periods of inflation making equity a not preferable source of financing: firm's management would resort to debt than issuing new shares to potential investors. A positive relationship is postulated to exist between inflation and financial structure based on the premises of the trade-off theory and market timing theory. Frank and Goyal (2008) have empirically affirmed this assertion as they observed a positive nexus between firm's financial structure and inflation level.

Stock market risk

The smooth operation of the stock market would have a great influence on the financial structure of firms trading on the exchange thus stock market risk affect firm's financial structure decisions. Volatility in stock market would cause a drastic fall in the value of equity of firms, and when such is the case, firms are forced to borrow, which increases the debt level in the financial structure. Some firms may even go bankrupt in adverse stock market volatility. High volatility in the stock market would deter banks from raising the necessary fund for operation from potential investors. Not only that, the confidence in the market would be lost as most investors would prefer to keep their money than investing in the market. High risks make banks

have to increase their reserves to comply with regulations on statutory capital requirements, which results in lower leverage.

Interest Rate Structure

The interest rate structure in a country affects the level of fund mobilization by the banking system and the financial system as a whole. A high level of interest would increase the quantum of fund mobilized as customers would make more deposit in their accounts but the reverse is the case. A high interest increases the cost of capital for firms as banks would add up interest on deposits in addition to other administrative and handling charges. With high interest rate on deposits, any bank looking for more debt in its financial structure would have it at ease.

Corporate Tax Rate

The percentage of a firm's profit paid to the government as tax affects the financial structure. Where a large fraction of a firm's profit would be paid as tax, equity capital from shareholders would be distorted. Most firms would resort to debt financing to shield the effect of corporate tax. The findings from studies on the nexus between corporate tax and financing decisions of firms have been inconclusive. For instance, looking at the financial structure of firms, MacKie-Mason (1990) provided evidence of substantial tax effect on the choice between debt and equity as financing decision is affected by changes in the marginal tax rate. On the contrary, Graham (1999) observed that corporate taxes generally do affect corporate financial decisions, but the magnitude of the effect is mostly "not large". Other alternative tax shields such as depreciation, research and development expenses, investment deductions, etc., that could substitute the fiscal role of debt was pointed out by DeAngelo and Masulis (1980).

A conceptual model to incorporate the research questions has been constructed.

FP = f (FS)

Where FP = Financial Performance

FS = Financial Structure

The models depict financial performance which is the dependent variable as a function of financial structure which is also the independent variable in this study. The performance variables are Return on Assets (ROA), Return on Equity (ROE), Net Operating Income (NOI), Interest Income INTI and Non Interest Income NINTI. The Financial Structure parameters also known as explanatory or independent variable was proxy by debt to total assets (TDTA), Total debt to total equity (TDTE), short term debts to total assets (STDTA). Tangibility, Bank Size and Risk were variables used in order to control the banks specific functions that affect performance. Return on Assets (ROA) is the Net Income before tax dividend total assets. This will express or show how the bank efficiently utilized their earnings and available assets. (Ronoh 2015). Return on Equity (ROE) depicts the ratio of Net Income before tax to Total Equity. It is the cost of attracting deposits to banks. (Ronoh 2015). Net Operating Income is the total earnings from banking operations less operating expenses and other charges excluding corporate tax. (Samuel 2016). Interest Income includes income from loans and securities and comprises the bulk of income for most banks. (Amarfor 2015). Non Interest Income is credit income primarily from non traditional banking activities such as account maintenance charge, service charge, cheque and deposit slip fee, etc. Based on the research questions therefore, performance is proxy by return on assets, return on equity, Net operating Income, Interest Income and Non Interest Income is a function of Total Debt to Total Asset, Total Debt to Total Equity and Short Term Debt to Total Assets in the financial structure.

2.2 Theoretical Review

Over the years in literature with effect from the postulation of the irrelevance theory of financial structure by Modigliani and Miller (1958), a lot of theories have been modelled in an effort to explain the connection between financial structure and performance of firms. These theories include pecking order theory, static trade-off and dynamic trade-off, agency cost theory, market timing hypothesis and signalling postulation. These theories are concisely discussed in the subsequent sub-sections. This study however anchors on Pecking Order Theory.

2.2.1 The Modigliani-Miller: Irrelevance and Relevance Theory

In 1958, Modigliani and Miller came up with the irrelevance theory of financial structure where they stated that financial structure does not affect firm's value. Modigliani and Miller (1958) assumed the market to be perfect where no information asymmetries (where insiders and outsiders have free access to information); no transaction cost, bankruptcy cost and no taxation exist, which makes selecting between equity and debt irrelevant as both internal and external financing can be perfectly substituted. They hypothesized that if markets are perfectly competitive, firm performance will not be related to financial structure, an insinuation that financial structure and firms performance is insignificantly related. In a perfectly competitive market effect of tax, inflation and transaction costs linked with raising money or going bankrupt are excluded. Modigliani and Miller (1958) envisaged that paying of corporate tax as when due by a firm would result in tax shield and partial offsetting of interest; firm's value is increased by tax shield associated with debt. Modigliani and Miller (1958) advocated that firms should not see its value as dependent on financial structure as firm's market value and weighted average cost of capital are the same at all level of financial structure on the argument that return and

risk inherent in operation and firm value is determined by return and risk inherent in operation. In 1977, Miller stated that financial structure decisions of firms with both corporate and personal taxes are not important. Financial structure would be term irrelevant if the assumption of no information, no transaction cost, bankruptcy cost and no taxation are relaxed.

One of the shortcoming of Modigliani and Miller (1958) postulation is that in real life situation perfect does not exist due to volatility in macroeconomic indices. The relaxation of the no taxation and bankruptcy assumption led to the development of the static trade off theory which later metamorphosed to dynamic trade-off theory. Research into the nexus between financial structure and performance was necessitated by the Modigliani and Miller (1958) irrelevance theory of financial structure, and up till today it is marred with controversy based on different empirical findings emanating from different measurement of financial structure and performance coupled with country specific factors. Despite the criticism that trailed the irrelevance theory of financial structure based on current environmental happenings, this theory still provides the foundation for many other theories suggested by other researches.

2.2.2 Static Trade-Off Theory

Following the assumptions of Modigliani and Miller (1958), the static trade-off theory was developed. The theory states that firms would benefit more if business operations are heavily financed by debt as against equity not minding the indirect cost associated with debt via indirect bankruptcy cost and cost of financial distress. According to Kraus and Litzenberger (1973), static trade-off theory assumes that firm's trade-off the benefits and costs of debt and equity financing and find an optimal capital structure after accounting for market imperfections such as taxes, bankruptcy costs and agency costs. From that static trade-off theory, optimal financial structure is

obtained where the net tax advantage of debt financing balances leverages related to costs such as financial distress and bankruptcy, holding firm's assets and investment decisions constant. To maximise firm value, choosing the amount of debt and equity needed to finance operation should be the priority of firm's management.

Following Altman (2002) perspective of this theory, claiming that issuing equity means moving away from the optimum and should therefore be considered bad news,Myers (1984), alliance to this theory could be regarded as setting a target debt-to-value ratio with gradual attempt to achieving it. Leverage to Ebaid (2009) could mitigates agency cost since the firm's reputation and manager's wage are at stake. In the same vain, fulfilment of debt obligation via principal and interest is an indication of higher leverage. This is the reason why higher debt level against equity could be said to be the attribute of highly profitable firms.

2.2.3 Pecking Order Theory

The pecking order theory of financial structure is one of the most celebrated theories of financial structure and performance nexus and many empirical studies have laid credence to this theory. The theory was documented to have been introduced by Donaldson (1961). The theory states that firm's financial structure has negative effect on its performance thus internal financing via equity and retained earning is most preferable by firms. From the theory internal financing should be the first option before thinking about debt then followed by external equity. Following the pecking order theory, a profitable firm would rely less on debt as a source of financing business operation as funds would be available through equity/retained earnings. He argues that the more profitable the firms become, the lower the tendency to borrow because they would have sufficient internal finance to undertake their investment projects. According to the theory, where internal finance is insufficient, then external

financing through borrowing from bank or corporate bond would be the best option, and where internal financing and bank borrowing/corporate bond become inadequate, then the last resort should to issue new equity.

Myers and Majluf (1984) stated that the effect of asymmetric information upon the mispricing of new securities, which says that there is no well-defined target debt ratio is captured by the pecking order theory. The standpoint of Myers and Majluf (1984) is that managers are seen by investors to have better information regarding a firm's operation compared to outsiders, which in turn lead to overpricing of securities that are very risky. With this at the back of investors mind, issuance of new equity by firms would be underpriced, and in some cases shareholders incurs some loss owing to under pricing new equity. To better mitigate this problem of information asymmetry, firms should rely heavily on internal financing for business operation, followed by debt while external equity should be the last resort where both internal financing and debt prove abortive to financing business operation. Though, the pecking order theory never assume the existence of optimal financial structure, however, to mitigate the consequences of information asymmetries, firms should follow a hierarchy of finance, from internal to debt and finally, to external new equity which generally brings a higher level of external ownership into the firm.

2.2.4 Agency Cost Theory

The agency theory was historically traced to Berle and Means (1932). The theory stated that conflict of interest would arise as a result of difference in interest between shareholders (principal) and managers (agents). The agent cost theory completely negates the assumption of a perfect market by giving way for informational asymmetries and transaction costs to cause incomplete contracts. The conflict necessitated by information asymmetries was emphatically why the agency

cost theory was developed. In the mind of shareholders, managers should work toward improving shareholders return for fund invested since they are remunerated for the service offered to the growth of the firms, but managers would in most cases selfishly work against their principal, resulting in conflict of interest. An agency relationship arises when a principal delegate's decision powers to an agent. The action of the agent influences both contractual partners due to the nature of the agency relationship.

The consequences of an agent having more information in the running of a firm are difficult to be prevented by shareholders as the agent manage day to day activities of the firm. Keirsten (2007) carefully observed that agency conflict requires two conditions, a conflict of interest through diverging utility functions of the principal and the agent as well as the existence of informational asymmetries. Principal are in most cases not aware of some characteristic of an agent before an agreement is reached. The shareholders would be easily harmed before and after a contract is signed by the hidden intention of the agent. That notwithstanding, it can cause a hold-up problem, where the principal recognizes the opportunistic actions of the agent, but cannot sanction him or prevent his actions, as a result, the agent will not change his behaviour (Keirsten, 2007).

2.2.5 Market Timing Theory

Market timing theory centres on the effect of information asymmetry on the firms value. The theory states that firms preferably issue equities when potential investors overvalue the shares and on the other hand, if shares are undervalued, repurchase execution would become the best option. The market timing theory is of two versions. Myers and Majluf (1984) developed the first version where economic agents/manager and investors are assumed to be rational in behaviour regarding

investment opportunities. The second version assumes that economic agents are irrational leading to a time-varying mispricing of the firm's share (Baker and Wurgler, 2002). The practice is that managers would issue equities when the prices of firms share in the stock market are high and repurchase when share prices are low through timing of the market mechanism. The relationship between market to book value ratio of a firm and its financial structure is vehemently explained by the market timing hypothesis.

2.2.6 Signalling Hypotheses

Signalling Hypotheses was traced to the effort of Ross (1977). The theory state that the financial structure decisions of firm's signals information to outside investors the probable information of inside management as insiders are believed to know the true state of the firm which potential investors are not aware of. From the theory, managers are more comfortable with equity capital from shareholder as against debt, especially when the level of debt is high that would increase the risk of bankruptcy, which would make owners to relieve managers of their jobs. Having this in mind, when firms are experiencing rise in earnings as a result of high debt level in the financial structure, investors see it as a signal of future cash flow and their manager's confidence of the firm to earn more. Outside investors see high level of debt in firm's financial structure as evidence of profitability. The empirical inferences with reference to the signalling hypothesis is still a debate. Jensen, Solberg & Zorn (1992) observed that financial structure and signalling are negatively related but this is contradicting as John and William (1985) established the existence of a positive relationship between financial structure and signalling.

2.3 Empirical Studies

2.3.1 Return on Assets and Financial Structure

Anarfor (2015) examined the relationship between financial structure and bank performance in Sub-Sahara Africa. This study has employed the use of panel data techniques to analyse the relationship between financial structure and bank performance. The performance variables used in the study were return on asset. The results from Levin-Lin-Chu and Im-pesaran-shin unit root test showed that all the variables were stationary in levels. The results also indicate that financial structure does not determine bank performance but rather it is performance that determines banks financial structure. Awunyo-Vitor and Badu (2012) empirically investigated the relationship between financial structure or leverage and performance of listed banks in Ghana from 2000 to 2010. Data were collected from Ghana stock exchange and annual report of the listed banks. Panel regression methodology was used to analyse the data. The result revealed that the banks listed on the Ghana Stock Exchange are highly geared and this is negatively related to the return on assets which can be attributed to their over dependency on short term debt as a result relatively high Bank of Ghana lending rate and low level of bond market activities.

Ronoh (2015) ascertained the effects of financial structure on financial performance of listed commercial Banks in Kenya, a case study of Kenya Commercial Bank Limited. This study adopted descriptive research design and utilizing annual financial reports of 230 branches of Kenya Commercial Bank limited. The financial and income statements panel data covering five-year period from 2009 to 2013 was summarized and ratios calculated and analysed. The multiple regression models used considered performance as the dependent variable and was measured in terms of ROA. The results from the regression analysis indicated that Deposits, debt and equity was negative and significantly related to financial performance of listed

commercial banks in Kenya as measured by return on assets. The regression analysis results indicated that the relationship between retained earnings ratio was positive although insignificantly related to financial performance as measured by return on assets. It was therefore concluded that financial structure of listed commercial banks in Kenya is significant and affects financial performance of commercial banks negatively. Saeed, Gull and Rasheed (2013) determined the impact of financial structure on performance of Pakistani banks. The study extends empirical work on capital structure determinants of banks within the country over the period of five years from 2007 to 2011 by utilizing data of banks listed at Karachi stock exchange. Multiple regression models were applied to estimate the relationship between financial structure and banking performance measured by return on assets. Determinants of financial structure includes long term debt to capital ratio, short term debt to capital ratio and total debt to capital ratio. Findings of the study validated a positive relationship between determinants of financial structure and performance of banking industry.

Mujahid, Zuberi, Rafig, Sameen and Shakoor (2014) studied that impact of financial structure on bank performance measured by return on assets. Determinants of financial structure contains long term debt to capital ratio, short term debt to capital ratio and total debt to capital ratio. Results of the study validated a positive relationship between factors of financial structure and performance of banking industry. Sherman and Verma (2016) determined the impact of financial structure on the performance of banks in India. Although significant numbers of banks are currently operating in India, yet broadly these can be classified into Private Banks, Nationalized Banks, SBI & its Associates and Foreign Banks. These four pillar broad classification is taken into consideration for the purpose of the study and covers a

period of 6 years from 2009-2014. The sources of data comprise of annual reports of the sampled banks and statistics released by RBI from time to time. The results of the study provided that explanatory variables have statistical and significant influence on the return on assets of banks.

Abbadi and Abu-Rub (2012) established a model to measure the effect of financial structure on the bank efficiency measured by ROA. Total deposit to assets, total loans to assets and total loans to deposits were used to measure financial structure. It is found that leverage has a negative effect on bank profits, an increase in each ROA and Total Deposit to Assets increase bank efficiency. Meero (2015) detected the relationship between financial structure variables and performance of Islamic and Conventional Banks in Gulf Countries (GC). This investigation was performed on a sample of 16 GC Banks (8 Islamic Banks and 8 Conventional Banks) for the period 2005-2014. ROA (return of asset) was used to measure performance while Total debt to total assets, Equity to total assets, Debt to equity ratios for financial structure. The results of the research indicate a similarity of financial structure of Islamic banks and Conventional banks in Gulf Countries. ROA as performance measurement has a significant negative relationship with financial leverage and a positive relationship with equity to assets ratio. This relationship is identified at Islamic banks, Conventional banks and all the banks of the sample.

2.3.2 Return on Equity and Financial Structure

Akani and Lucky (2016) investigated the effects of financial structure on shareholders' value of quoted Nigerian Deposit money banks from 1981 – 2014. The model built for the study proxy Return on Investment (ROI), Equity Price (EQP) and Earnings per Share (EPS) as dependent variables measuring shareholder's value as the function of percentage in Debt Capital to Total Capital (DC/TC), percentage of Equity

Capital to Total Capital (EQC/TC), percentage of Preference Share Capital to Total Capital (PSC/TC as independent variables). The Econometrics Techniques of Ordinary Least Square (OLS) and multiple regressions were used to determine the extent to which the independent variables can affect the dependent variable. The co-integration result showed the presence of long run the variables except preference share capital. All the independent variables had positive relationship with the Return on Investment. Equity capital and preference share capital have positive effects but insignificant relationship with Return on Investment while short term borrowings and preference share capital had positive relationship and debt capital had negative relationship with Equity Price of quoted Deposit money banks. Equity Capital had positive relationship while debt and preference share capital had negative relationship with Earnings per Share.

Shiferaw (2013) ascertained the relationship between financial structure and performance of commercial banks in Ethiopia by select eight banks as a sample for the period from 2000 to 2012. This study measure capital structure by using TDTA and TDTC as independent variables and performance is measured by using ROE as dependent variable. In addition to these variables, the study used size of the bank as control variables by taking the log of total asset. The finding of the study showed that financial structure has significant positive relation with ROE when it is measured by TDTC and it has insignificant positive relationship with ROE when it is measured by TDTA. Bandt, Camara, Pessarosi and Rose (2014) studied the effect of banks' financial structure on banks' return on equity on a sample of large French banks over the period 1993-2012, controlling for risk-taking as well as a range of variables including the business model. They found that lowering the debt level by an increase in equity capital leads to a significant increase in ROE, albeit the economic effect is

modest. Furthermore, they found some evidence of a negative relationship between the share of credit activities and ROE, which is driven by the 2002-2007 sub-period, characterized by a significant increase in other business line activities.

Gokul and Ashoka (2014) established the effects of financial structure on financial performance of listed firms on BSE. The financial performance was measured in terms of return on equity while financial structure was measured in terms of debt ratio. The period of study was 2012 and 2013. The population of study consisted of 10 listed Banks. The data required for the study were collected from Annual Reports of the Companies. The annual reports of the sample companies have been downloaded from the database www.insight.asiancerc.com. Data analysis was done by use of one way ANOVA. The results obtained reveal that there was an inverse relationship between financial structure and financial performance of listed firms in BSE. The findings indicate that the higher the debt ratio, the less the return on equity which therefore supports the need to increase more capital injection rather than borrowing, as the benefits of debt financing are less than its cost of funding.

Nikko (2015) investigated the impact of financial structure on banking performance in stock exchange Tehran. Based on financial statements of Iranian banks for the period 2009-2014. The study establishes a model to measure the effect of financial structure on the bank efficiency measured by return on equity. It was found that financial structure has positive impact on bank performance. Zafar, Zeeshan and Ahmed (2016) scrutinized the consequence of financial structure on execution of Pakistani banks. Sample of study include 25 banks, which are listed at (KSE) or schedule banks in (SBP) state bank of Pakistan. Multiple regression models are pragmatic to guesstimate the liaison between financial structure and banking performance measured by return on equity. Total Liability to total Asset (TDTA),

Total Liability to total Equity (TDTQ), Short Term Liability to Asset (SDTA), Long Term Liability to Asset (LDTA) were the financial structure surrogates. Findings of the study authenticated a positive relationship between determinants of financial structure and performance of banking industry. Using panel data of 22 banks for the period of 2005-2014, Siddik, Kabiraj and Joghee (2016) empirically examined the impacts of financial structure on the performance of Bangladeshi banks assessed by return on equity. Results from pooled ordinary least square analysis show that there are inverse impacts of financial structure on bank's performance.

Kuria (2013) determined if financial structure does have any effect on the financial performance of commercial banks in Kenya. The study was conducted on 35 commercial banks in Kenya which were in operation in Kenya for the five years of study from 2008 to 2012. The various ratios of these commercial banks were computed from the various data collected from the data extracted from their financial statement for the period. The data was then analysed using linear regression models. The finding of the analysis concluded that there is no significant relationship between the financial structure and the financial performance of commercial banks in Kenya. Zakouri and Rouhi (2015) evaluated the relationship between financial structures on the banks performance of the listed banks in Tehran Stock Exchange for the 2008 to 2013 period. For this purpose, return on assets was used to measures of bank performance. The results of estimating the model with fixed effects method implies that the financial structure has a negative effect on return on equity. Also, bank size has a significant and positive effect on return on equity.

2.3.3 Net Operating Income and Financial Structure

Adesina, Nwidobie and Adesina (2015) determined the impact of post consolidation financial structure on the financial performance of Nigeria quoted banks. The study used net operating income as a dependent variable and two financial

structure variables (equity and debt) as independent variables. The sample for the study consists of ten (10) Nigerian banks quoted on the Nigerian Stock exchange (NSE) and period of eight (8) years from 2005 to 2012. The required data and information for the study were gathered from published annual reports. Ordinary least square regression analysis of secondary data shows that financial structure has a significant positive relationship with the financial performance of Nigeria quoted banks. Akhtar, Baro, Baro, Zia and Jameel (2016) studies the effect of financial structure on profitability, liquidity, tangibility, interest rate and growth rate to measure performance of banking sector of Pakistan using five banks annual reports between 2005 and 2015. The research work used pooled analysis to summarize the data for correlation and regression. The result showed that there are positive significant relationships between profitability, tangibility, liquidity, interest rate, and growth rate and financial structure.

Samuel (2016) assessed the effect of financial structure on financial performance of commercial banks in Kenya. The financial performance was measured using EBIT (earnings before interest and tax). Data was drawn from a sample of the registered banks by the Central Bank of Kenya in Kenya and data were obtained for a ten year period from 2005 to 2014. The model equation shows that growth in debt would affect financial performance positively leading to improvement in profitability. If there is an increase in debt levels, the EBIT is expected to increase by 17.6% per unit measure. Allahham (2015) examined the relationship between financial structure and bank financial performance. The research verified the existence of several negative relationships between financial structure (accumulated capital and annual investments) and strategic financial performance, while finding mixed results for the relationship between financial structure (accumulated capital and annual investments)

and profitability. Pratomo and Ismail (2006) studied the relationship between performance and capital structure of 15 Malaysian Islamic banks in the period (1997 to 2004) their found out that the higher leverage or a lower equity capital ratio is associated with higher profit efficiency. Their findings were consistent with the Hypotheses which proposed that, a high leverage tends to have an optimal capital structure and therefore it leads to producing a good performance.

2.3.4 Interest Income and Financial Structure

Taani (2013) evaluated the impact of financial structure on performance of Jordanian banks. The annual financial statements of 12 commercial banks listed on Amman Stock Exchange were used for this study which covers a period of five (5) years from 2007-2011. Multiple regressions was applied on Net Interest Margin (NIM) as well as Total Debt to Total Funds (TDTF) and Total Debt to Total Equity (TDTE) as financial structure variables. Multiple regression models are applied to estimate the relationship between financial structure and banking performance. The results show that bank performance, which is measured by net interest margin is to be significantly and positively associated with total debt. Onyango (2016) analysed the relationship between financial structure and bank performance in Kenya. The study employed the use of panel data techniques to analyse the relationship between financial structure and bank performance. The performance variables used in the study was net interest margin. The study hypothesized negative relationship between capital structure and bank performance and result indicates that financial structure does not determine bank performance but rather it is performance that determines banks financial structure.

Qamar, Masood and Khan (2016) investigates the impact of financial structure on the profitability of Pakistan commercial banks listed on Karachi Stock Exchange (KSE) by applying fixed and random effects on panel data of 15 listed Commercial

Banks from 2005 to 2014. Profitability indicators was measured with net interest margin and debt to asset and debt to equity used as financial structure. The results revealed that financial structure has negative impact on profit as increase in debt, increases the interest payments thus decline in profitability. Banks in Pakistan depend more on debt than equity capital and are highly lever aged institutions. Halilu (2014) examined the impact of financial structure on profitability of core business operations of commercial banks in Ethiopia. The panel data were obtained from the audited financial statements of eight commercial banks and National Bank of Ethiopia for the period of twelve years (2001/02 – 2012/13). It was observed that 89% of the total capital of commercial banks in Ethiopia in the period under study was made up of debt. Of this, 75% constitute deposit and the remaining was non-deposit liabilities. The findings revealed that financial structure as measured by total debt to asset had statistically significant negative impact, whereas deposit to asset had statistically significant positive impact on profitability of core business operations of commercial banks. Berger and Patti (2006) addressed the effect of financial structure on firms by allowing for reverse causality from performance to capital structure. A sample of 7320 U.S. Deposit money banks from 1990 through 1995 were used and a two-equation structural model was estimated using two-stage least squares (2SLS).The findings were consistent with the agency costs Hypotheses higher leverage was associated with higher profit efficiency. With respect to the reverse causality from efficiency to capital structure, the results indicated a strong, consistent dominance of the efficiency-risk Hypotheses over the franchise-value Hypotheses5, suggesting that more efficient companies used more debt than less efficient companies. Velnampy and Niresh (2012) studied the Relationship between financial structure and performance of ten (10) listed Sri Lanka banks for the period (2002 -2009).The results

showed that there is a negative association between financial structure and performance. Furthermore, the results also suggest that 89% of the total assets in banking sector of Sri Lanka are represented by debt, confirming the fact that banks are highly geared institutions. The findings are similar to the previously conducted studies.

2.4 Summary of Literature

The arguments, simulations and evidence in the foregoing papers seem not to agree on the exact causal direction between corporate financial structure and performance and also on the impact of financial structure and the value of corporate firms. Since the above issues that were raised in the literature review still remains largely controversial, this dissertation will do more empirical investigations to unravel the answers in the Nigerian context.

2.5 Literature Gap

The issue of adopting an adequate measurement of financial structure remains controversial in the literature. The literature has focused more on the classical classification of capital that comprises equity and debt. This study disaggregated the various measures of debt only to see the component that will be more robust and significant for the Nigerian banking sector performance indicators. Furthermore, several related studies reviewed neglected other measures of corporate performance such as interest income and non interest income but focused on the quantitative accounting measure such as return on assets, return on equity, profit after tax and return on investment. However, this study incorporated net interest income and non net interest income which to the best of my knowledge has not been used as a measure of performance.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Research Design

Research design is a master plan specifying the methods and procedures for collecting and analysing needed information. Baridam (2001) suggested that the choice of a design is influenced by the purpose of the study, the study setting, unit of analysis and time horizon. This study uses a hypothetical deductive research design approach for the data analysis. This approach combines theoretical consideration (a prior criterion) with the empirical observation and extract maximum information from the available data. It enables us therefore to observe the effects of explanatory variables on the dependent variables.

3.2 Population of the Study

The population of the study comprises of all the deposit money banks in Nigeria that are licensed to operate the business of banking Central Bank of Nigeria (CBN) and insured by the Nigeria Deposit Insurance Corporation (NDIC). The financial structure of deposit money banks are entirely different from non-financial service firms. In the first place, their financial structure is strongly influenced by explicit investor insurance scheme such as deposit insurance and regulations such as the minimum capital requirements may directly affect their financial structure. Secondly, their debt-like liabilities are not strictly comparable to the debt issued by non-financial institution.

3.3 Sources of Data

The data as applied in this research work were extracted from Central Bank of Nigeria (CBN) banking supervision report as well as Nigeria Deposit Insurance Corporate (NDIC) annual report. The data from the above mentioned sources spanned from

1999 to 2015 and were on annual basis as contained in the published reports of the regulatory agencies.

3.4 Models Variables

The dependent variables in the models are Return on Assets (ROA), Return on Equity (ROE), Net Operating Income (NOI) Interest Income (INTI) and Non Interest Income (NINTI). These are the proxies for performance of deposit money banks in Nigeria. The financial structure variables, which are the explanatory variables are Total Debt to Total Assets (TDTA), Total Debt to Total Equity (TDTE) and Short Term Debt to Total Assets (STDTA). However, in order to control for banks specific factors that might affect performance, Tangibility (TANG), Risk (RISK) and Bank Size (BSIZE) were adduced in the models.

3.5 Model Specification

The mathematical expression of the relationship between the dependent and explanatory variable(s) is reflected as model specification. In ascertaining the effect of financial structure variables on a bank's performance, a modified model of Awunyo-Vitor and Badu (2012) for a similar study in Ghana was adopted. The original model is expressed as:

$$Y_{it} = \beta_0 + \beta_1 LEV_{it} + \beta_2 SIZE_{it} + \beta_3 CLB_{it} + \beta_4 AGE_{it} + \beta_5 BOS_{it} + \beta_6 CAP_{it} + E_{it} \quad --3.1$$

Where Y_{it} is financial performance measured by return on assets, return on equity and Tobin's Q, LEV_{it} is ratio of total debt to total capital, $SIZE_{it}$ is natural log of revenue, CLB_{it} is short term liabilities, AGE_{it} is age, BOS_{it} is board size while CAP_{it} is the market capitalization of the firms. The modified model captured five variables to reflect performance of deposit money banks in Nigeria (return on assets, return on equity, net operating income, interest income and non interest income) and the three

financial structure surrogates (total debt to total assets, total debt to total equity and short term debt to total assets). This is functionally stated as:

$$ROA = f(TDTA, TDTE, STDTA, TANG, RISK, BSIZE) \quad ----------3.2$$

$$ROE = f(TDTA, TDTE, STDTA, TANG, RISK, BSIZE) \quad ----------3.3$$

$$NOI = f(TDTA, TDTE, STDTA, TANG, RISK, BSIZE) \quad ----------3.4$$

$$INTI = f(TDTA, TDTE, STDTA, TANG, RISK, BSIZE) \quad ----------3.5$$

$$NINTI = f(TDTA, TDTE, STDTA, TANG, RISK, BSIZE) \quad ----------3.6$$

Logarithmically transformation of these multivariate models to fulfilling econometric assumptions results to the following:

Model 1

$$LogROA_{it} = \beta_0 + \beta_1 logTDTA_{it} + \beta_2 logTDTE_{it} + \beta_3 logSTDTA_{it} + \beta_4 logTANG_{it} + \beta_5 logRISK_{it} + \beta_6 logBSIZE_{it} + \mu_{it} \quad ------3.7$$

Model 2

$$LogROE_{it} = \beta_0 + \beta_1 logTDTA_{it} + \beta_2 logTDTE_{it} + \beta_3 logSTDTA_{it} + \beta_4 logTANG_{it} + \beta_5 logRISK_{it} + \beta_6 logBSIZE_{it} + \mu_{it} \quad ------3.8$$

Model 3

$$LogNOI_{it} = \beta_0 + \beta_1 logTDTA_{it} + \beta_2 logTDTE_{it} + \beta_3 logSTDTA_{it} + \beta_4 logTANG_{it} + \beta_5 logRISK_{it} + \beta_6 logBSIZE_{it} + \mu_{it} \quad ------3.9$$

Model 4

$$LogINTI_{it} = \beta_0 + \beta_1 logTDTA_{it} + \beta_2 logTDTE_{it} + \beta_3 logSTDTA_{it} + \beta_4 logTANG_{it} + \beta_5 logRISK_{it} + \beta_6 logBSIZE_{it} + \mu_{it} \quad ------3.10$$

Model 5

$$LogNINTI_{it} = \beta_0 + \beta_1 logTDTA_{it} + \beta_2 logTDTE_{it} + \beta_3 logSTDTA_{it} + \beta_4 logTANG_{it} + \beta_5 logRISK_{it} + \beta_6 logBSIZE_{it} + \mu_{it} \quad ------3.11$$

Where

ROA is return on assets: This refers to net income divided by total assets and gives an idea of the banks' earnings via utilization of available assets. Return on assets showcase how well a bank manages its assets to make earnings. A bank with consistent return on assets is considered by investors as sound and liquid. Higher the return on assets is a suggestion that a bank is adequately and efficiently utilizing its assets. Akter, Parvin and Easmin (2015), Allahham (2015) and Nioo (2015) used this measurement.

