

# **CHAPTER ONE**

## **INTRODUCTION**

### **1.1 Background of the Study**

Financial structure deals with the combination of long-term and short-term obligations (debts); and equity capital in financing the operations of a firm (Pandey, 2009; Anyanwaokoro, 2008). What determines how a banking institution funds its activities? To the management of most banking institutions the decision regarding the choice of alternative funding sources and the resultant mix of debt to equity is a matter of utmost importance. Management is constantly in search of an optimal combination of debt to equity, or financial structure that maximizes the value of the firm and decreases its risk profile.

The value of the bank and its risk profile are the two drivers to the financial structure decision that reflects the different interests of those who, on the one hand, are primarily interested in the banking institution as a business, and those who, on the other hand, are primarily interested in the banking institution, because bank operations affect the money supply, which influences the total level of economic activity (Alhadeff & Alhadeff, 1957).

Research in the field of financial structure and corporate performance has generated extensive debate as a result of the relevance of equity capital in the success and survival of business as a going concern. Abu-Tapanjeh (2006) reported that considerable amount of research have been conducted on the relationship between financial structure and performance of firms in developed and developing economies. These studies have documented several arguments on the need to improve the financial structure as a need to enhance the performance of firms (Gleason, Mathur & Mathur, 2000; Mesquita & Lara, 2003; Philips & Sipahioglu, 2004; Abor, 2005; Carpentier, 2006; Abor, 2007; Madan, 2007; Chen, Firth & Zhang, 2008;

Kennon, 2010; Ahmad, Abdullah & Roslan, 2012; Shubita & Alsawallah, 2012).

Financial structure decisions represent another important financial decision of a business organization apart from investment decisions. Ali, Akhtar and Sadaqat, (2011) stressed that the decision regarding the use of debt and equity modes of financing is not an easy job, due to the fact that a number of benefits and costs are associated with the management decisions regarding the optimal use of capital structure. It is important because it involves a huge amount of money and has long-term implications on firms. Financial structure is one of the important financial decisions for any banking business. This decision is important because banks (especially, the Deposit money banks) need to maximize return to various shareholders and also because it has effect on the value of the firm (Ahmad, Abdullah & Roslan, 2012).

A new business requires capital and still more capital is needed if the firm is to expand. The required funds can come from different sources and in different forms. Firms can use either debt or equity capital to finance their assets. One of the most perplexing issues facing financial managers is the relationship between financial structure, which is the combination of debt and equity financing which influences stock price and hence the value of the firm (Azhagaiah & Gavoury, 2011). Al-Qudah (2011) explains that the relationship between financial structure and firm value depends on how firms choose their financial structure and how much they should borrow based on various trade-off between the cost and benefit of debt versus equity.

Numerous studies suggest a negative relationship between financial structure and commercial banks performance (Booth, Aivazian, Demircug-Kunt & Maksimovic, 2001; Deesomsak, Paudyal & Pescetto, 2004; Huang & Song, 2006; Tang & Jang, 2007; Karadeniz, Kandir, Balcilar & Onal, 2009; Chakraborty, 2010) while others indicate a positive relationship between financing choices and firm performance (Ghosh, Nag & Sinnans, 2000; Hadlock & James, 2002; Frank & Goyal, 2003; Berger

& Bonaccorsi, 2006; Saeedi & Mahmoodi, 2011). A number of studies have also found either poor or no significant relationship between debt level and performance (Tang & Jang, 2007; Ebaid, 2009).

Given these extensive financial structure researches since Modigliani and Miller, 1958 and 1961; Myers (1984) and Harris and Raviv (1991), Mishkin (2000) states that the interest for examining banks' financial structure is of no interest, since it