ROE is return on equity: This is defined as net income divided by total equity capital and shows the bank's ability to channel available funds to competing profit-making ventures. Return on equity can be considered as the price, or the cost of attracting deposits. If the bank becomes more efficient in gathering deposits and transforming them into profitable investments, the money value of deposits becomes very high. Gokul and Ashoka (2014) and Ronoh (2015) have applied this indicator.

NOI is net operating income: Net operating income is the total earnings from banking operation less operating expenses and other charges excluding corporate tax. A positive net operating income is an indication that revenue exceeds operating expenses while a negative net operating income is an evidence that operating expenses are greater than total revenue. Adesina, Nwidobie and Adesina (2015), Shiferaw (2013), and Samuel (2016), adopted this variable.

INTI is interest income: Interest income includes income from loans and securities and comprises the bulk of income for most banks. In a typical bank, net interest income comprises about 70 percent of operating income (net income + non-interest income). Some banks will break down interest income into subcategories by source in the income statement, such as interest income from commercial loans, interest income from consumer loans, and interest income from short-term securities and so on. This index was employed in the work of Anarfor (2015), Taani (2013) and Sagara (2015).

NINTI is non interest income: This is credit income primarily from non-traditional banking activities such as account maintenance charges, services charges, cheque and deposit slip fee, etc. With the adoption of universal banking in Nigeria, deposit money banks have been involved in non-traditional banking operation otherwise referred to fee services to improve profit and stay in business.

TDTA is total debt to total assets: This refers to the size of the bank's debt relative to total assets. A higher debt ratio is an implication of almost complete reliance of debt to earn profit. Total debt to total assets was calculated by dividing the total debts of deposit money banks by total assets excluding off balance sheet engagements. Sharma and Verma (2016), Siddiqui and Shoaib (2011), Kuria (2013) and Rejha and Alslehet (2014) applied this index.

TDTE is total debt to total equity: This is the size of total debt relative to equity capital of shareholders. Deposit money banks are more exposed to risk of liquidity if the level of debt increases without a corresponding rise in equity capital. This variable was found in the studies of Siddik, Kabiraj and Joghee (2016), Pratomo and Ismail (2006), and Abbadi and Rub-Rub (2012).

STDTA is short term debt to total assets: This is the short term debt obligation of deposit money banks to total assets. The analysis of debt of financial institutions shows that short term debt are usually greater than long term debt. Short term debt obligation are liabilities that falls within one year and this characterises the debt structure of deposit money banks. This measurement was censored in Awungo-Vitor and Badu (2012), Saeed, Gull and Rasheed (2013), Zafar, Zeeshan and Ahmed (2016) and Sharma and Verma (2016).

TANG is tangibility: This is the ratio of fixed assets to total assets of a bank. A bank with good level of fixed assets can use it as collateral for loan to improve earnings and profitability. It was introduced in the model as a control variable. Tangibility was captured in the work of Anarfo (2015).

RISK is risk: This is the risk that the bank may not meet its obligation to customers as at when due. The lower the profit, the higher the risk of bankruptcy as the reverse is the case for higher profit. The risk factor in this work was arrived at by dividing the

banks profit after tax by total assets. Risk was applied in the studies of Bandt, Camara, Pessarossi and Rose (2014), Majahid, Zuberi, Rafiq, Sameen, and Shkoor (2014), Siddiqui and Shoaib (2011).

BSIZE is bank size: The size of the bank via total assets has the potential of affecting performance. The bigger the bank size with respect to total assets the better the performance as bigger assets base considerably lowers liquidity risk. The bank size as used in the study was the natural logarithm of deposit money banks total assets inclusive of off-balance sheet engagements. Skopljak and Luo (2012), Awungo-Vitor and Badu (2012) and Bandt, Camara, Pessarossi and Rose (2014) have utilized this index.

β_0 is the constant coefficient in the regression models; β_1 to β_6 are the coefficient of the independent and control variables and u_{it} is the error/disturbance term.

3.6 Method of Data Analysis

Econometric models used in this research work include the multiple regression analysis and the Vector Auto-regression (VAR) Model. The choice of multiple regression models is based on the use of more than single independent variables in a regression model. The regression models were estimated using Ordinarily Least Square (OLS) technique.

Unit Root Test

Given the non-stationarity characteristics of most macroeconomic variables, testing the properties of these variables has become relevant to avoid spuriousness of empirical result. In this view this study commenced its econometric analysis by conducting the stationary properties of the variables using the Augmented Dickey-Fuller (ADF) Philip Peron (PP) and Kwiatkwoski-Phillip-Shimidt-Shin (KPSS) tests. The number of lagged difference terms to include is often determined empirically, the

idea is to include enough terms so that the error term is serially uncorrelated. The ADF, PP and KPSS unit root test of null Hypotheses $\delta = 0$ is rejected if the t – statistics associated with the estimated coefficient exceeds the critical values of the test.

Johansen Co-integration

Given that the empirical model specified in the study is a multivariate model, the Engle – Granger (1987) co-integration test is inappropriate for testing co-integration among the variables. This is because the Engel – Granger approach is based on the assumption that there exist only one co-integrating vector that connect the variables and since our model is multivariate there is the possibility of having more than one co-integrating vector. In the light of the above weakness the Johansen co-integration test was applied. Johansen and Juselius (1990) test proposes the use of two likelihood ratio tests namely, the trace test and the maximum eigen-values test.

Granger Causality Test

The Granger causality approach measures the precedence and information provided by a variable y in explaining the current value of another variable x. It says that y is said to be granger-caused by x if x helps in predicting the value of y. In other words, the lagged values of x are statistically significant. If otherwise, then one concludes that x does not granger cause y. To determine whether causality runs in other direction, from x to y, one simply repeats the experiment, but with x and y interchanged. The null Hypotheses H_0 tested is that x does not granger-cause y and y does not granger cause x.

Vector Error Correction Model (VECM)

VECM technique is used in this study as a diagnostic tool due to its dynamic ability to determine the magnitude of the relationship among the variables and also to check causality among the variables. The data if found to be I(1) and long run or equilibrium

relationship exist among the variables, therefore, we resort to using Vector Error Correction Mechanism (VECM). It is also a system of equations that enable the estimation of interdependence amongst variables without necessarily holding the impacts of any of the variables constant. It incorporates both the long run dynamics of a variable and the short run effects simultaneously, that is, the method also captures the contemporaneous and lagged responses of the variables simultaneously.

3.7 Interpretation of Regression Output

The regression outputs were interpreted using basically three global statistics yardstick namely, Adjusted R-Squared, F-Statistic and Durbin Watson test of autocorrelation. Monogbe and Davies (2016) stated that a regression model should be encompassed to reflect these three global statistics for robust and statistically reliable reference to be made.

Adjusted R-Square (R^2): This is measures the variation in the dependent variables that was a result of changes in the independent variable (s). The higher the adjusted R-square the greater the variation in dependent variable owing to joint influence of the explanatory variable (s).

F^* Statistic: The F-statistic is used to assess if the changes in dependent variables attributed to explanatory variables was statistically explained or not. If the p-value of F- statistic is less than 0.05, then changes in the dependent variables owing to influence of independent variable (s) is significant and the reverse is the case if the F-statistic is greater than 0.05.

Durbin Watson Statistic: The Durbin-Watson test for autocorrelation in a regression model to ensure that variables are not serially correlated. For Monogbe and Davies (2016) recommends the serial correlation LM test in addition to the Durbin Watson test of autocorrelation as serial correlation LM test is more stronger in detecting autocorrelation in a model compared to Durbin Watson.

3.8 A Priori Expectation

The expected relationship between the dependent and independent variables based on the pecking order theory was condensed in the a priori expectation in Table 3.1. The pecking order theory postulates that firms traditionally prefer equity capital or retained earnings to debts in financing business operation. Thus, financial structure variables: total debt to total assets, total debt to total equity and short term debt to total assets should have negative relationship with return on assets, return on equity, net operating income, net interest income and non-net interest income. The size of the deposit money banks and tangibility would show positive relationship with performance variables but risk will negatively affect performance.

Table 1: A Priori Expectation on Pecking Order Postulation

Symbol	Variable	Substitution	Expected Signs
TDTA	Total Debt to Total Assets	Financial Structure	-
TDTE	Total Debt to Total Equity	Financial Structure	-
STDTA	Short Term Debt to Total Assets	Financial Structure	-
TANG	Tangibility	Control Variable	+
BSIZE	Banks Size	Control Variable	+
RISK	Risk	Control Variable	-

Source: Researcher's Compilation based on Pecking Order Theory Assumption

CHAPTER FOUR

DATA PRESENTATION AND ANALYSIS

4.1 Data Presentation

The data for the banking sector as sourced from the Central Bank of Nigeria (CBN) banking supervision report and Nigeria Deposit Insurance Corporation (NDIC) annual report are condensed in this segment of chapter four. Table 2 presents that data for return on assets, return on equity, net operating income, net interest income and non-interest income while the corresponding data for total debt to total assets, total debt to total equity, short term debt to total assets, tangibility, risk and bank size of deposit money banks in Nigeria are summarised in Table 3

Table 2: Return on Assets (ROA), Return on Equity (ROE), Net Operating Income (NOI), Net Interest Income (INTI) and Non Interest Income (NINTI) of Deposit Money Banks in Nigeria from 1999 to 2015

Year	Return on Assets (%)	Return on Equity (%)	Net Operating Income (₦'M)	Interest Income (₦'M)	Non Interest Income (₦'M)
1999	2.60	28.00	24,520.00	22,054.00	15,032.00
2000	3.00	37.50	44,330.00	32,778.00	26,084.00
2001	4.73	55.81	96,000.00	165,000.00	117,000.00
2002	3.73	36.60	86,000.00	218,000.00	118,000.00
2003	2.67	25.52	74,000.00	195,000.00	161,000.00
2004	3.12	27.35	96,000.00	224,000.00	184,000.00
2005	1.85	12.97	62,000.00	193,000.00	159,000.00
2006	1.61	10.60	105,000.00	204,000.00	194,000.00
2007	3.89	23.84	407,000.00	616,000.00	159,000.00
2008	3.95	22.01	607,000.00	979,000.00	171,000.00
2009	-9.82	-60.07	-1,377,330.00	961,870.00	597,280.00
2010	4.09	57.65	607,340.00	824,620.00	462,760.00
2011	-0.04	-0.27	-6,710.00	817,640.00	845,650.00
2012	2.70	21.50	458,780.00	1,107,650.00	575,750.00
2013	2.32	18.97	539,970.00	1,216,330.00	623,660.00
2014	3.39	14.70	751,000.00	1,296,920.00	873,170.00
2015	0.47	13.74	1,680,000.00	2,466,330.00	615,652.00

Source: Central Bank of Nigeria Banking Supervision Reports and Nigeria Deposit Insurance Corporation (NDIC) Annual Report 1999 to 2015.

Return on Assets

Deposit money banks in Nigeria return on assets was 2.6 in 1999, but rose by 36.43% by the end of 2010 to settle at 4.09. From 2005 to 2008, return on assets witnessed marginal upsurges, from 1.85 in 2005 to 3.95 in 2008 before it declined to 9.82 in 2009 attributed to the global financial meltdown within that period of time. From

2011 to 2015, as shown in Table 2, Fig. 1 and 2, return on assets of deposit money banks has been on the down side with the exception of 2014 when it was 3.39.

Table 3: Total Debt to Total Assets (TDTA), Total Debt to Total Equity (TDTE), Short Term Debt to Total Assets (STDTA), Tangibility (TANG), Risk (RISK) and Bank Size (BSIZE) of Deposit Money Banks in Nigeria from 1999 to 2015

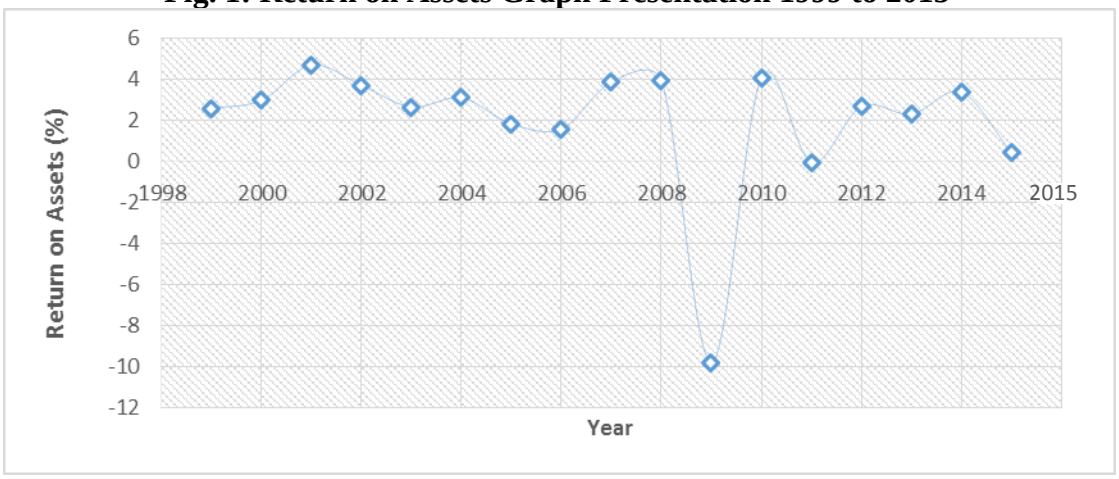
Year	TDTA (%)	TDTE (%)	STDTA (%)	Tangibility (%)	Risk (%)	Bank Size (₦'M)
1999	92.12	2,394.55	99.05	7.75	2.07	1,184,496.00
2000	92.79	2,758.20	99.29	4.41	2.54	1,748,172.00
2001	91.51	2,473.03	91.50	4.92	4.73	2,031,390.00
2002	90.53	2,238.26	90.53	4.67	3.47	2,479,117.00
2003	89.53	2,053.49	89.43	4.82	2.67	2,767,777.00
2004	89.65	2,160.94	89.43	4.71	2.83	3,392,940.00
2005	87.37	2,243.57	87.28	4.17	1.41	4,389,327.00
2006	84.55	3,351.78	84.54	3.93	1.56	6,738,000.00
2007	83.66	5,724.18	81.20	4.34	3.89	10,469,000.00
2008	81.82	5,949.76	79.76	3.72	3.96	15,343,000.00
2009	84.74	6,426.36	77.66	4.67	-9.31	14,795,380.00
2010	97.24	6,067.91	90.36	4.35	3.91	15,544,180.00
2011	86.34	7,139.24	81.26	3.56	-0.037	18,208,280.00
2012	87.96	8,793.15	83.63	3.25	2.29	20,071,410.00
2013	88.58	8,593.10	83.57	2.99	2.33	23,202,130.00
2014	88.72	7,740.10	80.63	2.83	2.85	26,275,490.00
2015	98.93	10,906.47	90.07	5.08	6.52	25,778,600.00

Source: Central Bank of Nigeria Banking Supervision Reports and Nigeria Deposit Insurance Corporation (NDIC) Annual Report 1999 to 2015

Return on Equity

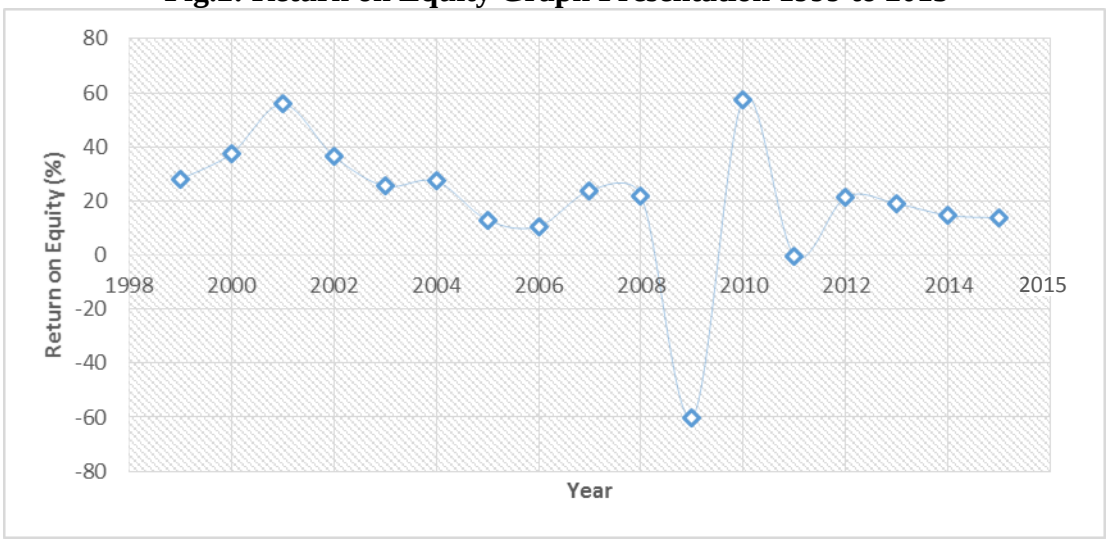
Deposit money banks shareholder wealth has been fluctuating over the years. From 1999 to 2001, return on equity was growing vehemently until it surged to 36.60 in 2002 from its previous value of 55.81 in 2001. Deposit money banks return on assets was badly affected by the global meltdown of 2007-2009 which saw the return on equity depreciated to -60.07 against 23.84 and 22.01 in 2007 and 2008 respectively. In the following year been 2010, however, return on equity bounce back to 57.65 the peak within the years reviewed. This immediately went down to -0.27 in 2011 but appreciated marginally to 21.50 in 2012. This would not be sustained as it kept declining from 2013 through 2015. See Table 2, Fig. 2 and 3 for clarity on volatility of deposit money banks return on equity.

Fig. 1: Return on Assets Graph Presentation 1999 to 2015



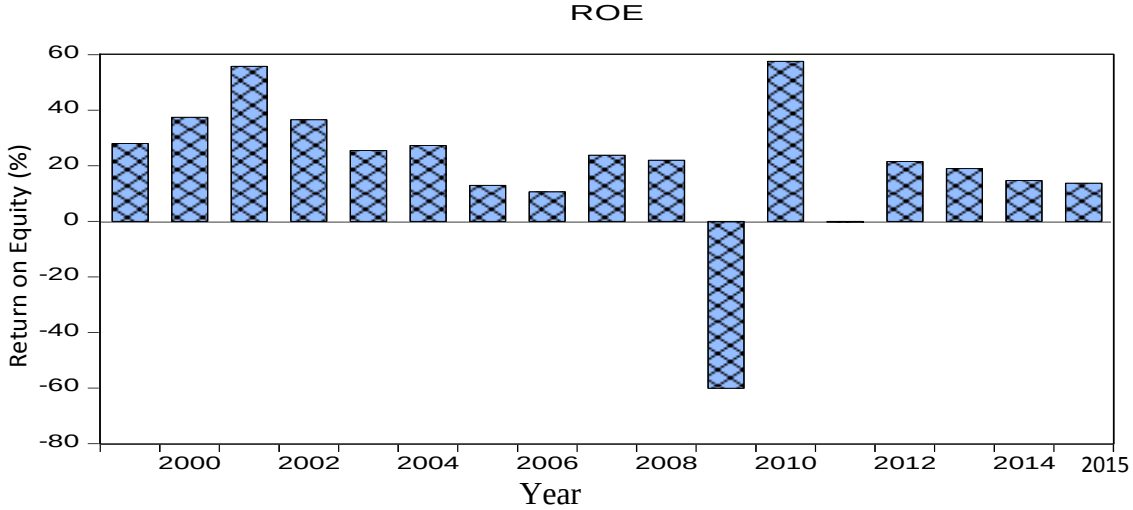
Source: CBN Banking Supervision and NDIC Annual Report

Fig.2: Return on Equity Graph Presentation 1999 to 2015



Source: CBN Banking Supervision and NDIC Annual Report

Fig. 3: Return on Equity Bar Char Presentation 1999 to 2015

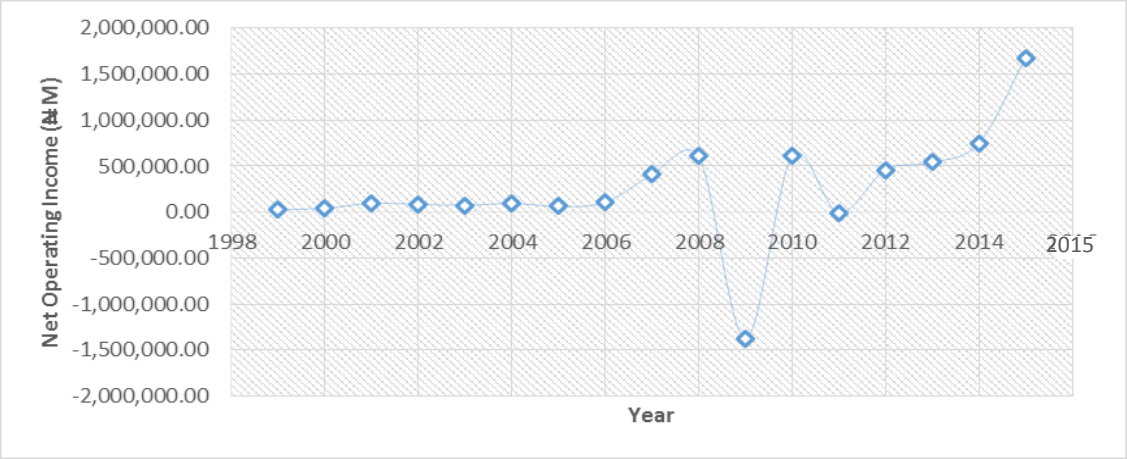


Source: CBN Banking Supervision and NDIC Annual Report

Net Operating Profit

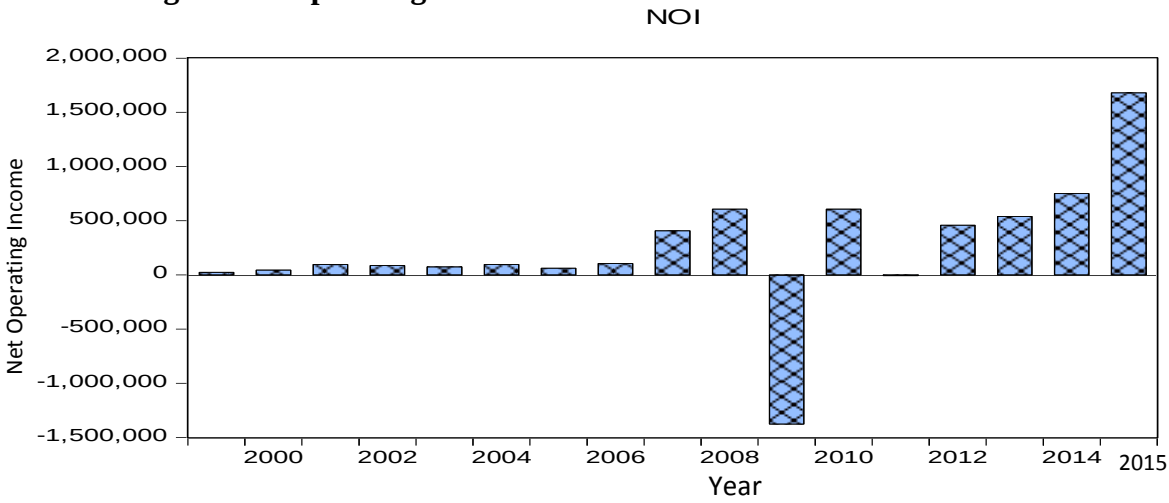
Deposit money banks net operating profit was ₦24,520 million in 1999, which had risen by over 500% at the end of 2015 to close at ₦1,680,000 million. The net operating profit of deposit money banks has been mostly on the improvement side. From 1999 to 2004, it rose from ₦24, 520 million to ₦96, 000 million. Also, from ₦62,000 million in 2004 to ₦607,000 million in 2008 before it was dealt a big blow by global financial crisis of 2007-2009 period which forced depreciation in net operating income by a tune of ₦1,377,330. The net operating income of deposit money has, however, recovered and gradually increasing from 2010 to 2015 except for minor distortion in 2011 as depicted in Table 2, Fig.4 and 5

Fig. 4: Net Operating Income Graph Presentation 1999 to 2015



Source: CBN Banking Supervision and NDIC Annual Report

Fig. 5: Net Operating Income Bar Chart Presentation 1999 to 2015

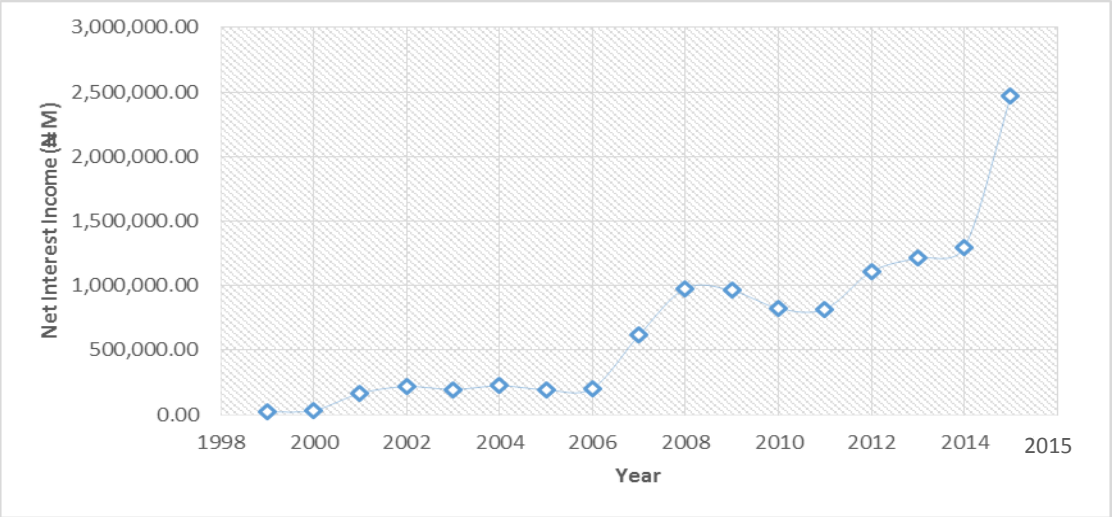


Source: CBN Banking Supervision and NDIC Annual Report

Interest Income

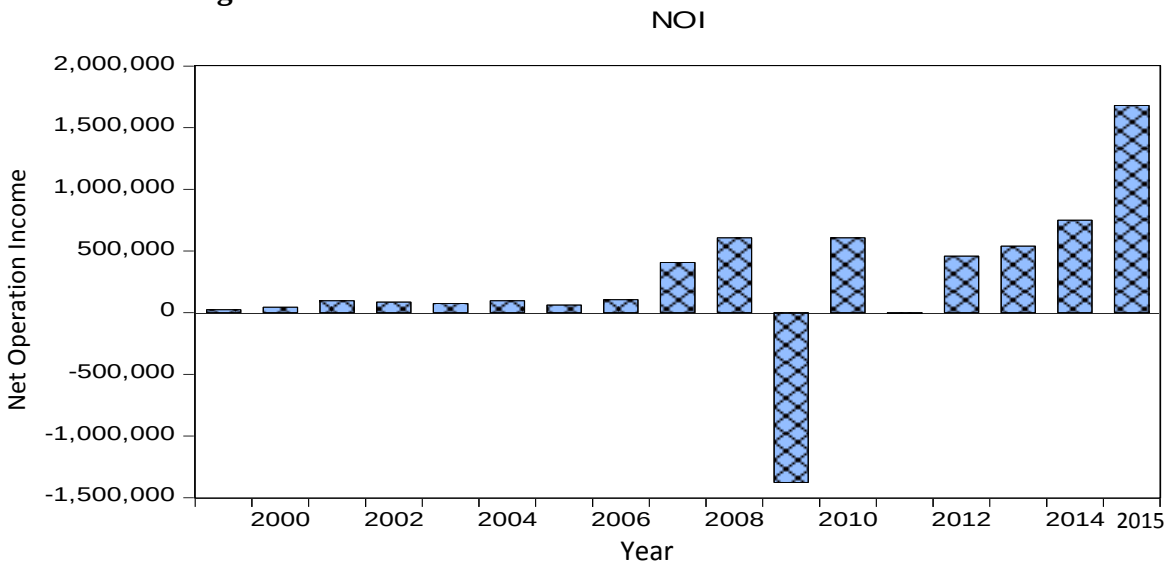
As can be seen in Table 2, Fig. 6 and Fig. 7, from 1999 to 2015, net interest income of deposit money banks in Nigeria has rising by over 100% from ₦22, 054 million in 1999 to ₦2, 466, 330 million in 2015. 2012 to 2015 saw maintained a steady and uninterrupted rise in net interest income of deposit money banks. The net interest income was not affected by the global financial crisis of 2007 to 2009 period as it maintained momentum from ₦616,000 million to ₦961,870 million within the same period.

Fig. 6: Interest Income Graph Presentation 1999 to 2015



Source: CBN Banking Supervision and NDIC Annual Report

Fig. 7: Interest Income Bar Chart Presentation 1999 to 2015

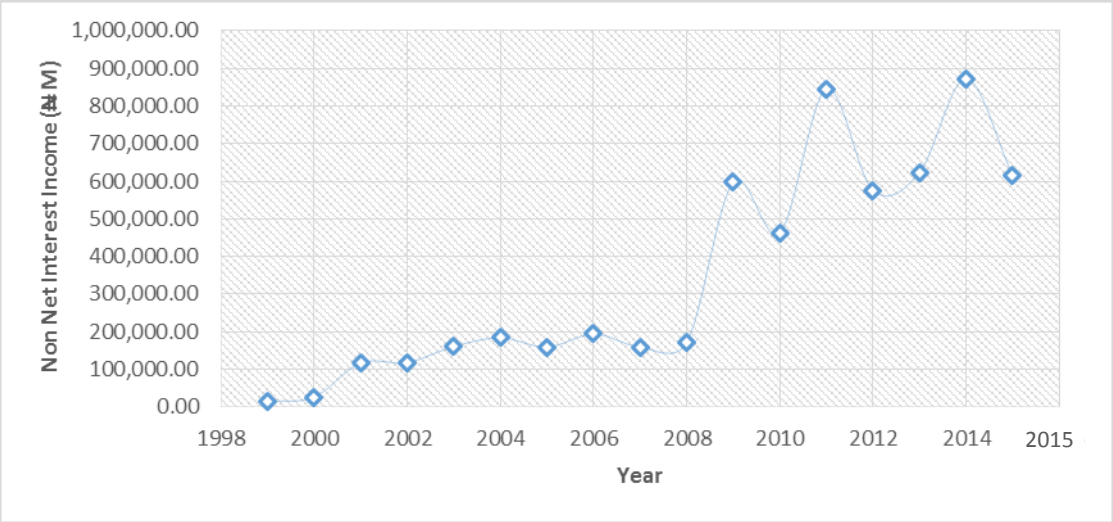


Source: CBN Banking Supervision and NDIC Annual Report

Non Interest Income

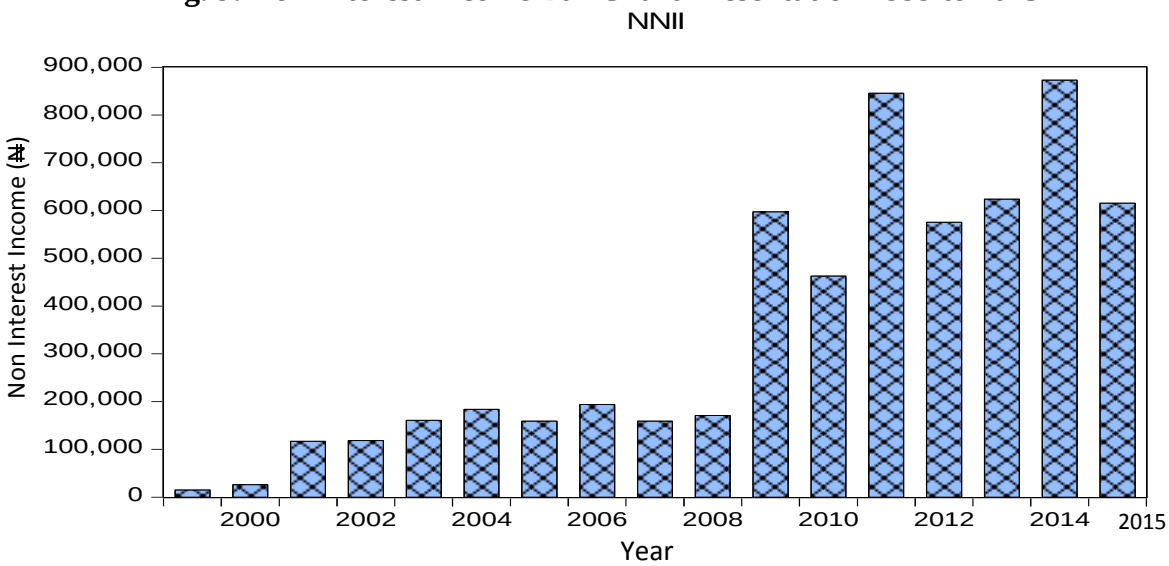
15,032 million was the net interest income of deposit money banks in Nigeria in 1999, but rose by more than 96% to 462,760.00 at 31st December, 2010. It declined to 575,750 million in 2012 from 845,650 million in 2012, depreciation of 46.88%. Despite the fact that it bounced back to 623,660 and 873,170 in 2013 and 2014 respectively, it dipped by 41.83% to close at 615,652 million in 2015. These changes are unveiled in Table 2, Fig. 8 and 9

Fig. 8: Non Interest Income Graph Presentation 1999 to 2015



Source: CBN Banking Supervision and NDIC Annual Report

Fig. 9: Non Interest Income Bar Chart Presentation 1999 to 2015

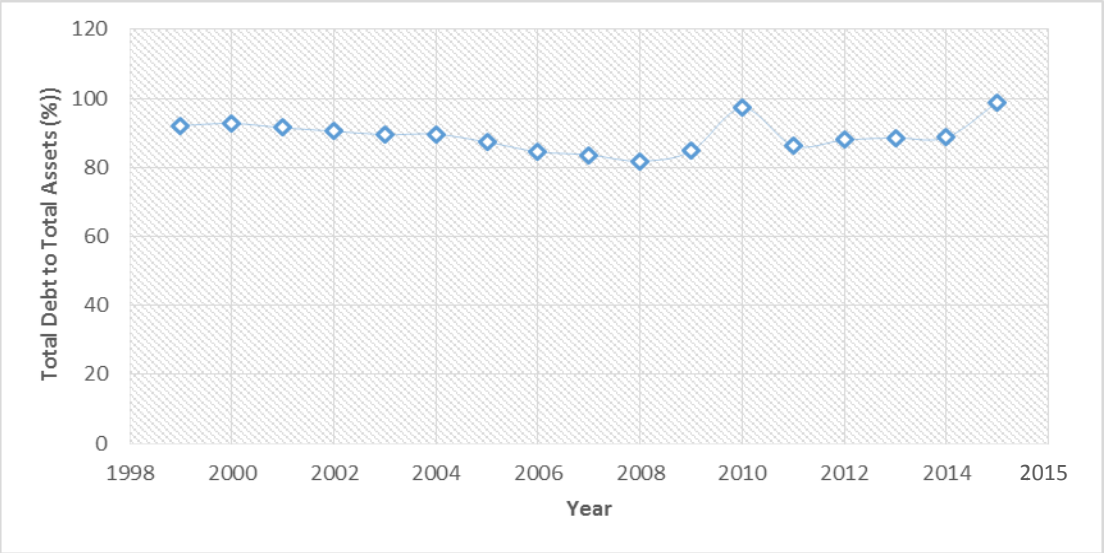


Source: CBN Banking Supervision and NDIC Annual Report

Total Debt to Total Assets Ratio

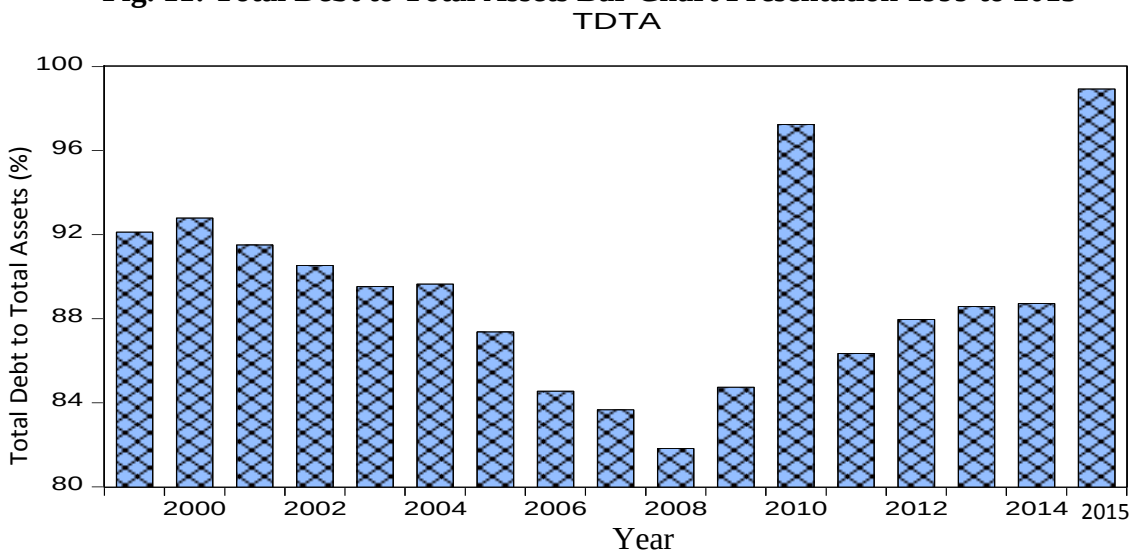
The total debt to total assets ratio of deposit money banks in 2008 was 81.82, a fall of 2.25% against 83.66 in 2007. In 2010, total debt to total assets ratio appreciated to 97.24%. As can be seen in Table 5, Fig. 10 and Fig. 11, from 1999 and 2015, total debt to total assets ratio of deposit money banks has not been regularly featured with volatility. In 2015, total debt to total assets ratio swelled by 10.32% to reach 98.93 from it 2014 figure of 88.72.

Fig. 10: Total Debt to Total Assets Graph Presentation 1999 to 2015



Source: CBN Banking Supervision and NDIC Annual Report

Fig. 11: Total Debt to Total Assets Bar Chart Presentation 1999 to 2015

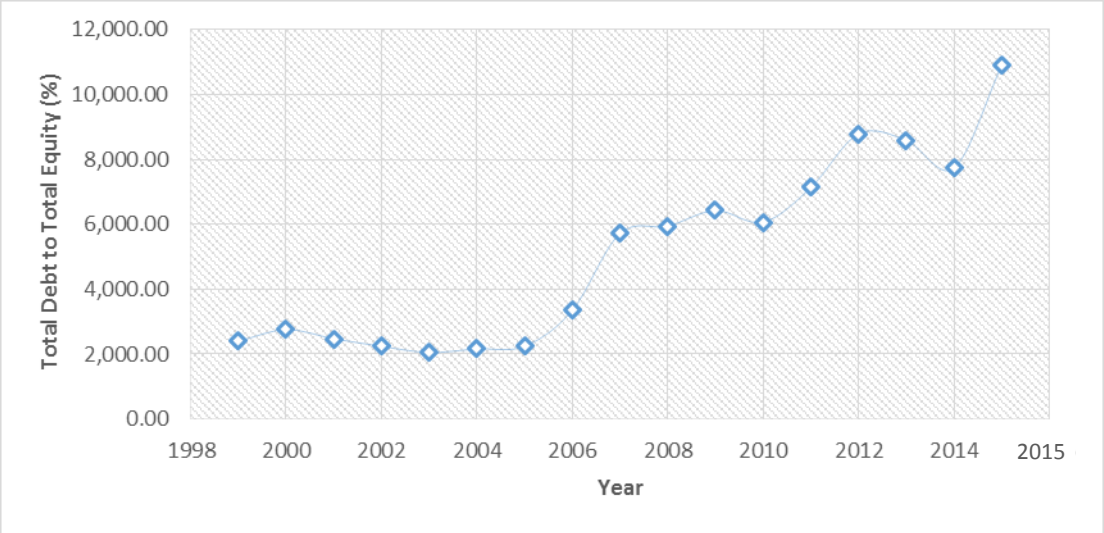


Source: CBN Banking Supervision and NDIC Annual Report

Total Debt to Total Equity Ratio

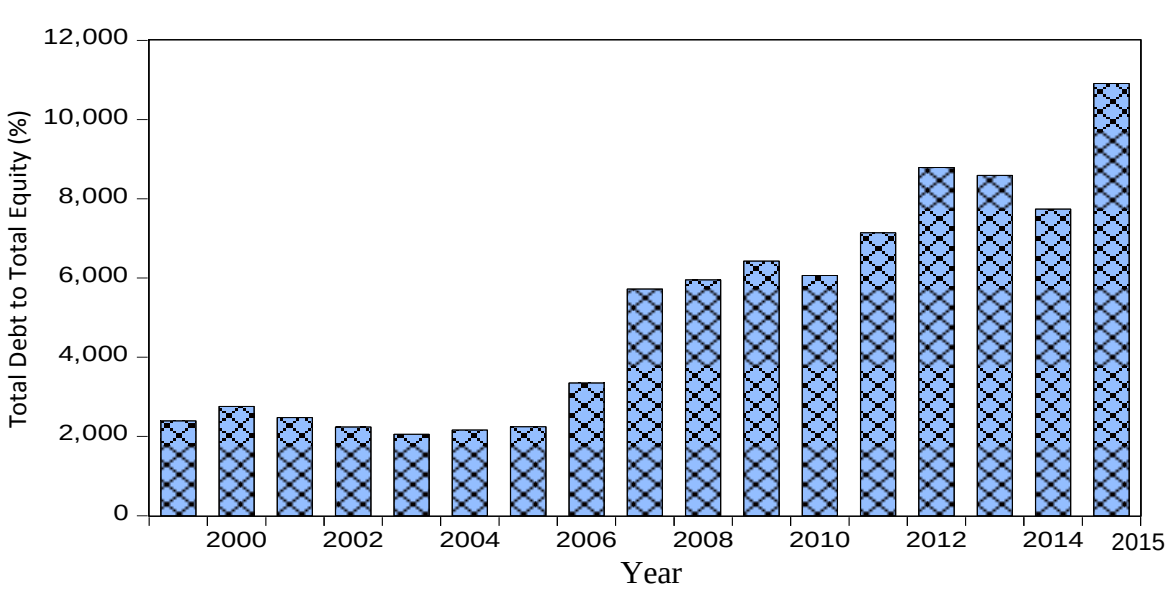
The total debt to total equity ratio in 2008 was 5,949.76, a fall of more than 3.79% from 5,724.18 in 2007. In 2012, total debt to total equity ratio appreciated to 8,793.15 from 7,139.24 in 2011. From 1993 to 2015, as can be seen from Table 5, Fig. 12 and Fig. 13, total debt to total equity ratio over the years with just little distortions. In 2015, total debt to total equity ratio increased by 29.03% to 10,906.47 against 7,740.10 in 2014.

Fig. 12: Total Debt to Total Equity Graph Presentation 1999 to 2015



Source: CBN Banking Supervision and NDIC Annual Report

Fig. 13: Total Debt to Total Equity Bar Chart Presentation 1999 to 2015

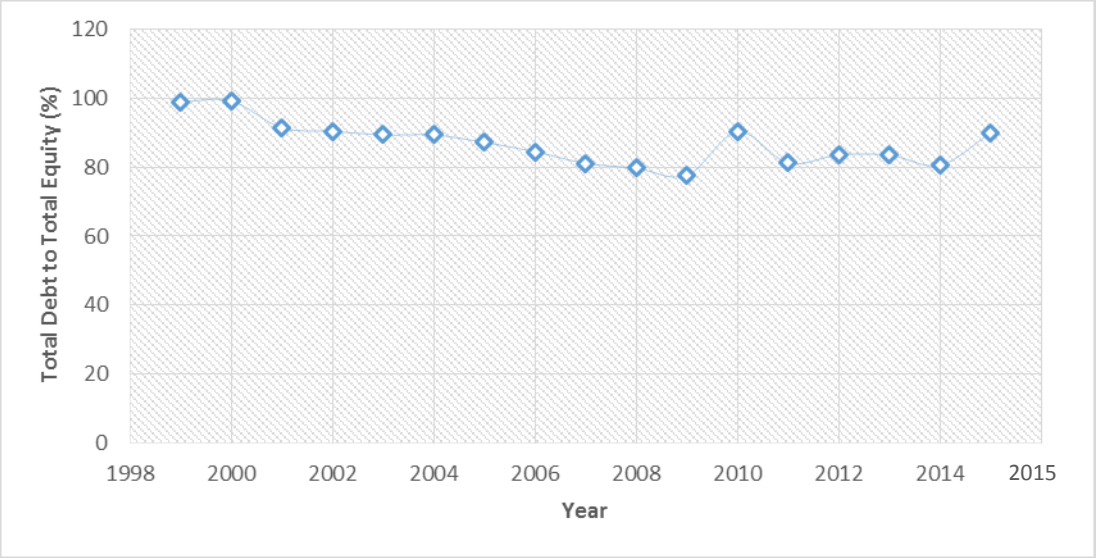


Source: CBN Banking Supervision and NDIC Annual Report

Short Term Debt to Total Assets Ratio

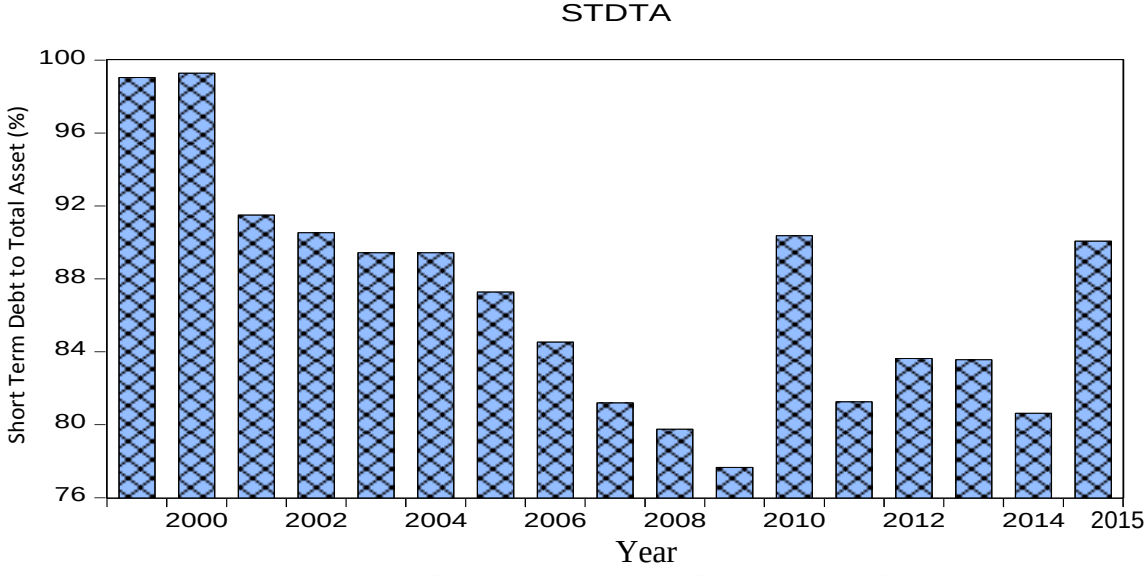
Deposit money banks short term debt to total assets ratio was 99.05 in 1999, but had depreciated by 27.54% by the end of 2009 at 77.66. The variability in deposit money banks short term debt to total assets ratio is minimal. From 2010 to 2014, as shown in Table 5, Fig. 13 and 15, short term debt to total assets ratio decline to 80.63 in 2014 against 90.36 in 2010. Nevertheless, it rose by 10.48% to close at 90.07 in 2015.

Fig. 14: Short Term Debt to Total Assets Graph Presentation 1999 to 2015



Source: CBN Banking Supervision and NDIC Annual Report

Fig. 15: Short Term Debt to Total Assets Bar Chat Presentation 1999 to 2015

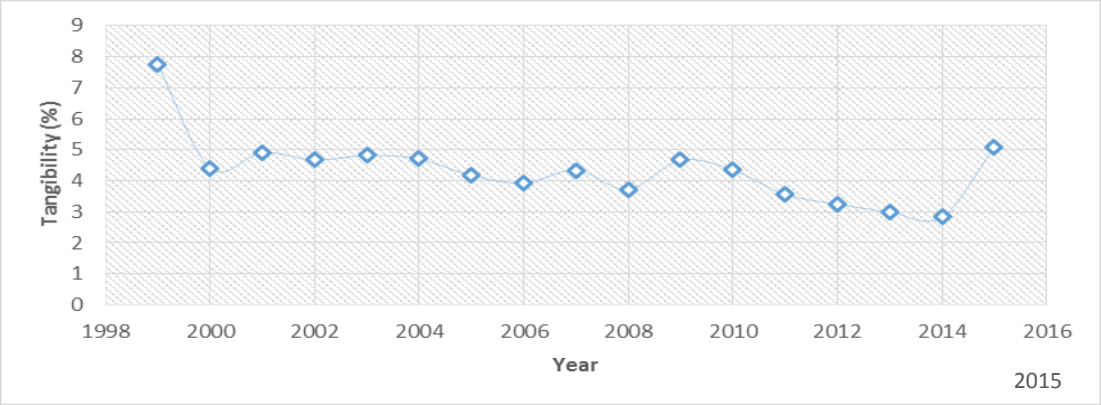


Source: CBN Banking Supervision and NDIC Annual Report

Tangibility

The deposit money banks ratio of fixed assets to total assets has considerably been on the down side. From 7.75% in 1999, it declined to 3.93% in 2006 but appreciated marginally to 4.34% in 2007. In 2015, it rose to 5.08% from 2.83 in 2014. Fig. 16 and 17 show the graph and bar chart trend in deposit money banks tangibility.

Fig. 16: Tangibility Graph Presentation 1999 to 2015

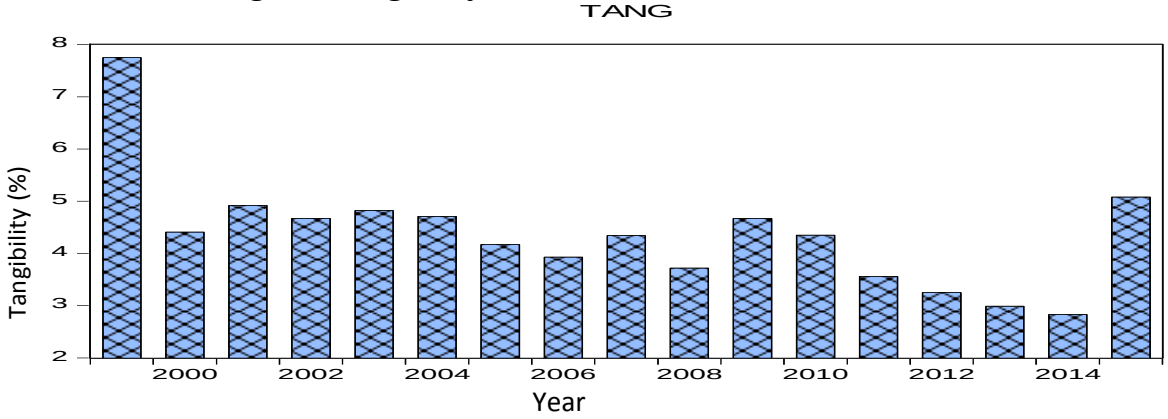


Source: CBN Banking Supervision and NDIC Annual Report

Risk

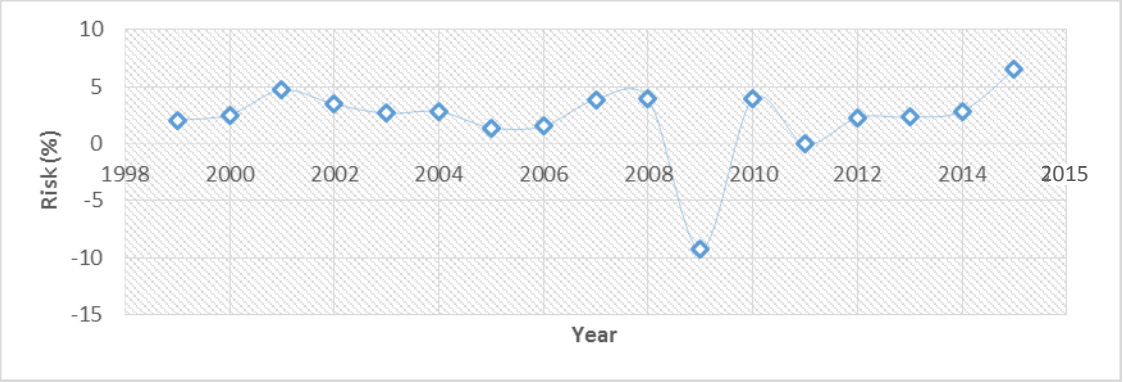
The risk of vulnerability in earnings in 2007 was 3.89%, a rise by a magnitude of 0.47 from 2.07% in 1999. Deposit money banks risk of uncertain in income considerable went very low in 2009 to the tune of -9.31 attributed to global meltdown relative to 1.56 in 2006 before the crisis started in other part of the world in 2007. As can be seen in Table 5, Fig. 18 and Fig. 19, risk is 6.25 as at 31st December, 2015, a rise of 60.74 magnitude in comparison of 2.25 of 2012.

Fig. 17: Tangibility Bar Chart Presentation 1999 to 2015



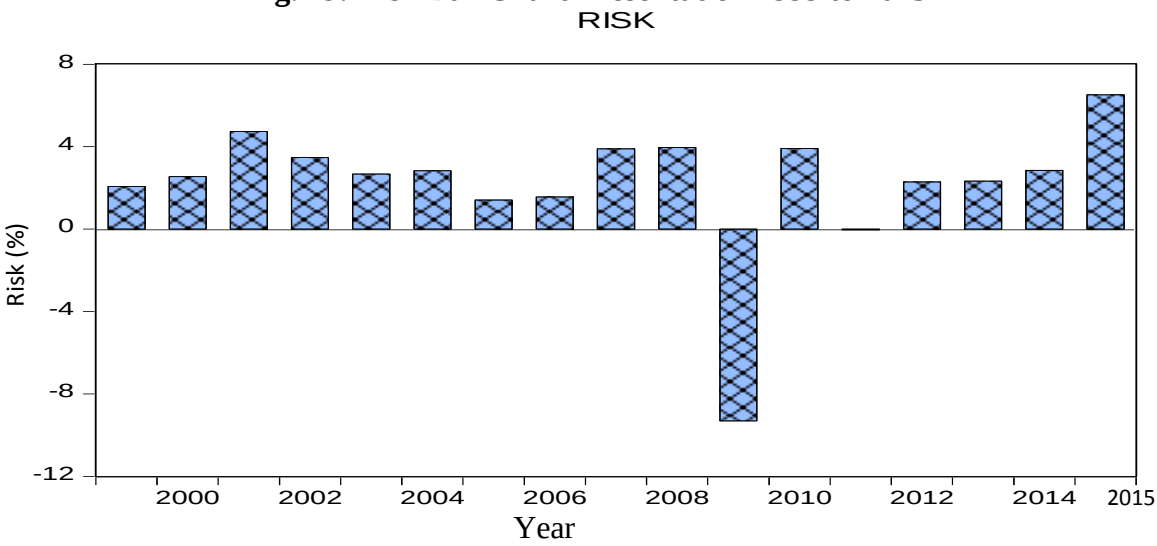
Source: CBN Banking Supervision and NDIC Annual Report 2015

Fig. 18: Risk Graph Presentation 1999 to 2015



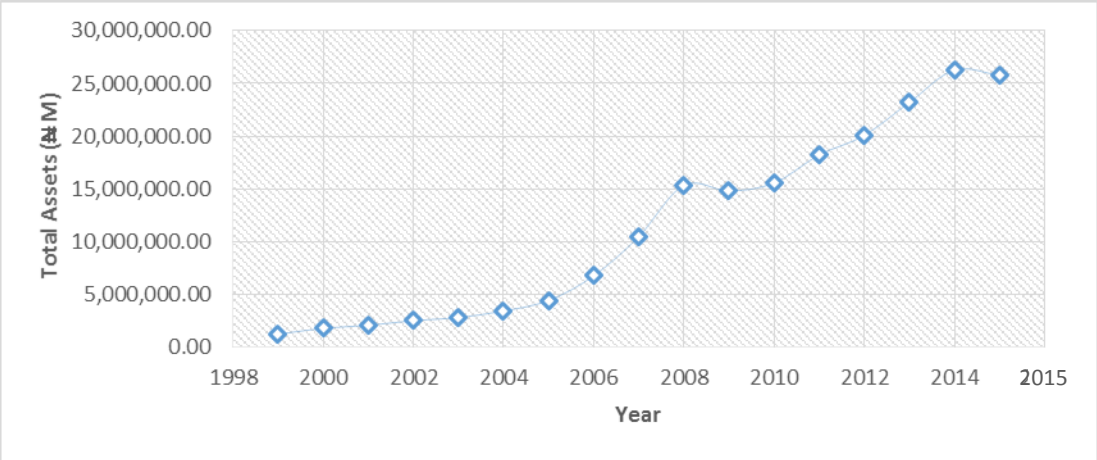
Source: CBN Banking Supervision and NDIC Annual Report

Fig. 19: Risk Bar Chart Presentation 1999 to 2015



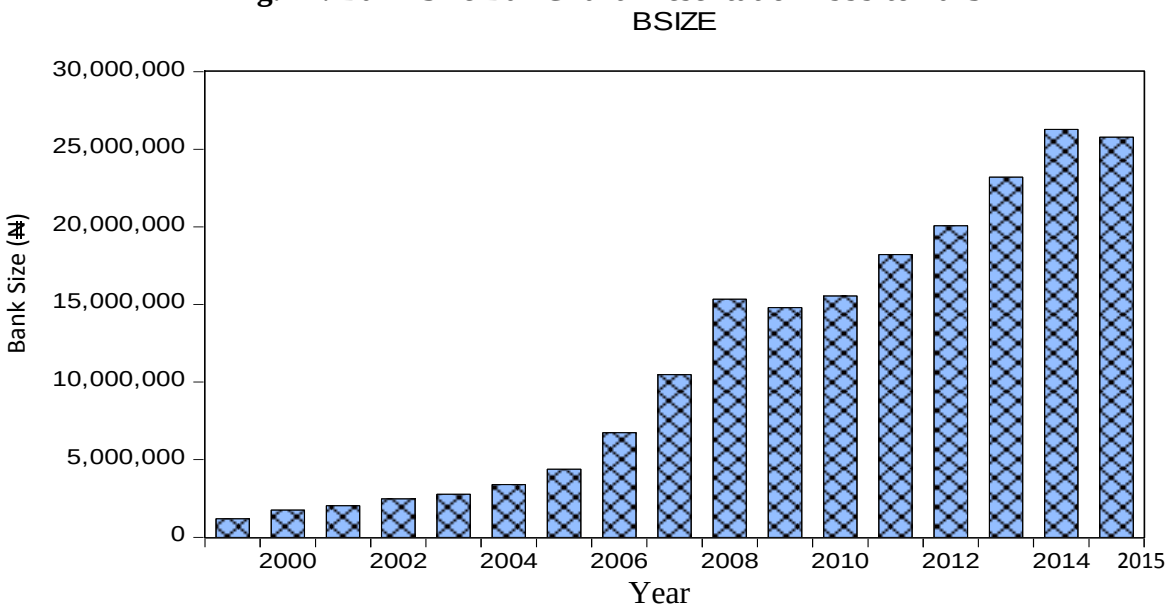
Source: CBN Banking Supervision and NDIC Annual Report

Fig. 20: Bank Size Graph Presentation 1999 to 2015



Source: CBN Banking Supervision and NDIC Annual Report

Fig. 21: Bank Size Bar Chart Presentation 1999 to 2015



Source: CBN Banking Supervision and NDIC Annual Report

Banks Size

Nigeria's deposit money banks total assets has risen strongly over the years. It rose by 82.42% to ₦6, 738,000 million in 2006 immediately after the consolidation exercise relative to ₦1, 184,496 in 1999 period of universal banking. As shown in Table 5, Fig. 20 and 21, assets base of deposit money banks has never witnessed any distortion except in 2009 owing to losses in capital market caused by global meltdown of 2009. Nevertheless, in 2015, the assets deteriorated marginally by 1.93% to settle at ₦25,778,600 from its value of ₦26,275,490 million in 2014.

4.2 Descriptive Properties of the Variables

Table 4 and 5 present the descriptive properties of the variables in the models. The characteristic of the mean, median, maximum, minimum, standard deviation, skewness, kurtosis, Jarque-Bera, p-value and number of observation were unveiled. From Table 4, the mean of performance surrogates are 2.05, 20.38, 250288, 678835 and 346943 for ROA, ROE, NOI, INTI and NINTI while the median was observed to be 2.70, 22.1, 96000, 616000 and 184000 respectively for ROA, ROE, NOI, INTI and NINTI. The maximum and minimum values are 4.73 and-9.82 for ROA, 57.65 and -

60.07 for ROE, 1680000 and -1377330 for NOI, 2466330 and 22054 for INTI and 873170 and 15032 for NINTI. 3.30, 25.59, 595414, 636997 and 285849 respectively for ROA, ROE, NOI, INTI and NINTI reflect the standard deviation of the series. There is greater volatility on return on equity relative to return on assets as revealed by the standard deviation of the series. INTI and NINTI were positively skewed toward normality while ROA, ROE, NOI, INTI and NINTI were found to have negatively skewed toward normality.

Table 4: Descriptive Properties for Performance Indicators

	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	Jarque-Bera	P-value	Obs
ROA	2.01520	2.7000	4.730000	-9.820000	3.29926	-2.900218	11.0739	70.00705	0.0000	17
ROE	20.3776	22.010	57.65000	-60.07000	25.5893	-1.633054	7.085335	19.37818	0.0000	17
NOI	250288	96000	1680000.	-1377330	595414	-0.366215	5.97809	6.662198	0.0358	17
INTI	678835	616000	2466330.	22054.00	636997	1.251526	4.50387	6.039881	0.0488	17
NINTI	346943	184000	873170.0	15032.00	285849	0.586818	1.89617	7.838732	0.0399	17

Source: Output Data from E-views 9.0

Table 5: Descriptive Properties for Financial Structure Variables

	Mean	Median	Maximum	Minimum	Std. Dev.	Skewness	Kurtosis	Jarque-Bera	P-value	Obs
TDTA	89.1788	88.720	98.93000	81.82000	4.531065	0.52266	2.887386	10.782988	0.0060	17
TDTE	5118.48	5724.2	10906.47	2053.490	2867.01	0.42627	1.93169	12.323233	0.0000	17
STDTA	87.0111	87.280	99.29000	77.66000	6.31243	0.482757	2.47554	8.855153	0.0042	17
TANG	4.36294	4.3500	7.750000	2.830000	1.106056	1.48326	6.35749	14.21830	0.0008	17
RISK	2.21665	2.6700	6.520000	-9.310000	3.30969	-2.54239	10.0115	53.13643	0.0000	17
BSIZE	1143639	104690	26275490	1184496	9042726	0.33142	1.640427	9.620523	0.0047	17

Source: Output Data from E-views 9.0

The kurtosis statistic suggests that all the variables are leptokurtic in nature except for NNII whose kurtosis value was less than the benchmark of 3.0. The p-value of the Jarque-Bera statistic reveals that all the deposit money banks variables are normally distributed. In other word, there is outlier that would distort the result of the analysis and inferences made would be regarded as reliable and robust. For the financial structure indices and control variables, the mean was observed to be 89.18, 511.48, 87.01, 4.36, 2.22 and 1143639 while the median entails 88.72, 5724.2, 87.28, 4.35, 2.67 and 104690 respectively for TDTA, TDTE, STDTA, TANG, RISK and BSIZE. The minimum and maximum values were depicted as 98.93 and 81.82, 10906.47 and 2053.49, 99.29 and 77.66, 7.75 and 2.83, 6.52 and -9.31, 26275490 and 1184496 for

TDTA, TDTE, STDTA, TANG, RISK and BSIZE respectively. Standard deviation are 4.53, 2867.01, 6.31, 1.11, 3.31 and 9042726 respectively for TDTA, TDTE, STDTA, TANG, RISK and BSIZE. None of the financial structure and control variables were found to have positively shift towards normality. TANG and RISK are leptokurtic but such is not the case for TDTA, TDTE, STDTA and BSIZE. All the financial structure proxies inclusive of control variables were normally distributed depicting the absence of any outlier.

4.3 Stationarity Check

To ensure that the data variables are not encumbered by stationarity defect that are usually linked with most time series data, stationarity check via Augmented Dickey-Fuller (ADF), Phillips Perron (PP) and Kwiatkowski-Phillips-Schmidt-Shin (KPSS) were conducted. The ADF, PP and KPSS stationarity check were performed at level and first difference at intercept and trend and intercept. Tables 6 to 9 present the ADF stationarity check result as PP was featured in Tables 10 to 13 while Tables 14 to 16 conclude the KPSS test. The ADF performed at level at intercept and trend and intercept as condensed in Table 6 and 7 show that all the variables are not stationary at level form but all became stationary at first difference as revealed in Tables 8 and 9

Table 6: ADF Test Result at Level: Intercept Only

Variables	ADF Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Remarks
ROA	-4.773189 (0.00)*	-3.920350	-3.065585	Stationary
ROE	-4.757856 (0.00)*	-3.920350	-3.065585	Stationary
NOI	3.052599 (0.05)**	-3.920350	-3.065585	Stationary
INTI	1.417496 (0.99)	-3.920350	-3.065585	Not Stationary
NINTI	-0.485067 (0.88)	-3.959148	-3.081002	Not Stationary
TDTA	-2.279492 (0.18)	-3.959148	-3.081002	Not Stationary
TDTE	0.456001 (0.97)	-3.959148	-3.081002	Not Stationary
STDTA	-2.490827 (0.14)	-3.959148	-3.081002	Not Stationary
TANG	-5.077820 (0.01)*	-3.920350	-3.065585	Stationary
RISK	-4.394014 (0.00)*	-3.920350	-3.065585	Stationary
BSIZE	0.635702 (0.98)	-3.959148	-3.081002	Not Stationary

Source: Output Data via E-views 9.0

Note: The optimal lag for ADF test is selected based on the Akaike Info Criteria (AIC), p-values are in parentheses where (*) and (**) denotes significance at 1% and 5% respectively.

Table 7: ADF Test Result at Level: Trend and Intercept

Variables	ADF Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Remarks
ROA	-4.960707 (0.00)*	-4.667883	-3.733200	Stationary
ROE	-5.545096 (0.00)*	-4.667883	-3.733200	Stationary
NOI	-3.744793 (0.04)**	-4.667883	-3.733200	Stationary
INTI	-0.666131 (0.96)	-4.667883	-3.733200	Not Stationary
NINTI	-3.586812 (0.06)	-4.667883	-3.733200	Not Stationary
TDTA	-1.939152 (0.58)	-4.667883	-3.733200	Not Stationary
TDTE	-2.145876 (0.48)	-4.667883	-3.733200	Not Stationary
STDTA	-2.094034 (0.51)	-4.667883	-3.733200	Not Stationary
TANG	-5.235460 (0.00)	-4.667883	-3.733200	Stationary
RISK	-4.228381 (0.02)*	-4.667883	-3.733200	Stationary
BSIZE	-2.754023 (0.23)	-4.667883	-3.733200	Not Stationary

Source: Output Data via E-views 9.0

Note: The optimal lag for ADF test is selected based on the Akaike Info Criteria (AIC), p-values are in parentheses where (*) and (**) denotes significance at 1% and 5% respectively.

Table 8: ADF Test Result at First Difference: Intercept Only

Variables	ADF Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Remarks
ROA	-7.489348 (0.00)*	-3.959148	-3.081002	Stationary
ROE	-5.524788 (0.00)*	-4.004425	-3.098896	Stationary
NOI	-7.305168 (0.00)*	-3.959148	-3.081002	Stationary
INTI	-3.340468 (0.05)**	-3.959148	-3.081002	Stationary
NINTI	-3.963704 (0.05)**	-3.959148	-3.081002	Stationary
TDTA	-4.422288 (0.000*	-3.959148	-3.081002	Stationary
TDTE	-3.185599 (0.04)**	-3.959148	-3.081002	Stationary
STDTA	-5.388480 (0.00)*	-3.959148	-3.081002	Stationary
TANG	-5.541627 (0.00)*	-3.959148	-3.081002	Stationary
RISK	-7.168569 (0.00)*	-3.959148	-3.081002	Stationary
BSIZE	-3.686584 (0.05)**	-3.959148	-3.081002	Stationary

Source: Output Data via E-views 9.0

Note: The optimal lag for ADF test is selected based on the Akaike Info Criteria (AIC), p-values are in parentheses where (*) and (**) denotes significance at 1% and 5% respectively.

Table 9: ADF Test Result at First Difference: Trend and Intercept

Variables	ADF Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Remarks
ROA	-7.193364 (0.00)*	-4.728363	-3.759743	Stationary
ROE	-3.973546 (0.00)*	-4.886426	-3.828975	Stationary
NOI	-7.414739 (0.00)*	-4.886426	-3.828975	Stationary
INTI	-4.536906 (0.00)*	-4.886426	-3.828975	Stationary
NINTI	-4.050030 (0.03)**	-4.992279	-3.875302	Stationary
TDTA	5.252369 (0.04)**	-4.992279	-3.875302	Stationary
TDTE	-4.775815 (0.05)**	-4.992279	-3.875302	Stationary
STDTA	-4.418231 (0.05)**	-4.992279	-3.875302	Stationary
TANG	-5.619790 (0.00)*	-4.728363	-3.759743	Stationary
RISK	-4.499859 (0.02)*	-4.800080	-3.791172	Stationary
BSIZE	-5.554247 (0.03)**	-4.728363	-3.759743	Stationary

Source: Output Data via E-views 9.0

Note: The optimal lag for ADF test is selected based on the Akaike Info Criteria (AIC), p-values are in parentheses where (*) and (**) denotes significance at 1% and 5% respectively.

Phillips Perron (PP) Test

Similar to ADF stationarity check, level and first difference at intercept and trend and intercept was applied in Phillips Perron (PP) stationarity check. Tables 10 and 11 shows that PP test at level intercept only and trend and intercept while Tables 12 and 13 depict first difference at intercept and trend and intercept. The PP result also unveiled that all the variables were stationary of first difference as stationarity would not be achieved in level form. From the result of ADF and PP stationarity check at first difference, the hypothesis of non-stationarity cannot be accepted for all the variables in the models.

Table 10: PP Test Result at Level: Intercept Only

Variables	PP Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Remarks
ROA	-4.773189 (0.00)*	-3.920350	-3.065585	Stationary
ROE	-4.748127 (0.00)*	-3.920350	-3.065585	Stationary
NOI	-3.148404 (0.05)**	-3.920350	-3.065585	Stationary
INTI	2.254828 (0.990	-3.920350	-3.065585	Not Stationary
NINTI	-1.211366 (0.64)	-3.920350	-3.065585	Not Stationary
TDTA	-2.279492 (0.18)	-3.920350	-3.065585	Not Stationary
TDTE	2.093792 (0.99)	-3.920350	-3.065585	Not Stationary
STDTA	-2.486124 (0.14)	-3.920350	-3.065585	Not Stationary
TANG	-4.913574 (0.00)*	-3.920350	-3.065585	Stationary
RISK	-4.394014 (0.00)*	-3.920350	-3.065585	Stationary
BSIZE	0.603532 (0.98)	-3.920350	-3.065585	Not Stationary

Source: Output Data via E-views 9.0

Note: In determining the truncation lag for PP test, the spectral estimation method selected is Bartlett kernel and Newey-West method for Bandwidth, p-values are in parentheses where (*) and (**) denotes significance at 1% and 5% respectively.

Table 11: PP Test Result at Level: Trend and Intercept

Variables	PP Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Remarks
ROA	-5.032158 (0.00)*	-4.667883	-3.733200	Stationary
ROE	-5.545096 (0.00)*	-4.667883	-3.733200	Stationary
NOI	-3.747582 (0.04)**	-4.667883	-3.733200	Stationary
INTI	-0.474982 (0.97)	-4.667883	-3.733200	Not Stationary
NINTI	-3.584010 (0.64)	-4.667883	-3.733200	Not Stationary
TDTA	-1.850535 (0.63)	-4.667883	-3.733200	Not Stationary
TDTE	-1.606766 (0.74)	-4.667883	-3.733200	Not Stationary
STDTA	-2.094034 (0.51)	-4.667883	-3.733200	Not Stationary
TANG	-7.175173 (0.00)*	-4.667883	-3.733200	Stationary
RISK	-4.228381 (0.02)**	-4.667883	-3.733200	Stationary
BSIZE	-2.379143 (0.37)	-4.667883	-3.733200	Not Stationary

Source: Output Data via E-views 9.0

Note: In determining the truncation lag for PP test, the spectral estimation method selected is Bartlett kernel and Newey-West method for Bandwidth, p-values are in parentheses where (*) and (**) denotes significance at 1% and 5% respectively.

Table 12: PP Test Result at First Difference: Intercept Only

Variables	PP Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Remarks
ROA	-19.83931 (0.00)*	-3.959148	-3.081002	Stationary
ROE	-20.10056 (0.00)*	-3.959148	-3.081002	Stationary
NOI	-8.945964 (0.00)*	-3.959148	-3.081002	Stationary
INTI	-10.115121 (0.00)*	-3.959148	-3.081002	Stationary
NINTI	-7.072667 (0.00)*	-3.959148	-3.081002	Stationary
TDTA	-4.734512 (0.05)*	-3.959148	-3.081002	Stationary
TDTE	-5.733512 (0.05)*	-3.959148	-3.081002	Stationary
STDTA	-5.388480 (0.00)*	-3.959148	-3.081002	Stationary
TANG	-5.742061 (0.00)*	-3.959148	-3.081002	Stationary
RISK	-13.66699 (0.00)*	-3.959148	-3.081002	Stationary
BSIZE	-4.457917 (0.02)**	-3.959148	-3.081002	Stationary

Source: Output Data via E-views 9.0

Note: In determining the truncation lag for PP test, the spectral estimation method selected is Bartlett kernel and Newey-West method for Bandwidth, p-values are in parentheses where (*) and (**) denotes significance at 1% and 5% respectively.

Table 13: PP Test Result at First Difference: Trend and Intercept

Variables	PP Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Remarks
ROA	-19.25856 (0.00)*	-4.728363	-3.759743	Stationary
ROE	-20.82461 (0.00)*	-4.728363	-3.759743	Stationary
NOI	-17.17654 (0.00)*	-4.728363	-3.759743	Stationary
INTI	-5.004755 (0.01)*	-4.728363	-3.759743	Stationary
NINTI	-6.743565 (0.00)*	-4.728363	-3.759743	Stationary
TDTA	-7.110077 (0.01)*	-4.728363	-3.759743	Stationary
TDTE	-5.234161 (0.01)*	-4.728363	-3.759743	Stationary
STDTA	-11.62252 (0.00)*	-4.728363	-3.759743	Stationary
TANG	-5.644921 (0.00)*	-4.728363	-3.759743	Stationary
RISK	-16.43259 (0.00)*	-4.728363	-3.759743	Stationary
BSIZE	-7.073898 (0.01)*	-4.728363	-3.759743	Stationary

Source: Output Data via E-views 9.0

Note: In determining the truncation lag for PP test, the spectral estimation method selected is Bartlett kernel and Newey-West method for Bandwidth, p-values are in parentheses where (*) and (**) denotes significance at 1% and 5% respectively.

Kwiatkowski-Phillips-Schmidt-Shin (KPSS) Test

The KPSS result in Table 14 and 15 reveal that all the variable are not stationary at level form, thus requiring a conduct of the first difference using the intercept in addition to trend and intercept. The result of the first difference in Tables 16 and 17 unveil the stationarity of all the variables, that is, all the variables are integrated of order one 1(1).

Table 14: KPSS Test Result at Level: Intercept Only

Variables	KPSS Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Test Critical Value at 10%	Remarks
ROA	0.213531**	0.739000	0.463000	0.347000	Stationary
ROE	0.362054**	0.739000	0.463000	0.347000	Stationary
NOI	0.391920**	0.739000	0.463000	0.347000	Stationary
INTI	0.648020*	0.739000	0.463000	0.347000	Stationary
NINTI	0.491106*	0.739000	0.463000	0.347000	Stationary
TDTA	0.168226	0.739000	0.463000	0.347000	Not Stationary
TDTE	0.508167*	0.739000	0.463000	0.347000	Stationary
STDTA	0.459648**	0.739000	0.463000	0.347000	Stationary
TANG	0.505232*	0.739000	0.463000	0.347000	Stationary
RISK	0.123810	0.739000	0.463000	0.347000	Not Stationary
BSIZE	0.522193**	0.739000	0.463000	0.347000	Stationary

Source: Output Data via E-views 9.0

Note: The spectral estimation method selected for KPSS test is Bartlett kernel and Newey-West method for Bandwidth, p-values are in parentheses where (*) and (**) denotes significance at 1% and 5% respectively.

Table 15: KPSS Test Result at Level: Trend and Intercept

Variables	KPSS Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Test Critical Value at 10%	Remarks
ROA	0.105122	0.216000	0.146000	0.119000	Stationary
ROE	0.119703**	0.216000	0.146000	0.119000	Stationary
NOI	0.140863**	0.216000	0.146000	0.119000	Stationary
INTI	0.151589*	0.216000	0.146000	0.119000	Stationary
NINTI	0.102722	0.216000	0.146000	0.119000	Not Stationary
TDTA	0.167976*	0.216000	0.146000	0.119000	Stationary
TDTE	0.141743**	0.216000	0.146000	0.119000	Stationary
STDTA	0.172780**	0.216000	0.146000	0.119000	Not Stationary
TANG	0.138278**	0.216000	0.146000	0.119000	Stationary
RISK	0.116556	0.216000	0.146000	0.119000	Not Stationary
BSIZE	0.136559**	0.216000	0.146000	0.119000	Stationary

Source: Output Data via E-views 9.0

Note: The spectral estimation method selected for KPSS test is Bartlett kernel and Newey-West method for Bandwidth, p-values are in parentheses where (*) and (**) denotes significance at 1% and 5% respectively.

Table 16: KPSS Test Result at First Difference: Intercept Only

Variables	KPSS Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Test Critical Value at 10%	Remarks
ROA	0.441390**	0.739000	0.463000	0.347000	Stationary
ROE	0.381228**	0.739000	0.463000	0.347000	Stationary
NOI	0.355182**	0.739000	0.463000	0.347000	Stationary
INTI	0.358456**	0.739000	0.463000	0.347000	Stationary
NINTI	0.406733**	0.739000	0.463000	0.347000	Stationary
TDTA	0.376019**	0.739000	0.463000	0.347000	Stationary
TDTE	0.347814**	0.739000	0.463000	0.347000	Stationary
STDTA	0.357834**	0.739000	0.463000	0.347000	Stationary
TANG	0.369446**	0.739000	0.463000	0.347000	Stationary
RISK	0.436504**	0.739000	0.463000	0.347000	Stationary
BSIZE	0.456434**	0.739000	0.463000	0.347000	Stationary

Source: Output Data via E-views 9.0

Note: The spectral estimation method selected for KPSS test is Bartlett kernel and Newey-West method for Bandwidth, p-values are in parentheses where (*) and (**) denotes significance at 1% and 5% respectively.

Table 17: KPSS Test Result at First Difference: Intercept and Intercept

Variables	KPSS Test Statistic	Test Critical Value at 1%	Test Critical Value at 5%	Test Critical Value at 10%	Remarks
ROA	0.220613*	0.216000	0.146000	0.119000	Stationary
ROE	0.208306*	0.216000	0.146000	0.119000	Stationary
NOI	0.182216*	0.216000	0.146000	0.119000	Stationary
INTI	0.119045**	0.216000	0.146000	0.119000	Stationary
NINTI	0.126896**	0.216000	0.146000	0.119000	Stationary
TDTA	0.127891**	0.216000	0.146000	0.119000	Stationary
TDTE	0.150000*	0.216000	0.146000	0.119000	Stationary
STDTA	0.214042*	0.216000	0.146000	0.119000	Stationary
TANG	0.189130*	0.216000	0.146000	0.119000	Stationary
RISK	15.00000*	0.216000	0.146000	0.119000	Stationary
BSIZE	0.120276**	0.216000	0.146000	0.119000	Stationary

Source: Output Data via E-views 9.0

Note: The spectral estimation method selected for KPSS test is Bartlett kernel and Newey-West method for Bandwidth, p-values are in parentheses where (*) and (**) denotes significance at 1% and 5% respectively.

4.4 Diagnostic Test

Serial Correlation LM Test

Serial Correlation LM is another test of autocorrelation which is vehemently preferred to traditional Durbin Watson, especially when a researcher feels a variable in a model may likely be correlated with another serially. The result in Table 18 shows that the p-values of all the models are insignificant at 5% level of significance, which entails that the models are free from autocorrelation problem.

Table 18: Breusch-Godfrey Serial Correlation LM Test

Models	F-statistic	Prob. F(2,8)
Model 1	0.114721	0.8931
Model 2	0.324918	0.7317
Model 3	0.364823	0.7053
Model 4	3.860762	0.0836
Model 5	0.093677	0.9116

Source: Data output via E-views 9.0

Heteroskedasticity Test

The magnitude of residuals of most financial time series data appears to be related to the magnitude of recent residuals. To effectively deal with this issue, the models were checked for heteroskedasticity via the Harvey criteria and the results summarized in Table 19. The p-values for all the models are not statistically significant at 5% level of significance thus, an evidence of no heteroskedasticity in the models.

Table 19: Harvey Heteroskedasticity test

Models	F-statistic	Prob. F(6,10)
Model 1	1.033177	0.4581
Model 2	1.704408	0.2175
Model 3	1.258957	0.3558
Model 4	0.258441	0.9544
Model 5	0.489985	0.8022

Source: Data output via E-views 9.0

Ramsey RESET Test

The specification deals with the fitness or how well specified a model is. The Ramsey specification assumption is based on the notion that the non-linear combinations of the independent variables should not have any power in explaining the dependent variable, as such the model is said to be well specified otherwise the reverse is the case. The result in Table 20 depicts that the models were well specified as the p-values are insignificant at 5% level of significance.

Table 20: Ramsey Reset Specification

Models	t-statistic	df	P-value
Model 1	0.814847	9	0.4362
Model 2	0.012778	9	0.9901
Model 3	1.987202	9	0.0781
Model 4	5.783217	9	0.0588
Model 5	0.651539	9	0.5310

Source: Data output via E-views 9.0

Multicollinearity Test

To ensure that the three financial structure variables and control variables introduced in the models are not highly correlated with each other with regards to the control variables coming from banks specific factors, the multicollinearity check was performed. The correlation between the financial structure variables was observed high for total debt to total assets and short term debt to total assets (0.69) and (0.01) for tangibility and risk. Since (0.69) and (0.01) is not (0.80), total debt to total assets and tangibility would not be said to be a replicate of short term debt to total assets and risk, hence multicollinearity does not exist in the models. Table 21 presents the correlation matrix for the variables in the models.

Table 21: Correlation Matrix

	ROA	ROE	NOI	NII	NNII	TDTA	TDTE	STDTA	TANG	RISK	BSIZE
ROA	1.0000	0.9223	0.6043	-0.24019	-0.37288	0.2117	-0.24318	0.39079	-0.0469	0.8927	-0.209
ROE	0.9223	1.0000	0.5153	-0.28660	-0.43621	0.4716	-0.30806	0.59992	0.1251	0.8458	-0.315
NOI	0.6043	0.51532	1.0000	0.57929	0.19047	0.4521	0.48402	0.11414	-0.1755	0.8497	0.4719
INTI	-0.241	-0.2866	0.5793	1.00000	0.73638	0.2289	0.94025	-0.42806	-0.3425	0.1034	0.9116
NINTI	-0.373	-0.43621	0.1905	0.73638	1.00000	0.0289	0.81706	-0.58901	-0.5600	-0.248	0.8891
TDTA	0.2117	0.47161	0.4521	0.22892	0.02887	1.0000	0.09451	0.69293	0.3750	0.4330	0.0298
TDTE	-0.244	-0.30806	0.4840	0.94025	0.81706	0.0945	1.00000	-0.51244	-0.4595	0.0087	0.9632
STDTA	0.3902	0.59992	0.1141	-0.42806	-0.58901	0.6929	-0.51244	1.00000	0.6701	0.4021	-0.599
TANG	-0.047	0.12513	-0.175	-0.34253	-0.56002	0.3749	-0.45949	0.67012	1.0000	0.0192	-0.573
RISK	0.8927	0.84582	0.8497	0.10345	-0.24766	0.4330	0.00873	0.40212	0.0192	1.0000	-0.011
BSIZE	-0.209	-0.31475	0.4719	0.91163	0.88913	0.0298	0.96323	-0.59853	-0.5731	-0.011	1.0000

Source: Data output via E-views 9.0

4.5 VAR Lag Order Selection Criteria

In estimating the long run relationship among the variables, it is relevant to determine the reliability of such relationship. The reliability of the long run relationship was checked via the VAR lag order selection criteria by determining the level of time lag was confirmed. The optimal level of time lag are gotten with the aid of standard tests Akaike information criterion (AIC) and Schwarz information criterion (SC), under the Vector Auto Regression model. The lower the values of Akaike information criterion (AIC) and Schwarz information criterion (SC), the better the terseness and veracity of the model. The E-Views 9.0 software automatically selected two (2) as the number of lag and the result summarized in Tables 22 to 26 for all the models. It is worthy to note that that in estimating and ascertaining the lag time, only the financial structure and deposit money banks performance variables were included in the equation as the number of observation (1999 to 2015) is insufficient to estimate 15 coefficient per equation in VAR when the lag interval for endogenous variable is 12. This also applied to estimating the long run relationship between the variables concerned.

Table 22: Lag Length Structure for ROA and Financial Structure

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-246.3857	NA	3.71e+09	33.38477	33.57358	33.38275
1	-220.2372	34.86474	1.06e+09	32.03162	32.97569	32.02157
2	-171.7498	38.78991*	26526145*	27.69997*	29.39929*	27.68187*

Source: Data output via E-views 9.0

** Indicates lag order selected by the criterion, LR: sequential modified LR test statistic (each test at 5% level), FPE: Final prediction error, AIC: Akaike information criterion, SC: Schwarz information criterion and HQ: HannanQuinn information criterion*

Table 23: Lag Length Structure for ROE and Financial Structure

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-274.8607	NA	1.65e+11	37.18143	37.37024	37.17941
1	-246.1819	38.23845	3.39e+10	35.49091	36.43498	35.48086
2	-201.5457	35.70889*	1.41e+09*	31.67277*	33.37209*	31.65466*

Source: Data output via E-views 9.0

** Indicates lag order selected by the criterion, LR: sequential modified LR test statistic (each test at 5% level), FPE: Final prediction error, AIC: Akaike information criterion, SC: Schwarz information criterion and HQ: HannanQuinn information criterion*

Table 24: Lag Length Structure for NOI and Financial Structure

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-424.6061	NA	7.75e+19	57.14749	57.33630	57.14547
1	-400.1436	32.61678	2.79e+19	56.01914	56.96321	56.00908
2	-356.2500	35.11484*	1.28e+18*	52.30000*	53.99932*	52.28190*

Source: Data output via E-views 9.0

** Indicates lag order selected by the criterion, LR: sequential modified LR test statistic (each test at 5% level), FPE: Final prediction error, AIC: Akaike information criterion, SC: Schwarz information criterion and HQ: HannanQuinn information criterion*

Table 25: Lag Length Structure for INTI and Financial Structure

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-413.7449	NA	1.82e+19	55.69932	55.88814	55.69731
1	-383.3461	40.53183*	2.97e+18	53.77947	54.72354	53.76942
2	-354.2953	23.24060	9.87e+17*	52.03937*	53.73870*	52.02127*

Source: Data output via E-views 9.0

** Indicates lag order selected by the criterion, LR: sequential modified LR test statistic (each test at 5% level), FPE: Final prediction error, AIC: Akaike information criterion, SC: Schwarz information criterion and HQ: HannanQuinn information criterion*

Table 26: Lag Length Structure for NINTI and Financial Structure

Lag	LogL	LR	FPE	AIC	SC	HQ
0	-408.1736	NA	8.66e+18	54.95648	55.14529	54.95446
1	-365.6763	56.66307	2.81e+17	51.42350	52.36757	51.41345
2	-326.4663	31.36793*	2.41e+16*	48.32885*	50.02817*	48.31075*

Source: Data output via E-views 9.0

** Indicates lag order selected by the criterion, LR: sequential modified LR test statistic (each test at 5% level), FPE: Final prediction error, AIC: Akaike information criterion, SC: Schwarz information criterion and HQ: HannanQuinn information criterion*

4.6 Long Run Relationship

The stationarity check through ADF, PP and KPSS show that the data are not encumbered by stationarity defects. With this in mind, it is rightfully deduced that the variables are integrated of order 1(1) thus co-integration analysis suggested by Johansen (1991) and Johansen and Juselius (1994) is acquiescent. The co-integration analysis was executed witn unrestricted intercepts and unrestricted trends in the VAR based on the maximum eigen value and trace statistic as the choice of co-integrating relation has been assessed using the VAR lag order selection in subdivision 4.5. Tables 27 to 31 present the result of the co-integration analysis. The result in Table 27 shows that in regards to the null hypothesis of no co-integrating relationship is

rejected both at 99% and 95% level of confidence in favor the alternate hypothesis of the presence of 1 co-integrating equation. The result of the second, third and fourth hypothesis of less than 1, 2 and 3 or equal to 1, 2 and 3 is also rejected in favour of the alternate hypothesis by the presence of 4 co-integrating equation at the same conventional confidence level. This is an indication that return on assets of deposit money banks and financial structure are related in the long run.

Table 27: Johansen Co-integration for ROA, TDTA, TDTE and STDTA

Unrestricted Co-integration Rank Test (Trace) ROA, TDTA, TDTE and STDTA				
Hypothesized Number of CE(s)	**Eigen Value**	**Trace Statistic**	**0.05 Critical Value**	**Prob.****
None*	0.974410	115.6686	47.85613	0.0000
At most 1*	0.917200	60.68557	29.79707	0.0000
At most 2*	0.707803	23.31560	15.49471	0.0027
At most 3*	0.276782	4.860665	3.841466	0.0275
Unrestricted Co-integration Rank Test (Maximum Eigenvalue) ROA, TDTA, TDTE and STDTA				
Hypothesized Number of CE(s)	**Eigen Value**	**Maximum Eigen Statistic**	**0.05 Critical Value**	**Prob.****
None*	0.974410	54.98302	27.58434	0.0000
At most*	0.917200	37.36997	21.13162	0.0001
At most 2*	0.707803	18.45493	14.26460	0.0103
At most 3*	0.276782	4.860665	3.841466	0.0275

*Trace test and Max-eigenvalue test each indicates 4 co-integrating eqn(s) at the 0.05 level; * denotes rejection of the hypothesis at the 0.05 level; **MacKinnon-Haug-Michelis (1999) p-values.*

Table 28: Johansen Co-integration for ROE, TDTA, TDTE and STDTA

Unrestricted Co-integration Rank Test (Trace) ROE, TDTA, TDTE and STDTA				
Hypothesized Number of CE(s)	**Eigen Value**	**Trace Statistic**	**0.05 Critical Value**	**Prob.****
None*	0.970084	108.0451	47.85613	0.0000
At most 1*	0.863295	55.40474	29.79707	0.0000
At most 2*	0.655840	25.55575	15.49471	0.0011
At most 3*	0.471159	9.556020	3.841466	0.0020
Unrestricted Co-integration Rank Test (Maximum Eigenvalue) ROE, TDTA, TDTE and STDTA				
Hypothesized Number of CE(s)	**Eigen Value**	**Maximum Eigen Statistic**	**0.05 Critical Value**	**Prob.****
None*	0.970084	52.64036	27.58434	0.0000
At most*	0.863295	29.84899	21.13162	0.0023
At most 2*	0.655840	15.99973	14.26460	0.0263
At most 3*	0.471159	9.556020	3.841466	0.0020

*Trace test and Max-eigenvalue test each indicates 4 co-integrating eqn(s) at the 0.05 level; * denotes rejection of the hypothesis at the 0.05 level; **MacKinnon-Haug-Michelis (1999) p-values.*

From Table 28, the trace and maximum eigen value reveal the presence of 4 co-integrating vectors at 95% confidence level. The null hypothesis of no co-integrating relationship is rejected at 5% level of significance against the alternate hypothesis by

the presence of 1 co-integrating equation. Furthermore, presence of 4 co-integrating equation at 99% and 95% level conventional confidence level leads to the rejection of the result of the second, third and fourth hypothesis of less than 1, 2 and 3 or equal to 1, 2 and 3. Deposit money banks return on equity and financial structure variables are co-integrated.

Table 29: Johansen Co-integration for NOI, TDTA, TDTE and STDTA

Unrestricted Co-integration Rank Test (Trace) NOI, TDTA, TDTE and STDTA				
Hypothesized Number of CE(s)	**Eigen Value**	**Trace Statistic**	**0.05 Critical Value**	**Prob.****
None*	0.977721	106.2778	47.85613	0.0000
At most 1*	0.888218	49.21580	29.79707	0.0001
At most 2*	0.660305	16.34776	15.49471	0.0371
At most 3	0.010092	0.152149	3.841466	0.6965
Unrestricted Co-integration Rank Test (Maximum Eigenvalue) NOI, TDTA, TDTE and STDTA				
Hypothesized Number of CE(s)	**Eigen Value**	**Maximum Eigen Statistic**	**0.05 Critical Value**	**Prob.****
None*	0.977721	57.06198	27.58434	0.0000
At most*	0.888218	32.86804	21.13162	0.0007
At most 2*	0.660305	16.19561	14.26460	0.0245
At most 3	0.010092	0.152149	3.841466	0.6965

*Trace test and Max-eigenvalue test each indicates 3 co-integrating eqn(s) at the 0.05 level; * denotes rejection of the hypothesis at the 0.05 level; **MacKinnon-Haug-Michelis (1999) p-values.*

Table 30: Johansen Co-integration for INTI, TDTA, TDTE and STDTA

Unrestricted Co-integration Rank Test (Trace) INTI, TDTA, TDTE and STDTA				
Hypothesized Number of CE(s)	**Eigen Value**	**Trace Statistic**	**0.05 Critical Value**	**Prob.****
None*	0.967652	90.79591	47.85613	0.0000
At most 1*	0.856010	39.32778	29.79707	0.0030
At most 2	0.461785	10.25760	15.49471	0.2614
At most 3	0.062316	0.965141	3.841466	0.3259
Unrestricted Co-integration Rank Test (Maximum Eigenvalue) NII, TDTA, TDTE and STDTA				
Hypothesized Number of CE(s)	**Eigen Value**	**Maximum Eigen Statistic**	**0.05 Critical Value**	**Prob.****
None*	0.967652	51.46813	27.58434	0.0000
At most*	0.856010	29.07018	21.13162	0.0031
At most 2	0.461785	9.292462	14.26460	0.2626
At most 3	0.062316	0.965141	3.841466	0.3259

*Trace test and Max-eigenvalue test each indicates 2 co-integrating eqn(s) at the 0.05 level; * denotes rejection of the hypothesis at the 0.05 level; **MacKinnon-Haug-Michelis (1999) p-values.*

The revelation in terms of net operating income and net interest income, the trace test and maximum eigen value each depict 2 co-integrating equation at 5% level of significance. The null hypothesis that the net operating income and net interest income of deposit money and financial structure are not related in the long run is

rejected as trace and maximum eigen statistic are greater than the critical values at 95% confidence level.

Table 31: Johansen Co-integration for NINTI, TDTA, TDTE and STDTA

Unrestricted Co-integration Rank Test (Trace) NINTI, TDTA, TDTE and STDTA				
Hypothesized Number of CE(s)	**Eigen Value**	**Trace Statistic**	**0.05 Critical Value**	**Prob.****
None*	0.988837	128.5991	47.85613	0.0000
At most 1*	0.930886	61.17199	29.79707	0.0000
At most 2*	0.754227	21.09199	15.49471	0.0064
At most 3	0.002783	0.041805	3.841466	0.8380
Unrestricted Co-integration Rank Test (Maximum Eigenvalue) NINTI, TDTA, TDTE and STDTA				
Hypothesized Number of CE(s)	**Eigen Value**	**Maximum Eigen Statistic**	**0.05 Critical Value**	**Prob.****
None*	0.988837	67.42714	27.58434	0.0000
At most*	0.930886	40.08000	21.13162	0.0000
At most 2*	0.754227	21.05019	14.26460	0.0036
At most 3	0.002783	0.041805	3.841466	0.8380

Trace test and Max-eigenvalue test each indicates 3 co-integrating eqn(s) at the 0.05 level;
** denotes rejection of the hypothesis at the 0.05 level; **MacKinnon-Haug-Michelis (1999) p-values.*

Finally, for the long run relationship between non net interest income and financial structure, Table 31 unveils that there is a long run relationship between non net interest income of deposit money banks in Nigeria and financial structure. Three (3) co-integrating vectors each was detected by the trace and maximum eigen statistic.

4.7 Speed of Adjustment through VECM

Engle and Granger (1987) stated that where a set of variables are co-integrated, an error correction model would exist to describe the speed of short-run adjustment to equilibrium. This gives an illustration as to whether or not all the variations within the dependent variables in the model are as a result of the co-integrating vectors attempting to return to equilibrium and the error correction term that captures these variations. Table 32 to 36 summarise the VECM analysis for deposit money banks performance indices and financial structure in exclusion of tangibility, risk and bank size and where 11 is used as lag interval based on VAR criteria for the number of observations as the case of this study. The ECM in Table 32 and 33 did not show the expected negative sign for return on assets and return on equity respectively. This suggests that the model does not exhibit any tendency to correct and move towards

the equilibrium path following disequilibrium in each period. Put differently, there is no significant error correction taking place even when the ECM insignificantly through t-statistic report 24.6% and 1.53% previous period error corrected in current year for ROA and ROE respectively.

Table 32: Error Correction Model for ROA, TDTA, TDTE and STDTA

Variables	Coefficient	Standard Error	T-Statistic
C	-1.202785	1.36057	-0.88403
D(ROA(-1))	-0.999112	0.30333	-3.29387
D(TDTA (-1))	0.512399	0.55540	0.92258
D(TDTE(-1))	0.003032	0.00168	1.80919
D(STDTA(-1))	-0.099613	0.56439	-0.17650
ECM (-1)	0.246004	0.17364	1.41677

Source: Data output via E-views 9.0

Table 33: Error Correction Model for ROE, TDTA, TDTE and STDTA

Variables	Coefficient	Standard Error	T-Statistic
C	-9.936729	8.59917	-1.15555
D(ROE(-1))	-1.052103	0.24762	-4.24884
D(TDTA (-1))	7.981347	3.59206	2.22194
D(TDTE(-1))	0.016579	0.00999	1.66013
D(STDTA(-1))	-2.704029	3.48081	-0.77684
ECM (-1)	0.015308	0.02793	0.54800

Source: Data output via E-views 9.0

Table 34: Error Correction Model for NOI, TDTA, TDTE and STDTA

Variables	Coefficient	Standard Error	T-Statistic
C	11943.61	219514	0.05441
D(NOI(-1))	-0.678865	0.30096	-2.25567
D(TDTA (-1))	77568.66	89249.1	0.86913
D(TDTE(-1))	244.0317	239.501	1.01892
D(STDTA(-1))	-49345.67	92216.4	-0.53511
ECM (-1)	-0.054353	0.03934	-1.38158

Source: Data output via E-views 9.0

Table 35: Error Correction Model for INTI, TDTA, TDTE and STDTA

Variables	Coefficient	Standard Error	T-Statistic
C	121393.2	127346	0.95326
D(NII(-1))	0.487335	0.92971	0.52418
D(TDTA (-1))	-9426.707	54209.6	-0.17389
D(TDTE(-1))	-43.33815	149.095	-0.29067
D(STDTA(-1))	-10368.20	48888.8	-0.21208
ECM (-1)	-0.029857	0.07121	-0.41930

Source: Data output via E-views 9.0

As can be seen from Table 34 and 35, the error correction for net operating income and net interest income is properly signed with the expected negative mark. This tells that significant error is taking place and there is tendency of the models to move

towards equilibrium following disequilibrium in each period. For net operating income 5.44% error generated in the previous period was corrected in the present year as only 2.98% error in previous year was corrected in current year for interest income. From Table 32 with respect to deposit money banks non interest income, the ECM also exhibited the expected negative sign, which is an indication that the model would shift to equilibrium owing to disequilibrium experienced in previous years. It revealed in Table 36 that only 4.82% error of previous year was corrected in the present year.

Table 36: Error Correction Model for NINTI, TDTA, TDTE and STDTA

Variables	Coefficient	Standard Error	T-Statistic
C	105161.5	47533.1	2.21238
D(NNII(-1))	-0.270865	0.32174	-0.8418]
D(TDTA (-1))	6057.346	19467.9	0.31115
D(TDTE(-1))	-74.94252	55.0915	-1.36033
D(STDTA(-1))	18143.91	20273.3	0.89497
ECM (-1)	-0.048214	0.02803	-1.71998

Source: Data output via E-views 9.0

4.8 OLS Regression

The multiple regression estimation for relationship in the short run was done using the OLS technique and result interpreted based on the global and relative statistics of model output. The result of the OLS analysis are presented in Table 37 to 41

Return on Assets and Financial Structure

Global Utility Interpretations

The result in Table 37 shows the adjusted R-square value to be 0.884457, an insinuation that 88.45% changes in return on assets of deposit money banks was as a result of joint variation in total debt to total assets, total debt to total equity, short term debt to total assets, tangibility, risk and bank size. The F-statistic which determines if the changes in the dependent variable is significant or not, showcases that the aforementioned magnitude of changes in return on assets was significantly (less than 0.05) explained by financial structure inclusive of control variables: tangibility, risk and the size of the banks. The traditional Durbin Watson test of autocorrelation shows

a value of 1.78, a value close to the bench mark of 2.0. This implies that there is no autocorrelation in the model. This is further confirmed by the serial correlation test as evidenced in Table 4.3.1 which absolve the model of autocorrelation and as such, the result would not be said to be spurious/non-sense.

Table 37: OLS Regression: ROA, TDTA, TDTE, STDTA, TANG, RISK and BSIZE

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	**8.107853**	6.537865	**1.240138**	0.2432
TDTA	-0.243364	0.135409	-1.797258	0.1025
TDTE	-0.000745	0.000405	-1.839449	0.0957
STDTA	**0.197914**	0.130116	**1.521056**	0.1592
TANG	-0.493224	0.397554	-1.240646	0.2431
RISK	0.897438	0.102324	8.770540	0.0000
BSIZE	**2.07E-07**	1.53E-07	**1.353226**	0.2058
R-squared	**0.927786**	Mean dependent var		**2.015294**
Adjusted R-squared	0.884457	S.D. dependent var		3.299260
S.E. of regression	**1.121471**	Akaike info criterion		**3.360061**
Sum squared resid	12.57697	Schwarz criterion		3.703149
Log likelihood	**-21.56052**	Hannan-Quinn criter.		**3.394164**
F-statistic	21.41279	Durbin-Watson stat		1.780492
Prob (F-statistic)	**0.000036**			

Source: Data output via E-views 9.0

Relative Statistics Interpretations

The revelation in terms of model relative statistic unveils that if total debt to total assets, total debt to total equity, short term debt to total assets, tangibility, risk and bank size are held constant, return on assets would be 8.12% as revealed by the constant coefficient of 8.107853. Total debt to total assets and total debt to total equity have insignificant negative relationship with return on assets as short term debt to total assets positively relates with return on assets. Tangibility has negative insignificant relationship with return on assets while risk and total assets have positive relationship with return on assets. A unit increase in total debt to total assets and total debt to total equity would result in -0.243364 and -0.000745 factor depreciation in return on assets respectively as short term debt to total assets was found to increase return on assets by 0.197914 owing to a unit rise. A percentage rise in fixed assets to total assets ratio would lead to -0.493224 factor depreciation in deposit, money banks return on assets while a unit rise in risk and bank size cause 0.897438 and 2.07E-07

appreciation in return on assets. Nevertheless, that of risk was found to be significant but that of size of bank was not.

Return on Equity and Financial Structure

Global Utility Interpretations

As can be seen in Table 38, 77.89% variation in return on equity was attributed to in total debt to total assets, total debt to total equity, short term debt to total assets, tangibility, bank size and risk. There is no need to worry about the significance of this variation as the p-value of the F-statistic vehemently showed that financial structure and control variables were significant in explaining the changes in shareholders wealth. The Durbin Watson is 1.46, though not quite close to 2.0. The deficiency associated with this was corrected by the serial correlation LM test in Table 6

Table 38: OLS Regression: ROE, TDTA, TDTE, STDTA, TANG, RISK and BSIZE

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	**-94.00172**	70.16413	**-1.339740**	0.2100
TDTA	0.913888	1.453201	0.628879	0.5435
TDTE	-0.002254	0.004345	-0.518746	0.6152
STDTA	**0.684449**	1.396404	**0.490151**	0.6346
TANG	-5.503477	4.266534	-1.289918	0.2261
RISK	5.516425	1.098139	5.023430	0.0005
BSIZE	**-2.93E-07**	1.64E-06	**-0.178827**	0.8616
R-squared	**0.861740**	Mean dependent var		**20.37765**
Adjusted R-squared	0.778783	S.D. dependent var		25.58929
S.E. of regression	**12.03559**	Akaike info criterion		**8.106514**
Sum squared resid	1448.554	Schwarz criterion		8.449602
Log likelihood	**-61.90537**	Hannan-Quinn criter.		**8.140618**
F-statistic	10.38788	Durbin-Watson stat		1.468364
Prob (F-statistic)	**0.000831**			

Source: Data output via E-views 9.0

Relative Statistics Interpretations

As shown in Table 38, total debt to total equity, tangibility and bank size have negative insignificant relationship with return on equity while total debt to total assets and short term debt to total assets have positive but not statistically significant relationship with return on equity. Risk is significantly and positively related with wealth of shareholders. Holding financial structure and control variables constant, return on equity would stand at -94%. A unit rise in total debt to total equity,

tangibility and bank size reduce return on equity by a factor of -0.002254, -5.503477 and -2.93E-07 respectively. A percentage increase in total debt to total assets, short term debt to total assets and risk would lead to 0.913888, 0.684449 and 5.516425 factor appreciation in return on equity of deposit money banks in Nigeria within the period studied.

Net Operating Income and Financial Structure

Global Utility Interpretations

The regression output in Table 39 shows that 94.45% changes in net operating income of deposit money banks was explained jointly by total debt to total assets, total debt to total equity, short term debt to total assets, tangibility, risk and bank size. The p-value of the F-statistic discloses that financial structure and control variables significantly explained the changes in net operating income of deposit money banks in Nigeria. The Durbin Watson of 1.33 is not that close to the benchmark of 2.0. There is no need to worry about this as the serial correlation LM test in Table 6 has shown that the variables in the model are not serially correlated.

Table 39: OLS Regression: NOI, TDTA, TDTE, STDTA, TANG, RISK and BSIZE

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	**-1188884.**	817477.2	**-1.454333**	0.1765
TDTA	-129.5941	16931.14	-0.007654	0.9940
TDTE	2.046846	50.62876	0.040429	0.9685
STDTA	**5251.261**	16269.41	**0.322769**	0.7535
TANG	52512.33	49709.08	1.056393	0.3156
RISK	149686.5	12794.34	11.69943	0.0000
BSIZE	**0.036937**	0.019104	**1.933467**	0.0820
R-squared	**0.965334**	Mean dependent var		**250288.2**
Adjusted R-squared	0.944535	S.D. dependent var		595413.6
S.E. of regression	**140225.8**	Akaike info criterion		**26.83280**
Sum squared resid	1.97E+11	Schwarz criterion		27.17588
Log likelihood	**-221.0788**	Hannan-Quinn criter.		**26.86690**
F-statistic	46.41180	Durbin-Watson stat		1.337896
Prob (F-statistic)	**0.000001**			

Source: Data output via E-views 9.0

Relative Statistics Interpretations

The relative statistic shows that it is only total debt to total assets that has negative but insignificant relationship with net operating income as a positive relationship was

observed between net operating income, total debt to total equity, short term debt to total assets, tangibility, bank size and risk. If total debt to total assets, total debt to total equity, short term debt to total assets, tangibility, bank size and risk are held constant, net operating income would be ₦-1188884. A unit rise in total debt to total equity, short term debt to total assets, tangibility, bank size and risk would correspondently increase net operating income by 2.046846, 5251.261, 52512.33, 149686.5 and 0.036937 factor respectively. Net operating income would depreciate by -129.5941 if total debt to total assets appreciates by a unit.

Interest Income and Financial Structure

Global Utility Interpretations

From Table 40 shows that 96.70% variation in interest income was attributed to financial structure decision computed indices controlled by tangibility, bank size and risk. This shows a good of fit for the model as such explanation of variation in the dependent variable is very high in statistical term. Furthermore, the p-value of the F-statistic affirmed the significance of this variation in interest income owing to fluctuation in financial structure and control variables. The Durbin Watson value of 1.7 in approximation is quite close to 2.0 showing that there is no autocorrelation problem in the model.

Table 40: OLS Regression: INTI, TDTA, TDTE, STDTA, TANG, RISK and BSIZE

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	**-855885.8**	1326194.	**-0.645370**	0.5368
TDTA	-68096.18	29842.13	-2.281881	0.0519
TDTE	19.75458	67.53254	0.292519	0.7773
STDTA	**47177.51**	22899.46	**2.060202**	0.0733
TANG	524080.1	110608.6	4.738150	0.0015
RISK	30454.54	19505.72	1.561313	0.1571
BSIZE	**0.078869**	0.048765	**1.617318**	0.1445
R-squared	**0.982421**	Mean dependent var		**719883.6**
Adjusted R-squared	0.967039	S.D. dependent var		634241.1
S.E. of regression	**115147.6**	Akaike info criterion		**26.45267**
Sum squared resid	1.06E+11	Schwarz criterion		26.83896
Log likelihood	**-203.6214**	Hannan-Quinn criter.		**26.47245**
F-statistic	63.86897	Durbin-Watson stat		1.667990
Prob (F-statistic)	**0.000002**			

Source: Data output via E-views 9.0

Relative Statistics Interpretations

Table 40 also shows that it is only total debt to total assets that has negative but insignificant relationship with interest income of deposit money banks in Nigeria for the period studied. Keeping total debt to total assets, total debt to total equity, short term debt to total assets, tangibility, bank size and risk constant, interest income would be ₦-855885.8. A percentage increase in total debt to total equity, short term debt to total assets, tangibility, bank size and risk would respectively cause 19.75458, 47177.51, 524080.1, 30454.54 and 0.078869 factor rise in interest income. A unit increase in total debt to total assets lowers interest income by a factor of -68096.18.

Non Net Interest Income and Financial Structure

Global Utility Interpretations

Table 41 reveals that 83.48% changes in non interest income was as a result of the joint influence of total debt to total assets, total debt to total equity, short term debt to total assets, tangibility, bank size and risk. This changes in non interest income is found to be significant as affirmed by the p-value of the f-statistic. The Durbin Watson of 1.97 is quite close to the benchmark of 2.0. Therefore, the variables in the model are not serially correlated which make inferences devoid of spurious/non-sense assumption adduced for very low value of Durbin Watson.

Table 41: OLS Regression: NINTI, TDTA, TDTE, STDTA, TANG, RISK and BSIZE

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	**-860790.1**	677311.9	**-1.270892**	**0.2325**
TDTA	19356.28	14028.11	1.379821	0.1977
TDTE	-47.17214	41.94791	-1.124541	0.2871
STDTA	**-5876.233**	13479.84	**-0.435927**	0.6721
TANG	-31010.42	41185.92	-0.752937	0.4688
RISK	-26660.32	10600.61	-2.514979	0.0306
BSIZE	**0.037486**	0.015828	**2.368276**	0.0394
R-squared	**0.896751**	Mean dependent var		**346943.4**
Adjusted R-squared	0.834801	S.D. dependent var		285849.3
S.E. of regression	**116182.5**	Akaike info criterion		**26.45661**
Sum squared resid	1.35E+11	Schwarz criterion		26.79970
Log likelihood	**-217.8812**	Hannan-Quinn criter.		**26.49072**
F-statistic	14.47548	Durbin-Watson stat		1.969687
Prob (F-statistic)	**0.000206**			

Source: Data output via E-views 9.0

Relative Statistics Interpretations

From Table 41, total debt to total equity, short term debt to total assets, tangibility and risk have negative relationship with non interest income but only the relationship between risk and non interest income was found to be significant. A percentage rise in total debt to total equity, short term debt to total assets, tangibility and risk would result in an equivalent 47.17214, 5876.233, 31010.42 and 26660.32 reduction in non-net interest income of deposit money banks. Increasing total debt to total assets and bank size by a unit would in turn appreciate non net interest income by 19356.28 and 0.037486 respectively but that of bank size is statistically significant.

4.9 Variance Decomposition

This study went further to ascertain which of the financial structure variables as well as control variables influences each of the performance calculated indices most. This was done by performing the variance decomposition of the estimated models and the result summarised in Table 42 to 46. The result in Table 42 shows that total debt to total assets exerted greater impact on return on assets followed by total debt to total equity and short term debt to total assets. For the control variables, the ratio of fixed assets to total assets was found to have influenced return on assets more compared to risk and total assets of deposit money banks as expressed by bank size. For return on equity as shown in Table 43, total debt to total equity was more in explaining the changes in return on equity relative to total debt to total assets and short term debt to total assets while risk has upper hand in influencing return on equity compared to bank size and tangibility.

Table 42: Variance Decomposition of ROA

Period	S.E.	ROA	TDTA	TDTE	STDTA	TANG	RISK	BSIZE
1	3.593245	100.0000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	5.110029	75.43404	6.456171	0.052780	13.86613	2.066401	2.008811	0.115661
3	10.65970	19.90328	44.73063	18.68518	11.18123	2.961593	2.501999	0.036095
4	31.21817	5.941478	49.34731	31.62457	8.147948	2.560205	2.326470	0.052023
5	98.15702	4.815359	50.39579	31.73166	8.096213	2.572147	2.338830	0.049996
6	309.7109	4.774460	50.23679	31.86405	8.148809	2.582594	2.344544	0.048749
7	978.7427	4.751259	50.31160	31.80387	8.153989	2.585107	2.345582	0.048594
8	3092.395	4.750599	50.29527	31.82249	8.152929	2.584722	2.345383	0.048605
9	9771.414	4.749782	50.30052	31.81800	8.152894	2.584783	2.345410	0.048606
10	30875.24	4.749974	50.29898	31.81940	8.152875	2.584759	2.345399	0.048606

Source: Data output via E-views 9.0

Nevertheless, the variation in return on assets and return on equity were explained more themselves. From Table 44, total debt to total equity explained more of the variation in net operating income than total debt to total assets and short term debt to total assets while from the control variables, tangibility influenced net operating income more than risk and bank size.

Table 43: Variance Decomposition of ROE

Period	S.E.	ROE	TDTA	TDTE	STDTA	TANG	RISK	BSIZE
1	19.44080	100.0000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	43.57509	33.51722	44.44701	21.14966	0.131747	0.055594	0.544431	0.154340
3	66.51461	16.77432	19.09692	60.59354	0.219552	0.076721	2.741516	0.497431
4	90.46041	30.88130	18.53696	47.77535	0.330372	0.125350	1.999323	0.351340
5	106.3938	22.32442	14.29592	57.95855	0.252943	0.113704	4.590816	0.463656
6	136.7735	37.95080	17.13609	38.83460	0.525504	0.216036	5.050088	0.286879
7	164.2846	32.77866	17.26491	39.16585	0.508291	0.256508	9.673307	0.352480
8	231.0308	46.94218	20.99140	19.82089	0.776556	0.367556	10.91052	0.190901
9	320.3907	44.90830	22.25160	16.61444	0.787502	0.415051	14.80507	0.218034
10	493.4489	51.50635	23.91673	7.979857	0.908108	0.462360	15.08371	0.142886

Source: Data output via E-views 9.0

Table 44: Variance Decomposition of NOI

Period	S.E.	NOI	TDTA	TDTE	STDTA	TANG	RISK	BSIZE
1	695656.8	100.0000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	746118.7	95.69186	0.008611	3.906652	0.125104	0.206433	0.029333	0.032002
3	758926.3	92.56475	0.099433	6.908170	0.155324	0.210143	0.031234	0.030949
4	761424.5	92.04879	0.438356	7.060969	0.158055	0.220057	0.031830	0.041947
5	774678.8	91.31038	0.426994	7.757801	0.154439	0.213681	0.095467	0.041235
6	780284.4	90.17251	0.832887	8.437270	0.171214	0.234651	0.101639	0.049832
7	791454.6	89.70905	0.848642	8.816788	0.170537	0.228332	0.177509	0.049145
8	797041.0	88.73699	1.301597	9.277529	0.184745	0.251722	0.191906	0.055510
9	808388.0	88.42037	1.344004	9.476189	0.185323	0.245959	0.273848	0.054308
10	814540.7	87.56403	1.816193	9.793766	0.200669	0.269153	0.296445	0.059740

Source: Data output via E-views 9.0

Table 45: Variance Decomposition of INTI

Period	S.E.	INTI	TDTA	TDTE	STDTA	TANG	RISK	BSIZE
1	256920.4	100.0000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	400230.0	64.75993	7.964435	21.26444	0.371091	1.653237	3.920121	0.066744
3	450964.1	56.98254	8.991074	28.45492	1.118275	1.311742	3.087699	0.053754
4	695788.1	74.53590	8.499689	14.06661	0.841276	0.639804	1.388721	0.028001
5	772746.8	63.61334	7.664582	25.21209	1.441615	0.618966	1.421187	0.028221
6	889731.8	69.88868	7.762767	19.51110	1.220877	0.486420	1.106898	0.023254
7	923069.4	65.03289	7.273711	24.41503	1.446648	0.546832	1.257407	0.027480
8	981845.7	68.41123	7.049666	21.58770	1.304449	0.492955	1.128630	0.025372
9	1006967.	66.21319	6.798734	23.71827	1.348826	0.575253	1.315424	0.030302
10	1030109.	67.01397	6.603728	23.20378	1.295199	0.563023	1.289906	0.030391

Source: Data output via E-views 9.0

Table 46: Variance Decomposition of NINTI

Period	S.E.	NINTI	TDTA	TDTE	STDTA	TANG	RISK	BSIZE
1	124820.5	100.0000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	151769.6	95.42766	3.763455	0.016562	0.022525	0.719561	0.001308	0.048928
3	174629.9	84.17904	14.59697	0.214919	0.271238	0.657113	0.002139	0.078581
4	204770.8	73.08915	21.54197	2.035836	0.581804	1.080390	1.601304	0.069552
5	227978.0	60.74989	33.56093	1.876438	0.470757	1.280828	2.000257	0.060899
6	244341.0	55.80248	35.84021	3.682025	0.546255	1.502704	2.571544	0.054783
7	255304.9	51.73010	39.70300	3.608464	0.500452	1.654143	2.748740	0.055099
8	265177.8	49.25733	41.04516	4.259064	0.506936	1.827345	3.047601	0.056563
9	275360.4	45.76495	44.34855	4.165363	0.471061	1.968676	3.221125	0.060276
10	287188.3	42.85683	46.43435	4.556232	0.471102	2.118945	3.500767	0.061772

Source: Data output via E-views 9.0

From Table 45 and 46, total debt to total equity was more in causing changes in interest income while total debt to total assets cause greater changes in non interest income in comparison to other financial structure variables. In terms of the control variables, risk most influence net interest income while tangibility most influenced non interest income. The variation in interest income and non-interest income was most explained by the variation in interest income and non-interest income itself.

4.10 Impulse Response Function

To empirically trace the effect of one time shock to innovation financial structure variables on current values of deposit money banks performance indices expressed via return on assets, return on equity, net operating income, net interest income and non-net interest income, the impulse response function was estimated and the result condensed in Tables 47 to 51. Table 47 shows that return on assets responds negatively to any shock in total debt to total assets and total debt to total equity in

period 2, 4, 6, 8 and 10 which continue in the long run. However, for any shock in short term debt to total assets would negatively affect return on assets in the short run but positively in the long run. For return on equity, a one-time shock on total debt to total equity and short term debt to total assets would only positively affect return on equity in the short run (see period 1 and 7 for total debt to total equity and period 1, 3, 5, 7 and 9 for total debt to total assets) but in the long run return on equity will responds negatively to one-time shock on total debt to total equity and short term debt to total assets.

Table 47: Impulse Response Function of ROA

Period	ROA	TDTA	TDTE	STDTA	TANG	RISK	BSIZE
1	3.593245	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	-2.605038	-1.298407	-0.117398	1.902835	-0.734566	-0.724257	-0.173787
3	1.708306	7.010079	4.606304	-3.014028	1.680967	1.522647	-0.103981
4	-5.940384	-20.73883	-16.94028	8.167168	-4.646058	-4.453108	0.682632
5	20.15059	66.14082	52.43164	-26.46972	14.92884	14.23617	-2.076068
6	-64.15412	-208.1634	-165.8523	83.88296	-47.21678	-44.98405	6.476401
7	202.3225	658.6091	523.5426	-265.1296	149.2865	142.1981	-20.46310
8	-639.3601	-2080.321	-1654.840	837.5840	-471.6046	-449.2412	64.67298
9	2020.104	6574.003	5228.464	-2646.652	1490.232	1419.550	-204.3544
10	-6383.216	-20771.69	-16521.14	8362.734	-4708.719	-4485.400	645.7106

Source: Data output via E-views 9.0

Table 48: Impulse Response Function of ROE

Period	ROE	TDTA	TDTE	STDTA	TANG	RISK	BSIZE
1	19.44080	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	16.07720	29.05090	20.03965	1.581647	1.027428	3.215213	-1.711897
3	-10.28141	0.964345	-47.74084	-2.685481	1.529267	10.53339	4.367693
4	42.24825	25.92317	35.05314	-4.161877	2.619780	6.505099	-2.596758
5	0.046944	10.06737	-51.48985	-1.263990	1.616586	18.86950	4.871725
6	67.61954	39.84216	26.53443	-8.347077	5.248140	20.61685	-1.087308
7	41.80097	38.13204	-57.49657	-6.235279	5.368076	40.81728	6.439390
8	127.3135	80.89816	2.968654	-16.65244	11.26738	56.68110	2.600301
9	145.0619	107.8754	-80.46930	-19.84650	15.16135	96.81901	11.04169
10	281.6297	188.1328	-48.73954	-37.45393	26.45296	146.7316	11.14019

Source: Data output via E-views 9.0

From Table 49, any shock in any of the financial structure would negatively affect net operating income both in short run (except for period 1 and 2) and long run. As cab be seen in Table 45 and 46, net interest income and non-net interest income respond negatively to one-time shock from total debt to total assets and short term debt to total assets in the long run but positively for just 2 period in the short run. From the

impulse response function, it would deduced that a one-time shock in financial structure would negatively affect deposit money banks performance in the long run.

Table 49: Impulse Response Function of NOI

Period	NOI	TDTA	TDTE	STDTA	TANG	RISK	BSIZE
1	695656.8	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	-220842.9	6923.516	-147472.2	26390.28	-33899.85	12778.71	13347.47
3	20840.29	22907.84	134316.3	-14077.26	7820.482	4074.507	320.8075
4	22898.79	-44370.51	-33885.98	-4661.767	-8090.615	2154.852	8058.447
5	119623.9	-4589.050	74963.34	-3237.424	2557.278	-19707.51	-2065.180
6	32110.53	-50084.66	-69376.53	-10751.65	-12095.35	-6774.903	7479.196
7	113702.1	-15649.80	62117.66	-5081.309	-1272.710	-22205.63	-2107.602
8	42255.09	-54339.83	-60904.57	-10266.08	-12994.22	-10354.46	6693.244
9	118726.6	-22676.75	54665.35	-6117.906	-2862.950	-23883.90	-1502.903
10	56102.65	-57158.29	-55256.49	-10969.26	-13358.48	-13314.33	6439.070

Source: Data output via E-views 9.0

Table 50: Impulse Response Function of INTI

Period	INTI	TDTA	TDTE	STDTA	TANG	RISK	BSIZE
1	256920.4	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	-194234.3	-112950.2	-184559.6	24380.91	-51460.88	79242.72	10339.86
3	-110224.9	-74345.61	154292.4	-40985.25	-4410.268	-41.73985	-1550.910
4	-494933.7	-151207.7	101148.7	-42409.61	-20730.54	21063.69	5122.340
5	-137895.9	-67965.65	287143.6	-67347.08	24467.41	-41992.33	-5741.489
6	-416407.8	-125234.6	62477.28	-32500.98	-12430.86	16613.61	3945.059
7	-29372.66	-22898.68	231464.3	-51590.01	28437.93	-44174.31	-7075.351
8	-324624.7	-77356.92	8943.048	-15776.59	-9636.619	12899.89	3231.916
9	109046.3	31267.71	179969.5	-33191.56	32875.04	-49577.52	-7916.435
10	-199278.2	-33702.00	-75643.28	8174.612	-11891.91	18690.53	3902.087

Source: Data output via E-views 9.0

Table 51: Impulse Response Function of NINTI

Period	NINTI	TDTA	TDTE	STDTA	TANG	RISK	BSIZE
1	124820.5	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	-80004.10	29442.73	1953.153	-2277.823	-12874.15	548.9119	3357.097
3	60746.09	-59871.19	-7856.587	8804.951	-5886.166	592.5610	3562.801
4	-70541.92	-67685.62	28073.24	-12698.07	-15894.29	25899.64	2280.405
5	30447.83	-91706.98	11027.76	-845.1216	-14583.48	19187.73	1577.182
6	-41729.69	-62885.36	34971.46	-9025.353	-15213.66	22263.51	1027.210
7	20061.95	-66941.25	12399.83	263.3518	-13454.65	16011.50	1790.883
8	-30321.95	-54626.18	25355.97	-5502.444	-14380.39	18745.84	1964.912
9	7943.905	-69020.88	12781.76	-836.5152	-14413.19	17300.65	2434.913
10	-25427.86	-68345.95	24485.35	-5601.568	-15966.50	21094.26	2290.116

Source: Data output via E-views 9.0

4.11 Effect of Financial Structure on Deposit Money Banks Performance

To clearly show the effect of financial structure variables on return on assets, return on equity, net operating income, interest income and non-interest come, the granger estimation using the OLS procedure was performed using a time lag of 1 based on the

fact that the data is on yearly basis and the results summarised in Tables 52 to 53 The result in Table 52 shows that short term debt to total assets, a surrogate of financial structure granger cause return on assets, that is, there is a unidirectional/one way relationship between financial structure and return on assets of deposit money banks in Nigeria as causality flows from short term debt to total assets to return on assets at 5% level of significance. This is to say that financial structure has significant effect on return on assets. On the other hand, it is observed that return on assets granger cause total debt to total assets of deposit money banks. Therefore, there is bidirectional relationship between financial structure and return on assets of deposit money banks in Nigeria. Tangibility, risk and bank size have no significant effect on return on assets.

Table 52: Granger Causality Result for ROA and Financial Structure

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
TDTA does not Granger Cause ROA	16	2.60199	0.1307	No Causality
ROA does not Granger Cause TDTA		5.77451	0.0319	Causality
TDTE does not Granger Cause ROA	16	0.96299	0.3443	No Causality
ROA does not Granger Cause TDTE		0.22369	0.6441	No Causality
STDTA does not Granger Cause ROA	16	3.48591	0.0846	No Causality
ROA does not Granger Cause STDTA		6.25550	0.0265	Causality
TANG does not Granger Cause ROA	16	0.60379	0.5410	No Causality
ROA does not Granger Cause TANG		0.08183	0.7793	No Causality
RISK does not Granger Cause ROA	16	0.43967	0.5189	No Causality
ROA does not Granger Cause RISK		1.57628	0.2314	No Causality
BSIZE does not Granger Cause ROA	16	1.68671	0.2166	No Causality
ROA does not Granger Cause BSIZE		0.05810	0.8133	No Causality

Source: Data output via E-views 9.0

As can be seen in Table 53, there is a two way/bidirectional relationship between total debt to total assets, short term debt to total assets and return on equity as total debt to total assets and short term debt to total assets granger causes return on equity at 5% level of significance. Causality runs in both directions. This result shows that financial structure has significant effect on return on equity of deposit money banks on one hand and return on equity of deposit money banks significantly affect financial

structure in the other hand. One of the control variables –risk was found to have granger cause/significantly effect return on equity.

Table 53: Granger Causality Result for ROE and Financial Structure

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
TDTA does not Granger Cause ROE	16	6.92179	0.0208	Causality
ROE does not Granger Cause TDTA		9.34846	0.0092	Causality
TDTE does not Granger Cause ROE	16	1.79358	0.2034	No Causality
ROE does not Granger Cause TDTE		0.01029	0.9207	No Causality
STDTA does not Granger Cause ROE	16	10.3211	0.0068	Causality
ROE does not Granger Cause STDTA		8.65446	0.0114	Causality
TANG does not Granger Cause ROE	16	2.34394	0.1497	No Causality
ROE does not Granger Cause TANG		0.01963	0.8907	No Causality
RISK does not Granger Cause ROE	16	6.55555	0.0237	Causality
ROE does not Granger Cause RISK		0.34562	0.5667	No Causality
BSIZE does not Granger Cause ROE	16	3.12566	0.1005	No Causality
ROE does not Granger Cause BSIZE		0.02875	0.8680	No Causality

Source: Data output via E-views 9.0

Table 54: Granger Causality Result for NOI and Financial Structure

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
TDTA does not Granger Cause NOI	16	0.05836	0.8129	No Causality
NOI does not Granger Cause TDTA		2.74458	0.1215	No Causality
TDTE does not Granger Cause NOI	16	2.69181	0.1248	No Causality
NOI does not Granger Cause TDTE		1.00331	0.3348	No Causality
STDTA does not Granger Cause NOI	16	0.81062	0.3843	No Causality
NOI does not Granger Cause STDTA		5.97286	0.0295	Causality
TANG does not Granger Cause NOI	16	1.76192	0.2072	No Causality
NOI does not Granger Cause TANG		0.04206	0.8407	No Causality
RISK does not Granger Cause NOI	16	3.01452	0.1061	No Causality
NOI does not Granger Cause RISK		0.22241	0.6450	No Causality
BSIZE does not Granger Cause NOI	16	3.72770	0.0756	No Causality
NOI does not Granger Cause BSIZE		0.15223	0.7027	No Causality

Source: Data output via E-views 9.0

Table 55: Granger Causality Result for NII and Financial Structure

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
TDTA does not Granger Cause INTI	16	0.03082	0.8634	No Causality
INTI does not Granger Cause TDTA		1.43721	0.2520	No Causality
TDTE does not Granger Cause INTI	16	0.00835	0.9286	No Causality
INTI does not Granger Cause TDTE		0.28677	0.6013	No Causality
STDTA does not Granger Cause INTI	16	0.04560	0.8342	No Causality
INTI does not Granger Cause STDTA		0.00352	0.9536	No Causality
TANG does not Granger Cause INTI	16	1.18826	0.2955	No Causality
INTI does not Granger Cause TANG		0.04206	0.8407	No Causality
RISK does not Granger Cause INTI	16	1.15149	0.3028	No Causality
INTI does not Granger Cause RISK		0.54453	0.4737	No Causality
BSIZE does not Granger Cause INTI	16	9.31579	0.0093	Causality
INTI does not Granger Cause BSIZE		0.79280	0.3894	No Causality

Source: Data output via E-views 9.0

Table 54 depicts that a financial structure variable- short term debt to total assets granger cause net operating income. Causality flows from short term debt to total assets at 5% significance level. This result entails that financial structure has significant effect on net operating income of deposit money banks within the period studied. Nevertheless, none of the control variables exerted significant effect on net operating income.

Table 56: Granger Causality Result for NINTI and Financial Structure

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
TDTA does not Granger Cause NINTI	16	0.29152	0.5984	No Causality
NINTI does not Granger Cause TDTA		3.07086	0.1032	No Causality
TDTE does not Granger Cause NINTI	16	8.36100	0.0126	Causality
NINTI does not Granger Cause TDTE		4.08802	0.0643	No Causality
STDTA does not Granger Cause NINTI	16	0.08476	0.7755	No Causality
NINTI does not Granger Cause STDTA		1.00954	0.3333	No Causality
TANG does not Granger Cause NINTI	16	1.41106	0.2561	No Causality
NINTI does not Granger Cause TANG		1.50554	0.2416	No Causality
RISK does not Granger Cause NINTI	16	1.40331	0.2574	No Causality
NINTI does not Granger Cause RISK		0.25379	0.6228	No Causality
BSIZE does not Granger Cause NINTI	16	13.1781	0.0031	Causality
NINTI does not Granger Cause BSIZE		0.27600	0.6082	No Causality

Source: Data output via E-views 9.0

None of the financial structure variables- total debt to total assets, short term debt to total assets and total debt to total equity exert significant effect on interest income as revealed in Table 55 Causality does not flow from financial structure to interest income neither does it run from interest income to financial structure. Bank size which is a control variables significantly influences interest income. Table 56 reveals that there is a unidirectional relationship between non interest income and financial structure variable-total debt to total equity at 5% level of significance. Causality runs from total debt to total equity to non-interest income. The implication of this finding is that financial structure has significant effect on non-interest income of deposit money banks in Nigeria. The result in Table 54 also discloses that bank size as measured by total assets has significant effect on non-interest income.

4.12 Test of Hypotheses

Decision Criteria: If the p-value of F-statistic in granger causality test is less than 0.05, the null hypothesis is rejected. On the other hand, if the p-value of F-statistic in granger causality test is greater than 0.05, the null hypothesis is accepted.

Hypothesis One

Restatement of Research Hypothesis

H_0: Financial structure has no significant effect on return on assets of deposit money banks.

H_1: Financial structure has significant effect on return on assets of deposit money banks.

The regression output in Table 57 discloses that the p-value of the f-statistic (0.0319) and (0.0265) for total debt to total assets and short term debt to total assets are less the hypothesis decision rule (0.05), an evidence that financial structure has significant effect on return on assets of deposit money banks Nigeria.. In the light of this, the null hypothesis that financial structure has no significant effect on return on assets of deposit money banks is rejected and the alternate hypothesis accepted.

Table 57: Hypothesis One

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
TDTA does not Granger Cause ROA	16	2.60199	0.1307	No Causality
ROA does not Granger Cause TDTA		5.77451	0.0319	Causality
TDTE does not Granger Cause ROA	16	0.96299	0.3443	No Causality
ROA does not Granger Cause TDTE		0.22369	0.6441	No Causality
STDTA does not Granger Cause ROA	16	3.48591	0.0846	No Causality
ROA does not Granger Cause STDTA		6.25550	0.0265	Causality

Source: Data output via E-views 9.0

Hypothesis Two

Restatement of Research Hypothesis

H_0: Financial structure has no significant effect on return on equity of deposit money banks.

H_1: Financial structure has significant effect on return on equity of deposit money banks.

From Table 58, (0.009) and (0.0114) as p-values of total debt to total assets and short term debt to total assets respectively are lower than (0.05) thus financial structure has significant effect on return on equity of deposit money banks in Nigeria. To this effect, the null hypothesis that financial structure has no significant effect on return on equity of deposit money banks is would not be accepted and the alternate hypothesis accepted.

Table 58: Hypothesis Two

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
TDTA does not Granger Cause ROE	16	6.92179	0.0208	Causality
ROE does not Granger Cause TDTA		9.34846	0.0092	Causality
TDTE does not Granger Cause ROE	16	1.79358	0.2034	No Causality
ROE does not Granger Cause TDTE		0.01029	0.9207	No Causality
STDTA does not Granger Cause ROE	16	10.3211	0.0068	Causality
ROE does not Granger Cause STDTA		8.65446	0.0114	Causality

Source: Data output via E-views 9.0

Hypothesis Three

Restatement of Research Hypothesis

H_0: Financial structure has no significant effect on net operating income of deposit money banks.

H_1: Financial structure has significant effect on net operating income of deposit money banks.

As can be seen in Table 59, (0.0295) as p-value of short term debt to total assets: a financial structure variable is less than hypothesis yardstick (0.05). As a result, the null hypothesis that financial structure has no significant effect on net operating income of deposit money banks is rejected and the alternate hypothesis which assumes the significant effect of financial structure on net operating income accepted.

Table 59: Hypothesis Three

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
TDTA does not Granger Cause NOI	16	0.05836	0.8129	No Causality
NOI does not Granger Cause TDTA		2.74458	0.1215	No Causality
TDTE does not Granger Cause NOI	16	2.69181	0.1248	No Causality
NOI does not Granger Cause TDTE		1.00331	0.3348	No Causality
STDTA does not Granger Cause NOI	16	0.81062	0.3843	No Causality
NOI does not Granger Cause STDTA		5.97286	0.0295	Causality

Source: Data output via E-views 9.0

Hypothesis Four

Restatement of Research Hypothesis

H_0: Financial structure has no significant effect on interest income of deposit money banks.

H_1: Financial structure has significant effect on interest income of deposit money banks.

The p-values (0.2520), (0.6013) and (0.9536) for total debt to total assets, total debt to total equity and short term debt to total assets in Table 60 are greater than the hypothesis decision rule (0.05). Therefore, the null hypothesis that financial structure has effect on interest income of deposit money banks is accepted while the alternate hypothesis rejected.

Table 60: Hypothesis Four

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
TDTA does not Granger Cause INTI	16	0.03082	0.8634	No Causality
INTI does not Granger Cause TDTA		1.43721	0.2520	No Causality
TDTE does not Granger Cause INTI	16	0.00835	0.9286	No Causality
INTI does not Granger Cause TDTE		0.28677	0.6013	No Causality
STDTA does not Granger Cause INTI	16	0.04560	0.8342	No Causality
INTI does not Granger Cause STDTA		0.00352	0.9536	No Causality

Source: Data output via E-views 9.0

Hypothesis Five

Restatement of Research Hypothesis

H_0: Financial structure has no significant effect on non interest income of deposit money banks.

H_1: Financial structure has significant effect on non interest income of deposit money banks.

Table 61: Hypothesis Five

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
TDTA does not Granger Cause NINTI	16	0.29152	0.5984	No Causality
NINTI does not Granger Cause TDTA		3.07086	0.1032	No Causality
TDTE does not Granger Cause NINTI	16	8.36100	0.0126	Causality
NINTI does not Granger Cause TDTE		4.08802	0.0643	No Causality
STDTA does not Granger Cause NINTI	16	0.08476	0.7755	No Causality
NINTI does not Granger Cause STDTA		1.00954	0.3333	No Causality

Source: Data output via E-views 9.0

The p-value (0.0126) for total debt to total equity - financial structure variable in Table 61 is lower than (0.05) hypothesis decision rule. In this regard, the null hypothesis that financial structure has no significant effect on non interest income of deposit money banks is rejected while the alternate hypothesis that financial structure has significant effect on non interest income of deposit money banks accepted.

4.13 Discussion of Findings

The negative relationship between two financial structure variables- total debt to total assets and total debt to total equity as shown in Table 37 is in agreement with the pecking order theory which states that firm prefer internal financing to external fund. This may be hinged to the fact that the major component of deposit money banks debt in Nigeria are short term based and sourced from small account holder which affect efficiency by reducing profit as the fund are withdrawn anytime by the customers. This findings supports the result of Anarfor (2015) for Sub Saharan Africa, Shiferaw (2013) for Ethiopa, Awunyi-Vitor and Badu (2012) for Ghana, Taani (2013) for Jordan. Nikko (2015) for Iran, Mujahid, Zuberi, Rafiq, Sameen and Shakoor (2014) for Pakistan, Sharma and Verma (2016) for India, Siddik, Kabiraj and Joghee (2016) for Bangladesh and Zaroki and Rouhi (2015) on the negative relationship between financial structure and return on assets. The findings in respect of total debt to total assets and total debt to total equity and return on assets did not negate previous findings in the context of the banking industry.

For Table 38, it was observed that total debt to total equity has negative but insignificant relationship with return on equity of deposit money banks. This could be attributed to that assumption that if ratio of total debt to total equity increase, the financial risk borne by shareholders of banks also increases. This is the reason why shareholders demand high reward in proportion to risk they are exposed to, by

imputing their capital due to rising debt in the financial structure. This result is inconsistent with previous studies of Siddik, Kabiraj and Joghee (2016), Sharma and Verma (2016), Mujahid, Zuberi, Rafiq, Sameen and Shakoor (2014), Nikko (2015), Awunyi-Vitor and Badu (2012) and Anarfor (2015) for Bangladesh, India, Pakistan, Iran, Ghana and Sub Saharan Africa respectively. In a similar manner, it contradicts the works of Shiferaw (2013), Taani (2013), Zafar, Zeeshan and Ahmed (2016), Abbadi and Abu-Rub (2012) and Zaroki and Rouhi (2015) for Ethiopa, Jordan, Kenya, Pakistan, Palestinian and Iran respectively.

As shown in Table 39, total debt to total assets negatively relates with net operating income of deposit money banks in Nigeria. The result is evidence that deposit money banks in Nigeria rely on customers deposits to make profit which becomes a liability to them. This may be linked with the level of development in the capital market where banks do not get the fund needed for operation thus relying majorly on short term customers deposits. This is why there was jittery in the banking industry when the Federal government of Nigeria implemented the Treasury Single Account (TSA) policy. The negative relationship also may be that the cost incurred in sourcing fund outside the customer's deposits is considerably high such that it affects performance. This is in line with the works of Shiferaw (2013) for Ethiopia but refutes the study in the context of Jordan by Taani (2013).

Net interest income was found to be negatively related with total debt to total assets as evidenced in Table 40 This gives an idea that when a banks borrows externally to finance in the current level of interest rate in Nigeria, the cost of such fund would in most cases higher the profit derived from the usage of the funds. This concurs with the results of Anarfor (2015) and Taani (2012) that interest income of the banks in Ethiopia, Jordan and Kenya are negatively related. Looking at Table 41,

the non-interest income of banks is also negatively related with financial structure variables-total debt to total equity and short term debt to total assets. This also lays credence to that fact that in the present macroeconomic uncertainty in Nigeria, deposit money banks externally seeking finance to invest in non-banking areas in form of off balance engagement may be negatively affected by the cost of the borrowed fund. This is in connection with the pecking order theory that internal financing and retained earnings remain the greatest priority of any firm to finance business operations. The granger causality test shows that tangibility has significant effect on net interest income and non-net interest of deposit money banks in Nigeria. This insinuates that banks investment in fixed assets relative to total assets inclusive of off balance sheet engagement has the potential of increasing net interest income and non-net interest income.

4.14 A Priori Expectation

The a priori expectation was based on the postulations of the pecking order theory which is widely accepted and used in empirical studies in supporting the financial structure and performance nexus. The observed signs for the independent variables were adjudged on the average number of appearance as regressed via the different measurements of deposit money banks performance. total debt to total assets, total debt to total equity, risk and bank size were majorly found to have conform to a priori expectation where short term debt and tangibility did not at a high extent confirm to a priori expectation.

Table 62: A Priori Expectation

Independent Variables	Expected Signs	Observed Signs	Remarks
TDTA	-	-	Aligned
TDTE	-	-	Aligned
STDTA	-	+	Not Aligned
TANG	+	-	Not Aligned
RISK	+	+	Aligned
BSIZE	+	+	Aligned

Source: Regression Outputs in Tables 4.8a-4.8e

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of Findings

This study ascertained the effect of financial structure on performance of the deposit money banks in Nigeria in such a way that the effect of total debt to total assets, total debt to total equity and short term debt to total assets inclusive of tangibility, risk and bank size as control variables on return on assets, return on equity, net operating income, net interest income and non-interest income were ascertained from 1999 to 2015. The results of the study specifically and precisely depicts the following:

- Financial structure has significant effect on return on assets of deposit money banks in Nigeria. Financial structure controlled by tangibility, risk and bank size significantly accounted for 88.45% variation in return on assets.
- Financial structure significantly effects return on equity of deposit money banks. 77.88% changes in return on equity was as a result of joint influence of financial structure variables owing to the existence of positive insignificant relationship between financial structure variables and return on equity.
- Net operating income of deposit money banks in Nigeria is significantly affected by financial structure decision. Financial structure significantly explained about 94.45% variation in net operating income of deposit money banks.
- Interest income of deposit money banks in Nigeria is not significantly determined by financial structure as 96.70% magnitude of change in interest income was caused by financial structure inclusive of control variables.
- Financial structure has significant effect on non-interest income of deposit money banks in Nigeria and significantly explained 83.48% variation in non

interest income coupled with the negative relationship between financial structure and non-interest income.

The general results from the analysis of the models developed in this study showed that financial structure has negative significant effect on return on assets, return on equity, net operating income, interest income and non-interest income of deposit money banks in Nigeria. This validates that the pecking order theory of financial structure is applicable in the Nigeria banking industry and consistent with previous studies.

5.2 Conclusion

The performance of deposit money banks depends on the financial structure decisions taken by management, considering the fact that customers deposit in banks are mainly on short term bases which constitutes over 90% of deposit money banks liability. The result of this research has shown that financial structure has negative effect on performance of deposit money banks in Nigeria within the period studied and upheld the applicability of the pecking order theory in the Nigeria's banking industry. This is not the end to the nexus on financial structure performance linkage, rather a starting point to the unending debate having deep regard to banking industries of emerging economies.

5.3 Recommendations

In considerations of the findings of this study, the following suggestions are put forward for policy formulations of deposit money banks management in Nigeria.

- The negative effect of financial structure on return on assets is an implication that deposit money banks should reduce the debt ratio to avoid the negative consequences of rising financial leverage via liquidity risk/bankruptcy and financial distress.

- To improve wealth of shareholders, deposit money banks should fund their operations largely from other external source of finance such as bond market to ensure diversification instead of relying heavily on the short term deposits of customers.
- Deposit money banks should aim at increasing their assets, especially investment in off balance engagement as this positively relates with net operating income.
- To increase interest income deposit money banks should have more assets that a tangible as higher ratio of fixed assets to total assets inclusive of off balance engagement would reduce debt equity level thus improving performance. Deposit Money banks should strive to improve deposit mobilization and should constitute a marketing team that would be charged on the effective and efficient utilization of these deposits. In order to increase interest income, they should set lending rates bearing competition in mind and such rates should not discourage depositors from accessing loans.
- Non interest income which is negatively affected by financial structures suggest that government and management should formulate policies to remove barrier for easy source of both equity and debt capital from bond and other financial market.

5.4 Contribution to Knowledge

This study adds to existing knowledge by distinctively examining the effect of financial structure on the banking sector as a whole by using up to date data as against the use of selected deposit money banks which constitutes a fraction of deposit money banks in Nigeria. Furthermore, the incorporation of non interest income as a measure

of deposit money banks performance to the best of my knowledge based on literature reviewed is the first of its kind in a study of this nature in the Nigerian context.

5.5 Suggestions for Further Studies

Though this study tried to deepen the financial structure and performance linkage by covering deposit money banks in Nigeria as reported by the Central Bank of Nigeria and Nigeria Deposit Insurance Corporation, there shortcoming that further studies should look into. In the first place, this study only focused on the effect of financial structure on deposit money banks in Nigerian thus, the effect of financial structure on non-bank financial institutions and microfinance banks is suggested for further studies. The study only utilized seventeen years (17) data which affected some analysis due to insufficient number of observation, a large and extended period should be covered by further studies to authenticate the robustness and inference made from analysis.

REFERENCES

Abbadi, S. M. & Abu-Rub, N. (2012). The Effect of capital structure on the performance of Palestinian financial institutions. *British Journal of Economics, Finance and Management Sciences, 3*(2), 92-101.

Abdul, G. K. (2010). The relationship of capital structure decisions with firm performance: A study of the engineering sector of Pakistan. COMSATS Institute of Information Technology, Vehari

Abor, J. (2005). The effect of capital structure on performance: An empirical analysis of listed firms in Ghana. *Journal of Risk Finance, 6,* 438-447.

Aburime, T. U. (2008). Determinants of bank performance: macroeconomic evidence from Nigeria. (Available at SSRN: hp://ssrn.com/abstract=1231064 or hp://dx.org/10.2139/ssm.1231064)

Adesina, J. B., Nwidobie, B. M., & Adesina O. O. (2015) Capital structure and financial performance in Nigeria. *International Journal of Business and Social Research, 5*(2), 21- 31.

Adeyemi, S. B. & Oboh C. S. (2011). Perceived relationship between corporate capital structure and firm value in Nigeria. *International Journal of Business and social Science, 2*(19), 131-142.

Agarawal, R. & Zhao, X. (2007).The leverage–value relationship puzzle: An industry effects resolution, *Journal of Economics and Business, 59*, 286-297.

Aggarwal, R. & Sutthisit, J., (2003). *Determinants of capital structure: Evidence from the G-7 countries*, in presentation at financial management association meeting (Denver, Colorado)

Aghabeygzadeh, S. & Akbarpour, M. (2011). Reviewing relationship between financial structure and banks performance in firms traded on the Tehran stock exchange. *International Journal of Business Administration, 2*(4), 175-180.

Ahmad, Z., Abdullah, N. H. & Roslan, S. (2012). Capital structure effect on banks performance: Focusing on consumers and industrials sectors on Malaysian banks. *International Review of Business Research Papers, 8*(5), 137-155.

Akani, H. W. & Lucky, A. L. (2015). Econometrics analysis of capital adequacy and the impact on performance of deposit money banks in Nigeria. *IOSR Journal of Economics and Finance, 6*(6), 11-24.

Akinyomi, O. J. (2013). Effect capital structure on banks performance: evidence from Nigerian manufacturing company. *International Journal of Innovative Research and Studies, 2*(9), 2319-9725.

Akhtar, N., Bano, M., Bano, S., Zia, H. T. & Jameel, N. (2016). Capital structure impact on banking sector performance in Pakistan. *International Review of Management and Business Research, 5*(2), 520-532.

Allahham, M. I. (2015). Impact of capital structure on bank financial performance of Al Ahli Bank in Saudi Arabia. *Global Journal of Management and Business Research*, 15(9): 1-9.

Alonso, P. D. A., Iturriaga, F. J. L. & Sanz, J. A. R. (2005). Financial decisions and growth opportunities: A Spanish firm's panel data analysis. *Applied Financial Economics, 8* (15), 391– 407.

Al-Taani, K. (2013). The relationship between capital structure and firm performance: evidence from Jordan. *Journal of Finance and Accounting, 1*(3), 41-45.

Aman, S. (2011). Ownership structure and corporate performance: evidence from India. *International Journal of Humanities and Social Sciences, 1*(1), 23-29.

Amanuel, M. (2011). The determinants of capital structure evidence from manufacturing share companies of Addis Ababa city, *Master's* dissertation, *Addis Ababa University.*

Anarfo, E. B. (2015). Capital structure and bank performance – evidence from Sub-Saharan Africa. *European Journal of Accounting Auditing and Finance Research, l* (3), 1-20.

Antivi, B., Mills, A. & Zhoa, A. (2012) Capital structure and firm value: Empirical evidence from Ghana. *International Journal of Business and Social Science, 3*(22), 104-112.

Anderson, R. (2002). Capital structure, firm liquidity and growth. *NBB working paper No.27*

Anjan, V. T. (2014). Bank capital and financial stability: An economic trade-off or a Faustian bargain? *Annual Review of Financial Economics, 6,* 185-223.

Antoniou, A. Guney, Y. & Paudyal, K. (2008). Determinants of corporate capital structure: Evidence from European Countries, *Working paper, University of Durham.*

Arbabiyan, A. A., Safari, T. & Mehdi, G. (2009). The effects of capital structure and performance in the listed firms in Tehran stock exchange. *Journal of Management Perspective.*

Aremu, M. A. Ekpo, I. A. & Mustapha, A. M. (2013). Determinants of banks' performance in a developing economy: evidence from Nigerian banking industry. Interdisciplinary *Journal of Contemporary Research in Business, 4*(9), 155-181.

Aremu, M. A. Ekpo I. C., Mustapha A. M. & Adedoyin S. I. (2013). Determinants of capital structure in Nigeria Banking sector. *International Journal of Academic Research in Economics and Management Sciences, 2*(4), 28-43.

Auerbach, A. J. (1987). The tax reform Act of 1986 and the cost of capital. *The Journal of Economic Perspectives, 1* (1), 73-86.

Awunyo-Vitor, D. & Badu, J. (2012). Capital Structure and Performance of Listed Banks in Ghana. *Global Journal of Human Social Science, 12*(5), 57-62.

Azhagaiah, R. & Gavoury, C. (2011). The impact of capital structure on performance with special reference to it industry in India. *Managing Global Transitions, 9*(4), 371-392.

Babalola, Y. A. (2014). Triangulation analysis of capital structure and firms' performance in Nigeria. *East Ukrainian National University (Vol. Dahl) 91034 Lugansk, Ukraine*

Bandt, O., Camara, B., Pessarossi, P. & Rose, M. (2014). Does the capital structure affect banks' profitability? Pre- and post-financial crisis evidence from significant banks in France. *Direction des Études* – SGACPR, 1-49.

Baral, K. J. (1996). Capital structure and cost of capital in public sector enterprises in Nepal. *Ph.D* dissertation. Delhi University.

Baridam, D. M. (2001). Research methods in administrative sciences (3rd ed). Port Harcourt Nigeria. Sher brooke Associate.

Barton, S.L., Hill, N.C. & Sundaram, S. (1989). An empirical test of stakeholder theory predictions of capital structure. *Financial Management, 18 (1), 36-44.*

Bassey, N. E., Aniekan J. A., Ikpe, I. K. & Udo, U. J. (2013). Analysis of the determinants of agricultural science, *1nternational Journal of Management Sciences*, (4), 36-47.

Basel III- BIS Press Release, (2010). Group of governors and heads of supervision around higher global minimum capital standards (Sept 12)

Bayeh, A. (2011). Capital structure determinants: an empirical study on insurance industry in Ethiopia, Masters dissertation, Addis Ababa University

Basel Committee on Banking Supervision (2013). Amendment to the capital accord to corporate market risk. *Technical report 1, bank for international settlement.*

Beck, T. (2008). *Financing patterns around the world: are small firms different*, Science Direct. N.P.

Berger, A. N. (1995). The relationship between capital and earnings in banking. *Journal of money, credit and banking, 27,* 432-456.

Berger, A.N., & Patti, E. B. (2006). Capital structure and firm performance: A new approach to testing agency theory and an application to the banking industry. *Journal of Banking & Finance, 30*(8), 1065-1102.

Berle, A.A. & Means, G. C. (1932) .The Modern Corporation and private property. New York, Macmillian.

Binsbergen, J. H., Graham, J. R. & Yang, J. (2011). An empirical model of optimal capital structure. *Journal of Applied Corporate Finance, 23*(4), 34-59.

Booth, L. V., Aivazian, A., Demirguc K. & Maksimovic, V. (2001). Capital structures in developing countries. *The Journal of Finance, 27*(4), 539 -60.

Burgman, R. & Todd, A. (1996). An empirical examination of multinational corporate capital structure, *Journal of International Business Studies, 27*(3), 553-570.

Chandrasekharan, C. V. (2012). Determinant of capital structure in the Nigerian listed firms. *International Journal of Advanced Research in Management and Social Sciences, 1* (2), 34 - 56.

Chen, J. J. (2004). Determinants of capital structure of Chinese-listed companies. *Journal of Business Research, 52*(12), 1341–1351.

Champion, D. (19990 finance the joy of leverage. *Harvard Business Review, 77*, 19-22

Cheng, M. C. & Tzeng, Z. C. (2011). The effect of leverage on firm value and how the firm financial quality influence on this effect. *World Journal of Management, 10*(3), 30-53.

Coleman, A. K. (2007). The impact of capital structure on the performance of microfinance institutions. *The Journal of Risk Finance, 8*(1), 56-71.

Dansetz, H. & Lehn, K. (1985). The structure of corporate ownership: Causes and consequences. *Journal of Political Economy, 8*(93), 1155- 1177.

De Jong, A. (2002). The disciplining role of leverage in Dutch firms. *European Finance Review, 6*(1), 31-62.

De Jong, A., Kabir, R. & Nguyen, T. T. (2008). Capital structure around the world: The roles of firm- and country-specific determinants. *Journal of Banking & Finance, 32*(9), 1954-1969.

Deesomsak, R., Paudyal, K. & Pescettoaa, G. (2004). The determinants of capital structure: evidence from the Asia pacific region. *Journal of Multinational Financial Management, 14*(4-5), 387–405.

De Anqeio, H. & Masulis, R. (1980). Optimal capital structure under corporate and personal taxation *Journal of Financial Economics, 8*(1), 3-29

Donaldson, G. (1961). Corporate debt capacity: A study of corporate debt policy and the determination of corporate debt capacity. *Boston Division of Research, Harvard School of Business Administration.*

Ebaid, I. E. (2009). The impact of capital-structure choice on firm performance: empirical evidence from Egypt. *Journal of Risk Finance Incorporating Balance Sheet, 10*(5), 477-487.

Elliot, B. & Elliot, J. (2002). *Financial accounting and reporting*, (12th ed), London, Prentice Hall.

Fatemi, A. M. (1988). The effect of international diversification on corporate financing policy. *Journal of Business Research, 16*(1), 17-30.

Frank, M. Z. & Goyal, V. K. (2003). Testing the pecking order theory of capital structure. *Journal of Financial Economics, 67, 217-248.*

Frank, M. & Goyal, V. (2008) *Trade-off and pecking order theories of debt*, in: E. Eckbo (ed.), Hand-book of Corporate Finance: *Empirical Corporate Finance, 2, Elsevier, Amsterdam, 135–202*

Friend, I. & Lang, L. (1988). An empirical test of the impact of managerial self-interest on corporate capital structure. *Journal of Finance, 8*(43), 271-281.

Fosu, S. (2013). Capital structure, product market, competition and firm performance: Evidence from South Africa. University of Leicester, UK, working paper *1,* 38-43.

Garg, S. B. (1988). Optimum capital structure: theory and the Indian experience. *M. Phil dissertation, Department of Economics. The University of Delhi.*

Ghosh, S. (2007). Leverage, managerial monitoring and firm valuation: A simultaneous equation approach. *Research in Economics, 61*(8), 84–98.

Gleason, K.C., Mathur, L.K. & Mathur, I. (2000). The inter-relationship between culture, capital structure and performance: Evidence from european retailers. *Journal of Business Research, 50*(2), 185-191.

Gokul, M. & Ashoka, H. (2014). Effect of capital structure on financial performance of banks listed at BSE. Available at srrn.com.

Gordon, M. J. (1959) Dividends earnings and stock prices. *The Review of Economics and Statistics, 41*(2), 99-105.

Graham, J. R. (1999). Do personal taxes affect corporate financing decisions? *Journal of Public Economics, 73, 41–73*

.

Graham, A., John, R. & Campbell, D. (2001) *Journal of Financial Economics 60, 187-243*

Greene, W. (2007). Econometric analysis (6^{th} ed), Prentice Hall.

Gropp, R. & Heider, F. (2010).The determinants of bank capital structure. *Review of Finance, 14*(4), 587-622.

Gropp, R. & Florian, H. (2007). *The determinants of bank capital structures*, Review of Finance, *12*(1), 270-301.

Haldane, A. (2012). Speech-the dog and the Frisbee. *Bank of England given at Federal Reserve Bank of Kansas City 36th Economic policy symposium.*

Hailu, A. (2014). The Impact of Capital Structure on Profitability of Commercial Banks in Ethiopia. *Journal of Business Finance and Accounting, 21*(1), 63-83.

Hamada, R. S. (1969). Portfolio analysis, market equilibrium and corporation finance. *Journal of Finance. 26*(2), 34-60

Harris, M. & Raviv, A. (1990). Capital structure and the informational role of debt. *Journal of Finance, 45*(2), 321-349.

Harris, M. & Raviv, A. (1991). The theory of capital structure. *The Journal of Finance, 46* (1), 297-355.

Harvey, C. R., Linsc, K.V. & Roperd, A. H., (2004). The effect of capital structure when expected agency costs are extreme. *Journal of Financial Economics, 74*(1), 3–30.

Hatfield, G. B., Cheng, L. & Davidson, W. (1994). The determination of optimal capital structure: The effect of firm and industry debt ratios on market value. *Journal of Financial and Strategic Decisions*

Homaifar, G., Ziets, J. & Benkato, O. (1994). An empirical model of capital structure: Some new evidence. *Journal of Business Finance and Accounting, 21*(1), 1-14.

Huang, G., & Song, F.M. (2006). The determinants of capital structure: evidence from China. *China Economic Review, 7*(1), 14-36.

Jang, S. (2011). Growth-focused or profit-focused firms: Transitions toward profitable growth. *Tourism Management, 3*(3), 667–674.

Jenson, G.R., Solberg, D. P. & Zorn, T. S. (1992). Simultaneous determination of insider ownership, debt and dividend polices. *Journal of Financial and Quantitative Analysis, 27*, 247 – 263,

Jensen, M. & Meckling, W. (1976). Theory of the firm: Managerial behaviour, agency costs, and ownership structure. *Journal of Financial Economics, October, 305-360.*

John, K. & Williams, J. (1985). Dividends dilution and taxes: A signaling equilibrium. *Journal of finance 40*, 1053 – 1070.

Kennon, J. (2010). An introduction to capital structure: why capital structure matters to your investments. *(Online) Available: www.about.com (July 20, 2010).*

Keppo, J. & Samu, P. (2006). Optimal bank capital with costly recapitalization. *The Journal of Business, 79*(4), 21-63.

Kernstin, G. (2007). Equity ownership and performance: An empirical study of German traded companies. Spring Science and Business Media. Germany.

Kester, C. W. (1986). Capital and ownership structure: A comparison of United States and Japanese manufacturing corporation. *Financial Management, 15, 5-16.*

Khalaf, A. T. (2013). The relationship between capital structure and firm performance: Evidence from Jordan. *Journal of Finance and Accounting, 1*(3), 41-45.

Khalaf, A. T. (20130. Capital structure effects or banking performance: A case study of Jordan. *International Journal of economics Finance and Management Science, 1*(95), 227-233.

Khan, A. G. (2012). The relationship of capital structure decisions with firm performance: a study of the engineering sector of Pakistan. *International Journal of Accounting and Financial Reporting, 6*(2), 245-262.

King, M. & Santor, E. (2008). Family values: ownership structure, performance and capital structure of Canadian firms, *Journal of Banking and Finance, 32*, 2423-2432.

Kraus, A. & Litzenberger, R. H. (1973). *A state-preference model of optimal financial leverage, Journal of Finance, 23*(4), 911-922.

Krenusz, A. (2004). Determinants of capital structure: a comparison between the United States, Germany and East-Europe. 4th Europe Doctoral Seminar, Faculty of Economics, Sarajevo.

Kuria, F. B. (2013). The effect of capital structure on the financial performance of commercial banks in Kenya. A thesis submitted to the Department of Business Administration, University of Kenya.

Liu, T. (1999). The determinants of corporate capital structure: Evidence from listed companies in China. *Working paper*.

Lucky, A. L. & Nwosi, A. A. (2015). Asset quality and performance of Deposit money banks: evidence from Nigeria. *Research Journal of Finance and Accounting, 6* (18), 26 – 34.

MacKie-Mason, A. & Smart, V. (2006). Do taxes affect corporate financing decisions? *Journal of Finance, 45*, 1471-1493

McCoy, P. A (2008). The moral implications of deposit insurance: theory and evidence. Seminar on Current Developments in Monetary and Financial Law. Washington D C, October, 23-27.

Mazur, K. (2007). *The determinants of capital structure choice: evidence from polish companies, International Advances in Economic Research, Springer, 13*(4), 495-514

McConnel, J. J. & Servaes, H. (1995). Equity ownership and the two faces of debt. *Journal of Financial Economics, 39*(5), 131 – 157.

Meero, A. A. (2015). The Relationship between capital structure and performance in Gulf Countries Banks: A comparative study between Islamic banks and conventional banks. *International Journal of Economics and Finance*, (12), 140-154.

Mesquita, J. C. & Lara, J. E. (2003). Capital structure and performance: The Brazilian case. *working paper, Academy of Business and Administration Sciences Conference*, 11-13.

Miller, M. (1977). Debt and taxes. *The Journal of Finance, 32*(2), 261-275.

Modigliani, F. & Miller, M. H. (1963). Corporate income taxes and the cost of capital: A correction. *International Journal of Economics and Finance, 7*(4), 20–39.

Modigliani, F. & Miller, M. (1958). The cost of capital, corporation finance, and the theory of investment. *American economic Review 48,* 261-197.

Monogbe, T. G. & Davies, N. L. (2016). Monetary and fiscal policy, tools for economic growth (Test of the Keynesian and monetarist preposition): Nigerian experience. *International Journal of Finance and banking Research, 2*(3), 63-71.

Mujahid, M., Zuberi, M. A., Rafiq, M. Q., Sameen, S. N. & Shakoor, M. A. (2014). Impact of capital structure on banking performance. *Research Journal of Finance and Accounting, 5*(19), 99-104.

Muritala, A. T. (2012). An empirical analysis of capital structure on firms' performance in Nigeria. *International Journal of Advances in Management and Economics*, 2278-3369.

Myers, S. C. & Majluf, N. S. (1984). Corporate financing and investment decisions when firms have information that investors do not have. *Journal of Financial Economics, 13*, 187-222.

Myers, S. C. (1977). Determinants of corporate borrowing. *Journal of Financial Economics, 5 5147-5175.*

Myers, S. C. (2007). Capital structure *Journal of Economic Perspectives, 15*(2), 31-102.

Nnanna, O. J. (2006). Macroeconomic policies in Nigeria: a review. *The Tide Newspaper, Monday, Jan 9, 8.*

Naveed, A., Zulfqar, A. & Ahmad, U. (2011). Determinants of performance: A case of life insurance sector of Pakistan, *International Research Journal of Finance and Economics, Euro journals Publishing, Inc.*

Ngerebo, T. A. & Lucky, A. L. (2016). Interest rate and deposit money banks' performance. evidence from Nigeria 1980 – 2014. *International Journal of Empirical Finance, 5* (1), 22-35.

Nirajini, A. r& Priya, K. B. (2013). Impact of capital structure on financial performance of the listed trading companies in sri Lanka,. *International Journal of Scientific and Research Publications, 3,* ISSN 2250-3153.

Nikoo, S. F. (2016). Impact of capital structure on banking performance: Evidence from Tehran Stock Exchange. *International Research Journal of Applied and Basic Sciences, 9*(6), 923-927.

Octavia, M. & Brown, R. (2010). Determinants of bank capital structure in developing countries: Regulatory capital requirement versus the standard determinants of capital structure. *Journal of Emerging Market, 15*(4), 50-62.

Onaolapo, R. & Kajola, O. (2010). Capital structure and firm performance: Evidence from Nigeria, *European Journal of Economics, Finance and Administrative Sciences, 25*, 70-82.

Ong, T. S. & Ther B. H. (2011). Capital structure and corporate performance of Malaysian construction sector. *International Journal of Humanities and Social Science, 1*(2), 34-56.

Onyango, A. A. (2016). Effect of capital structure on financial performance: The case of banks listed in Nairobi securities exchange. A thesis submitted to the Department of Finance and Applied Economics, Strathmore University Nairobi, Kenya.

Pandey, I. M. (1999). Financial management (8th ed.). New Delhi: *Vikas Publishing House PVT Ltd.*

Pandey, I. M. (2005). *Financial management (11th ed.). New Delhi*: Vikas Publishing House PVT Ltd.

Pouraghajan, M. Emamgholipour, L. & Bagheri, U. (2012). The Relationship between capital structure and firm performance evaluation measures: Evidence from the Tehran stock exchange. *International Journal of Business and Communication, 1*(9), 166- 181.

Pratomo, W. A. & Ismail, A. G. (2006). Islamic bank performance and capital structure University Library of Munich, Germany, MPRA, 6012.

Rajan, R. G. & Zingales, L. (1995). What do we know about capital structure? Some evidence from international data. *The Journal of Finance, 50*(5), 1421-1460.

Rao, N. V. Al-Yahyee, K. & Syed, L. (2007). Capital Structure and Financial Performance: Evidence from Oman, *Indian Journal of Economics and Business, 5*(6), 1-23.

Rathinasamy, R. S., Krishnaswamy, C. R. & Mantripragada, K. G. (2000). Capital structure and product market interaction: An international perspective. *Global Business and Finance Review, 5*(2), 51-63.

Rayan, K. (2008). Financial leverage and firm value. Gordon Institute of Business Science, University of Pretoria.

Qamar, M. A. J., Masood, S. & Khan, M. M. (2016). Impact of capital structure on profitability of commercial banks listed on Karachi Stock Exchange. *International Journal of Empirical Finance, 5*(2), 78-87

Ronoh, C. (2015). Effect of capital structure on financial performance of listed commercial banks in Kenya. A case study of Kenya commercial bank limited. *Journal of Management, 2*(72), 750-781.

Ross, S. A. (1977). The determination of financial structure. The incentive signaling approach. *Bell Journal of Economics and Management Science, 8*(1), 1-23.

Saad, N. M. (2010). Corporate governance compliance and the effects to capital structure. *International Journal of Economics and Financial, 2*(1), 105-114.

Saeed, M. M., Gull, A. A. & Rasheed, M. Y. (2013). Impact of capital structure on banking performance. (A case study of Pakistan). *Interdisciplinary Journal of Contemporary Research in Business, 5*(10): 393-403.

Saeedi, A. & Mahmoodi, I. (2011). Capital structure and firm performance: Evidence from Iranian Companies. *International Research Journal and Economics, 70*(8), 20-26.

Salim, M. & Yadav, R. (2012). Capital structure and firm performance: evidence from Malaysian listed companies. *Procedia - Social and Behavioural Sciences, 65,* 156 – 166.

Samuel, D. K. (2016). Effects of capital structure on financial performance of commercial banks in Kenya. A thesis submitted to the Department of Business Administration, south eastern Kenya University, Kenya.

Santos, J. A. C. (2001). Bank capital regulation in contemporary banking theory: A review of the literature. *Financial Markets, Institutions and Instruments, 10*(2), 41-50.

Scott, J. (1977). Bankruptcy, secured debt, and optimal capital structure. *Journal of Finance, 32*(1), 1-19.

Semiu, B. A. & Collins, S. O. (2011).Perceived relationship between corporate capital structure and firm value in Nigeria .*International Journal of Business and Social Science, 2*(19), 201-230.

Sharma, S. K. (1983). Determinants of capital structure and its implications: with special reference to chemical and pharmaceutical industry in India: 1969-1978. *M.Phil diss. Department of Commerce,* University of Delhi.

Sharma, D. & Verma, R. (2014). Impact of capital structure on the performance: An empirical analysis of Indian banking sector. *International Journal of Research in Management, Economics and Commerce, 6*(9), 32-39.

Shibru, W. (2012). Determinants of capital structure of deposit money banks in Ethiopia. *Master's* dissertation, *Addis Ababa University.*

Siddik, N. A., Kabiraj, S. & Joghee, S. (2016). Impacts of Capital Structure on Performance of Banks in a Developing Economy: Evidence from Bangladesh. doi:10.20944/preprints201611.0110.v1. Available at: srrn.com.

Shiferaw, N. (2013). Capital structure and performance of commercial banks in Ethiopia. A thesis submitted to the Department of Accounting and Finance, Jimma University, Ethiopia.

Shubita, M. F. & Alsawalhah, J. M. (2012). The relationship between capital structure and performance. *International Journal of Business and Social Science, 3*(16), 104-112.

Shahrya, Z. & Laeh R. (2015). The impact of capital structure on banks performance: A case study of Iran. *Journal of Applied Environmental and biological Science, 5*(85), 112-119.

Shum, P. M. (1996). Taxes and corporate debt policy in Canada: An empirical investigation. *Canadian Journal of Economics, 29*(3), 557–572.

Shyam-Sunder L. & Myers, S.C. (1999). Testing static trade against pecking order model of capital structure. *Journal of Financial Economics, 51,* 219-244

Siddiqui, M. A. & Shoaib, A. (2011). Measuring performance through capital structure: evidence from banking sector of Pakistan. *African Journal of Business Management, 5*(5):1871-1878.

Smith, C. A., David J. & Hamish D. (2012). The relationship between capital structure and product markets in evidence from New Zealand". *'Rev Quant Financial Accounting, 2*(12) 38, 1–24.

Solomon, E. (1963). Leverage and the cost of capital. *Journal of Finance,* 18, 273-279.

Soumadi, H. (2012). Capital structure and corporate performance empirical study on the public Jordanian shareholdings firms listed in the Amman stock market. *European Scientific Journal, 8*(22), 1857–7881.

Staking, K. & Babbel, D. (1995). The relation between capital structure, interest rate sensitivity, and market value in the property-liability insurance industry. *Journal of Risk and Insurance, 62*(7), 690-718.

Storey, O. J. (1994). The role of legal status in influencing bank financing and new firm growth. *Applied Economics, 26*, 129-36

Stiglitz, J. & Weiss, A. (1981). Credit rationing in markets with imperfect information. *The American Economic Review, 71*(3), 393-410.

Taani, K. (2013). Capital structure effects on banking performance: a case study of Jordan. *International Journal of Economics, Finance and Management Sciences, 1*(5), 227-233.

Taggart, R. A. (1985). Secular patterns in the financing of U.S. corporations. in corporate Capital structure in the United States, ed. B.M Friedman. *Chicago: The University of Chicago Press: 13-80.*

Taiwo, A. M. (2012). An empirical analysis of capital structure on firms' performance in Nigeria *International Journal of Advances in Management and Economics, 1*(5), 116-124

Taiwo, A. M. (2015). An empirical analysis of capital structure on firms' performance in Nigeria. *International Journal of Advances in Management and Economics, 2*(9), 9-19.

Titman, S. & Wessels, R., (1988). The determinants of capital structure Choice. *Journal of Finance, 43*(1), 1-31.

Tongkong, S. (2012). Key factors influencing capital structure decision and its speed of adjustment of Thai listed real estate companies Procedia. *Social and Behavioral Sciences, 40*, 716–720.

Tsangaao, C. Kuei-Chiu, L. Yao-Men, Y. & Chia-Ha, R. (2009). Does capital structure affect operating performances of credit cooperatives in Taiwan: Application of panel threshold method? *International Research Journal of Finance and Economics, 32* (8), 18-21.

Ullah, W. & Mohammed, N. (2008). Capital structure choice in an emerging market: Evidence from listed firms in Pakistan, *International Research Journal of Finance and Economics, 22*(9), 1-21.

Umar, M. Tanveer, Z. Aslam, S. & Sajid, M. (2012). Impact of capital structure on firms' financial performance: evidence from Pakistan. *Research Journal of Finance and Accounting, 3*(9), 133-149.

Ugwunta D. O., Ani W. U., Ugwuanyi G. O. & Ugwu. J. (2012). The structure of Nigeria banking sector and its impact on bank performance. *Journal of Economics and Sustainable Development, 3*(7), 30-39.

Velnampy, T. & Niresh, A. (2012). The relationship between capital structure and performance in Sri Lanka, *Global Journal of Management and Business Research, 12* (7), 4-18.

Vermaelen, T. (1981). Common stock repurchases and market signaling: An empirical study. *Journal of Financial Economics, 9*(8), 139-183.

Wessels, R. (1988). The determinants of capital structure choice. *Journal of Finance, 43*(8), 1-19.

Williamson, O. (1988). Corporate finance and corporate governance. *Journal of Finance, 43*(3), 567-591.

Xicang, X., Samuel, A., & Ebenezer, F. E. (2012). Capital structure and firm value: Empirical evidence from Ghana. *International Journal of Business and Social Science, 3*(22), 1-9.

Yuvaraj, S. & Abate, G. (2013). The performance of insurance companies in Ethiopia. *International Journal of Marketing, Financial Services & Management Research, 2*(7), 23-45.

Zafar, M. R., Zeeshan, F. & Ahmed, R. (2016). Impact of capital structure on banking profitability. *International Journal of Scientific and Research, 6*(3), 186-193.

Zakouri, S. & Rouhi, L. (2015). The Impact of Capital Structure on Banks Performance: A Case Study of Iran. *Journal Applied Environmental Biological Sciences*, *5*(8), 112-119.

Appendix 1: Descriptive Properties of the Variables

	ROA	ROE	NOI	INTI	NINTI	TDTA	TDTE	STDTA	TANG	RISK	BSIZE
Mean	2.015294	20.37765	250288.2	678834.8	346943.4	89.17882	5118.476	87.01118	4.362941	2.216647	11436393
Median	2.700000	22.01000	96000.00	616000.0	184000.0	88.72000	5724.180	87.28000	4.350000	2.670000	10469000
Maximum	4.730000	57.65000	1680000.	2466330.	873170.0	98.93000	10906.47	99.29000	7.750000	6.520000	26275490
Minimum	-9.820000	-60.07000	-1377330.	22054.00	15032.00	81.82000	2053.490	77.66000	2.830000	-9.310000	1184496.
Std. Dev.	3.299260	25.58929	595413.6	636997.3	285849.3	4.531065	2867.006	6.312434	1.106056	3.309693	9042726.
Skewness	-2.900218	-1.633054	-0.366215	1.251526	0.586818	0.522664	0.426265	0.482757	1.483256	-2.542385	0.331420
Kurtosis	11.07394	7.085335	5.978087	4.503868	1.896174	2.887386	1.931689	2.475542	6.357485	10.01151	1.640427
Jarque-Bera	70.00705	19.37818	6.662198	6.039881	1.838732	0.782988	1.323233	0.855153	14.21830	53.13643	1.620523
Probability	0.000000	0.000062	0.035754	0.048804	0.398772	0.676046	0.516017	0.652088	0.000818	0.000000	0.444742
Sum	34.26000	346.4200	4254900.	11540192	5898038.	1516.040	87014.09	1479.190	74.17000	37.68300	1.94E+08
Sum Sq. Dev.	174.1618	10476.99	5.67E+12	6.49E+12	1.31E+12	328.4888	1.32E+08	637.5492	19.57375	175.2651	1.31E+15
Observations	17	17	17	17	17	17	17	17	17	17	17

Appendix 2: Diagnostic Tests for the five models

Serial Correlation

Model 1

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.114721	Prob. F(2,8)	0.8931
Obs*R-squared	0.473970	Prob. Chi-Square(2)	0.7890

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.752809	8.158498	0.092273	0.9288
TDTA	-0.015252	0.171430	-0.088971	0.9313
TDTE	-4.60E-06	0.000451	-0.010194	0.9921
STDTA	0.005950	0.191646	0.031046	0.9760
TANG	0.010107	0.489717	0.020639	0.9840
RISK	0.014783	0.130698	0.113109	0.9127
BSIZE	2.07E-09	1.88E-07	0.010990	0.9915
RESID(-1)	-0.075589	0.627645	-0.120433	0.9071
RESID(-2)	0.195585	0.533170	0.366835	0.7233

R-squared	0.027881	Mean dependent var	-2.09E-15
Adjusted R-squared	-0.944239	S.D. dependent var	0.886601
S.E. of regression	1.236240	Akaike info criterion	3.567078
Sum squared resid	12.22632	Schwarz criterion	4.008191
Log likelihood	-21.32017	Hannan-Quinn criter.	3.610926
F-statistic	0.028680	Durbin-Watson stat	1.595004
Prob(F-statistic)	0.999980		

Model 2

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.324918	Prob. F(2,8)	0.7317
Obs*R-squared	1.277158	Prob. Chi-Square(2)	0.5280

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	34.94578	87.39664	0.399853	0.6997
TDTA	-0.040460	1.634862	-0.024749	0.9809
TDTE	-3.36E-05	0.004702	-0.007148	0.9945
STDTA	-0.412644	1.635786	-0.252261	0.8072
TANG	1.262950	4.854086	0.260183	0.8013

RISK	0.495658	1.340066	0.369876	0.7211
BSIZE	-2.28E-07	1.82E-06	-0.125690	0.9031
RESID(-1)	0.258208	0.483497	0.534044	0.6078
RESID(-2)	0.326145	0.487119	0.669539	0.5220

R-squared	0.075127	Mean dependent var	8.36E-15
Adjusted R-squared	-0.849746	S.D. dependent var	9.514967
S.E. of regression	12.94087	Akaike info criterion	8.263709
Sum squared resid	1339.728	Schwarz criterion	8.704822
Log likelihood	-61.24153	Hannan-Quinn criter.	8.307557
F-statistic	0.081229	Durbin-Watson stat	1.632191
Prob(F-statistic)	0.999074		

Model 3

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.364823	Prob. F(2,8)	0.7053
Obs*R-squared	1.420904	Prob. Chi-Square(2)	0.4914

Presample missing value lagged residuals set to zero.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-350367.2	1090182.	-0.321384	0.7562
TDTA	685.3932	19088.73	0.035906	0.9722
TDTE	-6.268052	55.36138	-0.113221	0.9126
STDTA	3856.733	17994.12	0.214333	0.8356
TANG	-10353.84	55088.71	-0.187948	0.8556
RISK	-2314.148	14724.33	-0.157165	0.8790
BSIZE	0.003526	0.020998	0.167915	0.8708
RESID(-1)	0.362124	0.431382	0.839450	0.4256
RESID(-2)	0.020725	0.464742	0.044594	0.9655

R-squared	0.083583	Mean dependent var	-2.86E-10
Adjusted R-squared	-0.832835	S.D. dependent var	110858.2
S.E. of regression	150082.3	Akaike info criterion	26.98081
Sum squared resid	1.80E+11	Schwarz criterion	27.42192
Log likelihood	-220.3369	Hannan-Quinn criter.	27.02465
F-statistic	0.091206	Durbin-Watson stat	1.709885
Prob(F-statistic)	0.998611		

Model 4

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	3.860762	Prob. F(2,6)	0.0836
Obs*R-squared	9.003692	Prob. Chi-Square(2)	0.0111

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-1895432.	1230771.	-1.540036	0.1745
TDTA	-3765.815	22876.75	-0.164613	0.8747
TDTE	-209.4163	93.42774	-2.241479	0.0662
STDTA	11791.52	18131.42	0.650336	0.5396
TANG	322123.9	145690.4	2.211017	0.0690
RISK	-18954.22	16386.93	-1.156667	0.2914
BSIZE	0.153076	0.067506	2.267600	0.0639
NII(-1)	-1.472275	0.695388	-2.117198	0.0786
RESID(-1)	0.066616	0.294833	0.225944	0.8287
RESID(-2)	-1.735248	0.631794	-2.746541	0.0334

R-squared	0.562731	Mean dependent var	-7.73E-11
Adjusted R-squared	-0.093173	S.D. dependent var	84091.90
S.E. of regression	87922.22	Akaike info criterion	25.87546
Sum squared resid	4.64E+10	Schwarz criterion	26.35833
Log likelihood	-197.0037	Hannan-Quinn criter.	25.90019
F-statistic	0.857947	Durbin-Watson stat	2.034564
Prob(F-statistic)	0.598768		

Model 5

Breusch-Godfrey Serial Correlation LM Test:

F-statistic	0.093677	Prob. F(2,8)	0.9116
Obs*R-squared	0.389017	Prob. Chi-Square(2)	0.8232

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	21782.16	751298.1	0.028993	0.9776
TDTA	-2376.089	17374.30	-0.136759	0.8946
TDTE	-5.988866	53.07489	-0.112838	0.9129
STDTA	2281.987	17086.41	0.133556	0.8971
TANG	-1857.498	49849.69	-0.037262	0.9712
RISK	-534.0950	12241.67	-0.043629	0.9663
BSIZE	0.002749	0.019275	0.142614	0.8901
RESID(-1)	0.007507	0.470046	0.015972	0.9876
RESID(-2)	-0.171287	0.396348	-0.432164	0.6770

R-squared	0.022883	Mean dependent var	3.13E-10
Adjusted R-squared	-0.954233	S.D. dependent var	91850.36
S.E. of regression	128401.2	Akaike info criterion	26.66876
Sum squared resid	1.32E+11	Schwarz criterion	27.10987
Log likelihood	-217.6845	Hannan-Quinn criter.	26.71261
F-statistic	0.023419	Durbin-Watson stat	2.046463
Prob(F-statistic)	0.999991		

Heteroskedasticity Test

Model 1

Heteroskedasticity Test: Harvey

F-statistic	1.033177	Prob. F(6,10)	0.4581
Obs*R-squared	6.505567	Prob. Chi-Square(6)	0.3690
Scaled explained SS	4.909770	Prob. Chi-Square(6)	0.5554

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-6.678181	11.52525	-0.579439	0.5751
TDTA	0.041612	0.238705	0.174325	0.8651
TDTE	0.001319	0.000714	1.847359	0.0945
STDTA	-0.025075	0.229375	-0.109319	0.9151
TANG	0.234135	0.700826	0.334085	0.7452
RISK	0.115002	0.180382	0.637551	0.5381
BSIZE	-3.94E-07	2.69E-07	-1.462669	0.1743

R-squared	0.382680	Mean dependent var	-1.628631
Adjusted R-squared	0.012289	S.D. dependent var	1.989241
S.E. of regression	1.976980	Akaike info criterion	4.493919
Sum squared resid	39.08451	Schwarz criterion	4.837007
Log likelihood	-31.19832	Hannan-Quinn criter.	4.528023
F-statistic	1.033177	Durbin-Watson stat	2.228219
Prob(F-statistic)	0.458117		

Model 2

Heteroskedasticity Test: Harvey

F-statistic	1.704408	Prob. F(6,10)	0.2175
Obs*R-squared	8.595163	Prob. Chi-Square(6)	0.1977
Scaled explained SS	7.035101	Prob. Chi-Square(6)	0.3176

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-10.24407	10.74127	-0.953711	0.3627
TDTA	0.230281	0.222467	1.035126	0.3250
TDTE	0.000231	0.000665	0.347522	0.7354
STDTA	-0.091192	0.213772	-0.426583	0.6787
TANG	0.082872	0.653154	0.126879	0.9016
RISK	0.310971	0.168112	1.849791	0.0941
BSIZE	-1.28E-07	2.51E-07	-0.508544	0.6221

R-squared	0.505598	Mean dependent var	3.131786
Adjusted R-squared	0.208957	S.D. dependent var	2.071607
S.E. of regression	1.842501	Akaike info criterion	4.353025
Sum squared resid	33.94808	Schwarz criterion	4.696113
Log likelihood	-30.00072	Hannan-Quinn criter.	4.387129
F-statistic	1.704408	Durbin-Watson stat	2.369744
Prob(F-statistic)	0.217482		

Model 3

Heteroskedasticity Test: Harvey

F-statistic	1.258957	Prob. F(6,10)	0.3558
Obs*R-squared	7.315456	Prob. Chi-Square(6)	0.2927
Scaled explained SS	5.983483	Prob. Chi-Square(6)	0.4250

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	12.95394	11.52600	1.123889	0.2873
TDTA	0.089318	0.238720	0.374153	0.7161
TDTE	8.61E-05	0.000714	0.120610	0.9064
STDTA	0.023782	0.229390	0.103674	0.9195
TANG	-0.371458	0.700872	-0.529994	0.6077
RISK	0.319371	0.180394	1.770411	0.1071
BSIZE	-5.90E-08	2.69E-07	-0.219040	0.8310

R-squared	0.430321	Mean dependent var	21.84170
Adjusted R-squared	0.088514	S.D. dependent var	2.070884
S.E. of regression	1.977110	Akaike info criterion	4.494050
Sum squared resid	39.08963	Schwarz criterion	4.837138
Log likelihood	-31.19943	Hannan-Quinn criter.	4.528154
F-statistic	1.258957	Durbin-Watson stat	2.137357
Prob(F-statistic)	0.355755		

Model 4

Heteroskedasticity Test: Harvey

F-statistic	0.258441	Prob. F(7,8)	0.9544
Obs*R-squared	2.950873	Prob. Chi-Square(7)	0.8895
Scaled explained SS	2.999537	Prob. Chi-Square(7)	0.8850

Variable	Coefficient	Std. Error	t-Statistic	Prob.

C	15.98433	32.94464	0.485188	0.6406
TDTA	0.383621	0.741323	0.517481	0.6188
TDTE	0.000827	0.001678	0.493062	0.6352
STDTA	-0.276953	0.568857	-0.486859	0.6394
TANG	-1.109356	2.747682	-0.403742	0.6970
RISK	0.176130	0.484551	0.363490	0.7257
BSIZE	-3.34E-07	1.21E-06	-0.276061	0.7895
INTI(-1)	-1.98E-06	1.44E-05	-0.137358	0.8941

R-squared	0.184430	Mean dependent var	21.23577
Adjusted R-squared	-0.529195	S.D. dependent var	2.313135
S.E. of regression	2.860437	Akaike info criterion	5.246679
Sum squared resid	65.45681	Schwarz criterion	5.632973
Log likelihood	-33.97343	Hannan-Quinn criter.	5.266460
F-statistic	0.258441	Durbin-Watson stat	2.481358
Prob(F-statistic)	0.954404		

Model 5

Heteroskedasticity Test: Harvey

F-statistic	0.489985	Prob. F(6,10)	0.8022
Obs*R-squared	3.862351	Prob. Chi-Square(6)	0.6953
Scaled explained SS	2.566965	Prob. Chi-Square(6)	0.8609

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	13.83418	12.10112	1.143215	0.2796
TDTA	-0.104469	0.250632	-0.416822	0.6856
TDTE	-0.000322	0.000749	-0.430107	0.6762
STDTA	0.198801	0.240836	0.825460	0.4284
TANG	-0.210720	0.735844	-0.286365	0.7804
RISK	-0.236632	0.189395	-1.249410	0.2400
BSIZE	2.25E-07	2.83E-07	0.794662	0.4453

R-squared	0.227197	Mean dependent var	21.29190
Adjusted R-squared	-0.236485	S.D. dependent var	1.866738
S.E. of regression	2.075763	Akaike info criterion	4.591436
Sum squared resid	43.08792	Schwarz criterion	4.934524
Log likelihood	-32.02720	Hannan-Quinn criter.	4.625539
F-statistic	0.489985	Durbin-Watson stat	2.156249
Prob(F-statistic)	0.802188		

Ramsey Reset

Model 1

	Value	df	Probability
t-statistic	0.814847	9	0.4362
F-statistic	0.663976	(1, 9)	0.4362
Likelihood ratio	1.210070	1	0.2713

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	0.864117	1	0.864117
Restricted SSR	12.57697	10	1.257697
Unrestricted SSR	11.71286	9	1.301429
Unrestricted SSR	11.71286	9	1.301429

LR test summary:

	Value	df
Restricted LogL	-21.56052	10
Unrestricted LogL	-20.95548	9

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8.827348	6.708916	1.315764	0.2208
TDTA	-0.195903	0.149551	-1.309941	0.2227
TDTE	-0.000689	0.000418	-1.648933	0.1336
STDTA	0.145406	0.147212	0.987734	0.3491
TANG	-0.434098	0.410864	-1.056547	0.3183
RISK	0.797469	0.160891	4.956585	0.0008
BSIZE	1.71E-07	1.62E-07	1.057063	0.3180
FITTED^2	-0.021805	0.026760	-0.814847	0.4362

R-squared	0.932747	Mean dependent var	2.015294
Adjusted R-squared	0.880440	S.D. dependent var	3.299260
S.E. of regression	1.140802	Akaike info criterion	3.406527
Sum squared resid	11.71286	Schwarz criterion	3.798628
Log likelihood	-20.95548	Hannan-Quinn criter.	3.445503
F-statistic	17.83194	Durbin-Watson stat	1.894113
Prob(F-statistic)	0.000133		

Model 2

	Value	df	Probability
t-statistic	0.012778	9	0.9901
F-statistic	0.000163	(1, 9)	0.9901
Likelihood ratio	0.000308	1	0.9860

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	0.026278	1	0.026278
Restricted SSR	1448.554	10	144.8554
Unrestricted SSR	1448.527	9	160.9475
Unrestricted SSR	1448.527	9	160.9475

LR test summary:

	Value	df
Restricted LogL	-61.90537	10
Unrestricted LogL	-61.90521	9

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-94.53788	85.03278	-1.111782	0.2950
TDTA	0.932258	2.100764	0.443771	0.6677
TDTE	-0.002235	0.004826	-0.463046	0.6543
STDTA	0.674059	1.681596	0.400845	0.6979
TANG	-5.511678	4.542850	-1.213265	0.2559
RISK	5.501844	1.625429	3.384857	0.0081
BSIZE	-3.07E-07	2.02E-06	-0.151915	0.8826
FITTED^2	-8.16E-05	0.006383	-0.012778	0.9901

R-squared	0.861742	Mean dependent var	20.37765
Adjusted R-squared	0.754208	S.D. dependent var	25.58929
S.E. of regression	12.68651	Akaike info criterion	8.224143
Sum squared resid	1448.527	Schwarz criterion	8.616243
Log likelihood	-61.90521	Hannan-Quinn criter.	8.263118
F-statistic	8.013673	Durbin-Watson stat	1.468721

Prob(F-statistic)	0.002919

Model 3

	Value	df	Probability
t-statistic	1.987202	9	0.0781
F-statistic	3.948973	(1, 9)	0.0781
Likelihood ratio	6.184463	1	0.0129

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	6.00E+10	1	6.00E+10
Restricted SSR	1.97E+11	10	1.97E+10
Unrestricted SSR	1.37E+11	9	1.52E+10
Unrestricted SSR	1.37E+11	9	1.52E+10

LR test summary:

	Value	df
Restricted LogL	-221.0788	10
Unrestricted LogL	-217.9865	9

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-540916.5	788923.7	-0.685638	0.5102
TDTA	-21131.38	18250.29	-1.157866	0.2767
TDTE	-34.30755	48.10610	-0.713164	0.4938
STDTA	21535.76	16479.25	1.306841	0.2237
TANG	9692.124	48709.03	0.198980	0.8467
RISK	161290.9	12669.50	12.73064	0.0000
BSIZE	0.044128	0.017174	2.569488	0.0302
FITTED^2	1.90E-07	9.54E-08	1.987202	0.0781

R-squared	0.975906	Mean dependent var	250288.2
Adjusted R-squared	0.957167	S.D. dependent var	595413.6
S.E. of regression	123228.2	Akaike info criterion	26.58665
Sum squared resid	1.37E+11	Schwarz criterion	26.97875
Log likelihood	-217.9865	Hannan-Quinn criter.	26.62563
F-statistic	52.07716	Durbin-Watson stat	1.270133
Prob(F-statistic)	0.000001		

Model 4

	Value	df	Probability
F-statistic	5.783217	(4, 4)	0.0588
Likelihood ratio	30.63122	4	0.0000

F-test summary:

	Sum of Sq.	df	Mean Squares
Test SSR	9.04E+10	4	2.26E+10
Restricted SSR	1.06E+11	8	1.33E+10
Unrestricted SSR	1.56E+10	4	3.91E+09
Unrestricted SSR	1.56E+10	4	3.91E+09

LR test summary:

	Value	df
Restricted LogL	-203.6214	8
Unrestricted LogL	-188.3057	4

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1401221.	1649027.	0.849726	0.4433
TDTA	-1619.772	79775.86	-0.020304	0.9848
TDTE	93.02842	51.24096	1.815509	0.1436
STDTA	-18519.61	57036.81	-0.324696	0.7617
TANG	84343.60	650667.7	0.129626	0.9031
RISK	14087.27	34412.38	0.409366	0.7032
BSIZE	-0.019741	0.114284	-0.172739	0.8712
INTI(-1)	0.238012	0.581541	0.409278	0.7033
FITTED^2	-1.76E-06	5.63E-06	-0.311797	0.7708
FITTED^3	4.28E-12	9.36E-12	0.457452	0.6711
FITTED^4	-2.64E-18	5.99E-18	-0.440570	0.6823
FITTED^5	5.04E-25	1.25E-24	0.403558	0.7072

R-squared	0.997408	Mean dependent var	719883.6
Adjusted R-squared	0.990282	S.D. dependent var	634241.1
S.E. of regression	62524.75	Akaike info criterion	25.03822
Sum squared resid	1.56E+10	Schwarz criterion	25.61766
Log likelihood	-188.3057	Hannan-Quinn criter.	25.06789
F-statistic	139.9512	Durbin-Watson stat	2.773527
Prob(F-statistic)	0.000119		

Model 5

	Value	df	Probability
t-statistic	0.651539	9	0.5310
F-statistic	0.424503	(1, 9)	0.5310
Likelihood ratio	0.783503	1	0.3761

	Sum of Sq.	df	Mean Squares
Test SSR	6.08E+09	1	6.08E+09
Restricted SSR	1.35E+11	10	1.35E+10
Unrestricted SSR	1.29E+11	9	1.43E+10
Unrestricted SSR	1.29E+11	9	1.43E+10

LR test summary:

	Value	df
Restricted LogL	-217.8812	10
Unrestricted LogL	-217.4895	9

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-283738.6	1127468.	-0.251660	0.8070
TDTA	14003.10	16622.60	0.842414	0.4214
TDTE	-8.260111	73.71532	-0.112054	0.9132
STDTA	-7609.020	14137.71	-0.538207	0.6035
TANG	-31421.29	42429.46	-0.740554	0.4778
RISK	-14335.26	21842.20	-0.656310	0.5280
BSIZE	0.013748	0.039916	0.344426	0.7384
FITTED^2	5.17E-07	7.94E-07	0.651539	0.5310

R-squared	0.901401	Mean dependent var	346943.4
Adjusted R-squared	0.824713	S.D. dependent var	285849.3
S.E. of regression	119677.3	Akaike info criterion	26.52817
Sum squared resid	1.29E+11	Schwarz criterion	26.92027
Log likelihood	-217.4895	Hannan-Quinn criter.	26.56715
F-statistic	11.75414	Durbin-Watson stat	1.778897
Prob(F-statistic)	0.000697		

Multicollinearity Test

	ROA	ROE	NOI	INTI	NINTI	TDTA	TDTE	STDTA	TANG	RISK	BSIZE
ROA	1.000000	0.922340	0.604345	-0.240190	-0.372883	0.211721	-0.243182	0.390788	-0.046892	0.892669	-0.208630
ROE	0.922340	1.000000	0.515321	-0.286600	-0.436205	0.471617	-0.308063	0.599917	0.125135	0.845816	-0.314753
NOI	0.604345	0.515321	1.000000	0.579291	0.190470	0.452113	0.484019	0.114144	-0.175456	0.849733	0.471944
INTI	-0.240190	-0.286600	0.579291	1.000000	0.736376	0.228929	0.940253	-0.428060	-0.342530	0.103449	0.911627
NINTI	-0.372883	-0.436205	0.190470	0.736376	1.000000	0.028876	0.817056	-0.589010	-0.560020	-0.247664	0.889134
TDTA	0.211721	0.471617	0.452113	0.228929	0.028876	1.000000	0.094507	0.692930	0.374961	0.433018	0.029806
TDTE	-0.243182	-0.308063	0.484019	0.940253	0.817056	0.094507	1.000000	-0.512442	-0.459490	0.008730	0.963231
STDTA	0.390788	0.599917	0.114144	-0.428060	-0.589010	0.692930	-0.512442	1.000000	0.670121	0.402126	-0.598525
TANG	-0.046892	0.125135	-0.175456	-0.342530	-0.560020	0.374961	-0.459490	0.670121	1.000000	0.019294	-0.573055
RISK	0.892669	0.845816	0.849733	0.103449	-0.247664	0.433018	0.008730	0.402126	0.019294	1.000000	-0.011140
BSIZE	-0.208630	-0.314753	0.471944	0.911627	0.889134	0.029806	0.963231	-0.598525	-0.573055	-0.011140	1.000000

Appendix 3: Granger Causality Tests

Model 1

Null Hypothesis:	Obs	F-Statistic	Prob.
TDTA does not Granger Cause ROA	16	2.60199	0.1307
ROA does not Granger Cause TDTA		5.77451	0.0319
TDTE does not Granger Cause ROA	16	0.96299	0.3443
ROA does not Granger Cause TDTE		0.22369	0.6441
STDTA does not Granger Cause ROA	16	3.48591	0.0846
ROA does not Granger Cause STDTA		6.25550	0.0265
TANG does not Granger Cause ROA	16	0.60379	0.4510
ROA does not Granger Cause TANG		0.08183	0.7793
RISK does not Granger Cause ROA	16	0.43967	0.5189
ROA does not Granger Cause RISK		1.57628	0.2314
BSIZE does not Granger Cause ROA	16	1.68671	0.2166
ROA does not Granger Cause BSIZE		0.05810	0.8133
TDTE does not Granger Cause TDTA	16	0.71461	0.4132
TDTA does not Granger Cause TDTE		0.14179	0.7126
STDTA does not Granger Cause TDTA	16	0.60395	0.4510
TDTA does not Granger Cause STDTA		0.00054	0.9818
TANG does not Granger Cause TDTA	16	0.01002	0.9218
TDTA does not Granger Cause TANG		0.03404	0.8565
RISK does not Granger Cause TDTA	16	6.34493	0.0257
TDTA does not Granger Cause RISK		1.93726	0.1873
BSIZE does not Granger Cause TDTA	16	1.21349	0.2906
TDTA does not Granger Cause BSIZE		0.28832	0.6004
STDTA does not Granger Cause TDTE	16	0.90386	0.3591
TDTE does not Granger Cause STDTA		0.12894	0.7253
TANG does not Granger Cause TDTE	16	0.90130	0.3597
TDTE does not Granger Cause TANG		5.04788	0.0427
RISK does not Granger Cause TDTE	16	0.15841	0.6971

TDTE does not Granger Cause RISK		0.11982	0.7348
BSIZE does not Granger Cause TDTE	16	10.7922	0.0059
TDTE does not Granger Cause BSIZE		3.39548	0.0883
TANG does not Granger Cause STDTA	16	3.81635	0.0726
STDTA does not Granger Cause TANG		0.22755	0.6413
RISK does not Granger Cause STDTA	16	6.90370	0.0209
STDTA does not Granger Cause RISK		1.08984	0.3155
BSIZE does not Granger Cause STDTA	16	0.02647	0.8733
STDTA does not Granger Cause BSIZE		0.43434	0.5214
RISK does not Granger Cause TANG	16	0.07149	0.7934
TANG does not Granger Cause RISK		0.00645	0.9372
BSIZE does not Granger Cause TANG	16	2.07113	0.1738
TANG does not Granger Cause BSIZE		0.30972	0.5873
BSIZE does not Granger Cause RISK	16	0.10956	0.7459
RISK does not Granger Cause BSIZE		0.08464	0.7757

Model 2

Null Hypothesis:	Obs	F-Statistic	Prob.
TDTA does not Granger Cause ROE	16	6.92179	0.0208
ROE does not Granger Cause TDTA		9.34846	0.0092
TDTE does not Granger Cause ROE	16	1.79358	0.2034
ROE does not Granger Cause TDTE		0.01029	0.9207
STDTA does not Granger Cause ROE	16	10.3211	0.0068
ROE does not Granger Cause STDTA		8.65446	0.0114
TANG does not Granger Cause ROE	16	2.34394	0.1497
ROE does not Granger Cause TANG		0.01963	0.8907
RISK does not Granger Cause ROE	16	6.55555	0.0237
ROE does not Granger Cause RISK		0.34562	0.5667
BSIZE does not Granger Cause ROE	16	3.12566	0.1005
ROE does not Granger Cause BSIZE		0.02875	0.8680
TDTE does not Granger Cause TDTA	16	0.71461	0.4132
TDTA does not Granger Cause TDTE		0.14179	0.7126
STDTA does not Granger Cause TDTA	16	0.60395	0.4510
TDTA does not Granger Cause STDTA		0.00054	0.9818
TANG does not Granger Cause TDTA	16	0.01002	0.9218
TDTA does not Granger Cause TANG		0.03404	0.8565
RISK does not Granger Cause TDTA	16	6.34493	0.0257
TDTA does not Granger Cause RISK		1.93726	0.1873
BSIZE does not Granger Cause TDTA	16	1.21349	0.2906
TDTA does not Granger Cause BSIZE		0.28832	0.6004
STDTA does not Granger Cause TDTE	16	0.90386	0.3591

TDTE does not Granger Cause STDTA		0.12894	0.7253
TANG does not Granger Cause TDTE	16	0.90130	0.3597
TDTE does not Granger Cause TANG		5.04788	0.0427
RISK does not Granger Cause TDTE	16	0.15841	0.6971
TDTE does not Granger Cause RISK		0.11982	0.7348
BSIZE does not Granger Cause TDTE	16	10.7922	0.0059
TDTE does not Granger Cause BSIZE		3.39548	0.0883
TANG does not Granger Cause STDTA	16	3.81635	0.0726
STDTA does not Granger Cause TANG		0.22755	0.6413
RISK does not Granger Cause STDTA	16	6.90370	0.0209
STDTA does not Granger Cause RISK		1.08984	0.3155
BSIZE does not Granger Cause STDTA	16	0.02647	0.8733
STDTA does not Granger Cause BSIZE		0.43434	0.5214
RISK does not Granger Cause TANG	16	0.07149	0.7934
TANG does not Granger Cause RISK		0.00645	0.9372
BSIZE does not Granger Cause TANG	16	2.07113	0.1738
TANG does not Granger Cause BSIZE		0.30972	0.5873
BSIZE does not Granger Cause RISK	16	0.10956	0.7459
RISK does not Granger Cause BSIZE		0.08464	0.7757

Model 3

Null Hypothesis:	Obs	F-Statistic	Prob.
TDTA does not Granger Cause NOI	16	0.05836	0.8129
NOI does not Granger Cause TDTA		2.74458	0.1215
TDTE does not Granger Cause NOI	16	2.69181	0.1248
NOI does not Granger Cause TDTE		1.00331	0.3348
STDTA does not Granger Cause NOI	16	0.81062	0.3843
NOI does not Granger Cause STDTA		5.97286	0.0295
TANG does not Granger Cause NOI	16	1.76192	0.2072
NOI does not Granger Cause TANG		0.04206	0.8407
RISK does not Granger Cause NOI	16	3.01452	0.1061
NOI does not Granger Cause RISK		0.22241	0.6450
BSIZE does not Granger Cause NOI	16	3.72770	0.0756
NOI does not Granger Cause BSIZE		0.15223	0.7027
TDTE does not Granger Cause TDTA	16	0.71461	0.4132
TDTA does not Granger Cause TDTE		0.14179	0.7126
STDTA does not Granger Cause TDTA	16	0.60395	0.4510
TDTA does not Granger Cause STDTA		0.00054	0.9818
TANG does not Granger Cause TDTA	16	0.01002	0.9218
TDTA does not Granger Cause TANG		0.03404	0.8565
RISK does not Granger Cause TDTA	16	6.34493	0.0257

TDTA does not Granger Cause RISK		1.93726	0.1873
BSIZE does not Granger Cause TDTA	16	1.21349	0.2906
TDTA does not Granger Cause BSIZE		0.28832	0.6004
STDTA does not Granger Cause TDTE	16	0.90386	0.3591
TDTE does not Granger Cause STDTA		0.12894	0.7253
TANG does not Granger Cause TDTE	16	0.90130	0.3597
TDTE does not Granger Cause TANG		5.04788	0.0427
RISK does not Granger Cause TDTE	16	0.15841	0.6971
TDTE does not Granger Cause RISK		0.11982	0.7348
BSIZE does not Granger Cause TDTE	16	10.7922	0.0059
TDTE does not Granger Cause BSIZE		3.39548	0.0883
TANG does not Granger Cause STDTA	16	3.81635	0.0726
STDTA does not Granger Cause TANG		0.22755	0.6413
RISK does not Granger Cause STDTA	16	6.90370	0.0209
STDTA does not Granger Cause RISK		1.08984	0.3155
BSIZE does not Granger Cause STDTA	16	0.02647	0.8733
STDTA does not Granger Cause BSIZE		0.43434	0.5214
RISK does not Granger Cause TANG	16	0.07149	0.7934
TANG does not Granger Cause RISK		0.00645	0.9372
BSIZE does not Granger Cause TANG	16	2.07113	0.1738
TANG does not Granger Cause BSIZE		0.30972	0.5873
BSIZE does not Granger Cause RISK	16	0.10956	0.7459
RISK does not Granger Cause BSIZE		0.08464	0.7757

Model 4

Null Hypothesis:	Obs	F-Statistic	Prob.
TDTA does not Granger Cause INTI	16	0.03082	0.8634
INTI does not Granger Cause TDTA		1.43721	0.2520
TDTE does not Granger Cause INTI	16	0.00835	0.9286
INTI does not Granger Cause TDTE		0.28677	0.6013
STDTA does not Granger Cause INTI	16	0.04560	0.8342
INTI does not Granger Cause STDTA		0.00352	0.9536
TANG does not Granger Cause INTI	16	1.18826	0.2955
INTI does not Granger Cause TANG		1.50710	0.2413
RISK does not Granger Cause INTI	16	1.15149	0.3028
INTI does not Granger Cause RISK		0.54453	0.4737
BSIZE does not Granger Cause INTI	16	9.31579	0.0093
INTI does not Granger Cause BSIZE		0.79280	0.3894
TDTE does not Granger Cause TDTA	16	0.71461	0.4132
TDTA does not Granger Cause TDTE		0.14179	0.7126
STDTA does not Granger Cause TDTA	16	0.60395	0.4510

TDTA does not Granger Cause STDTA		0.00054	0.9818
TANG does not Granger Cause TDTA	16	0.01002	0.9218
TDTA does not Granger Cause TANG		0.03404	0.8565
RISK does not Granger Cause TDTA	16	6.34493	0.0257
TDTA does not Granger Cause RISK		1.93726	0.1873
BSIZE does not Granger Cause TDTA	16	1.21349	0.2906
TDTA does not Granger Cause BSIZE		0.28832	0.6004
STDTA does not Granger Cause TDTE	16	0.90386	0.3591
TDTE does not Granger Cause STDTA		0.12894	0.7253
TANG does not Granger Cause TDTE	16	0.90130	0.3597
TDTE does not Granger Cause TANG		5.04788	0.0427
RISK does not Granger Cause TDTE	16	0.15841	0.6971
TDTE does not Granger Cause RISK		0.11982	0.7348
BSIZE does not Granger Cause TDTE	16	10.7922	0.0059
TDTE does not Granger Cause BSIZE		3.39548	0.0883
TANG does not Granger Cause STDTA	16	3.81635	0.0726
STDTA does not Granger Cause TANG		0.22755	0.6413
RISK does not Granger Cause STDTA	16	6.90370	0.0209
STDTA does not Granger Cause RISK		1.08984	0.3155
BSIZE does not Granger Cause STDTA	16	0.02647	0.8733
STDTA does not Granger Cause BSIZE		0.43434	0.5214
RISK does not Granger Cause TANG	16	0.07149	0.7934
TANG does not Granger Cause RISK		0.00645	0.9372
BSIZE does not Granger Cause TANG	16	2.07113	0.1738
TANG does not Granger Cause BSIZE		0.30972	0.5873
BSIZE does not Granger Cause RISK	16	0.10956	0.7459
RISK does not Granger Cause BSIZE		0.08464	0.7757

Model 5

Null Hypothesis:	Obs	F-Statistic	Prob.
TDTA does not Granger Cause NINTI	16	0.29152	0.5984
NINTI does not Granger Cause TDTA		3.07086	0.1032
TDTE does not Granger Cause NINTI	16	8.36100	0.0126
NINTI does not Granger Cause TDTE		4.08802	0.0643
STDTA does not Granger Cause NINTI	16	0.08476	0.7755
NINTI does not Granger Cause STDTA		1.00954	0.3333
TANG does not Granger Cause NINTI	16	1.41106	0.2561
NINTI does not Granger Cause TANG		1.50554	0.2416
RISK does not Granger Cause NINTI	16	1.40331	0.2574
NINTI does not Granger Cause RISK		0.25379	0.6228
BSIZE does not Granger Cause NINTI	16	13.1781	0.0031

NINTI does not Granger Cause BSIZE		0.27600	0.6082
TDTE does not Granger Cause TDTA	16	0.71461	0.4132
TDTA does not Granger Cause TDTE		0.14179	0.7126
STDTA does not Granger Cause TDTA	16	0.60395	0.4510
TDTA does not Granger Cause STDTA		0.00054	0.9818
TANG does not Granger Cause TDTA	16	0.01002	0.9218
TDTA does not Granger Cause TANG		0.03404	0.8565
RISK does not Granger Cause TDTA	16	6.34493	0.0257
TDTA does not Granger Cause RISK		1.93726	0.1873
BSIZE does not Granger Cause TDTA	16	1.21349	0.2906
TDTA does not Granger Cause BSIZE		0.28832	0.6004
STDTA does not Granger Cause TDTE	16	0.90386	0.3591
TDTE does not Granger Cause STDTA		0.12894	0.7253
TANG does not Granger Cause TDTE	16	0.90130	0.3597
TDTE does not Granger Cause TANG		5.04788	0.0427
RISK does not Granger Cause TDTE	16	0.15841	0.6971
TDTE does not Granger Cause RISK		0.11982	0.7348
BSIZE does not Granger Cause TDTE	16	10.7922	0.0059
TDTE does not Granger Cause BSIZE		3.39548	0.0883
TANG does not Granger Cause STDTA	16	3.81635	0.0726
STDTA does not Granger Cause TANG		0.22755	0.6413
RISK does not Granger Cause STDTA	16	6.90370	0.0209
STDTA does not Granger Cause RISK		1.08984	0.3155
BSIZE does not Granger Cause STDTA	16	0.02647	0.8733
STDTA does not Granger Cause BSIZE		0.43434	0.5214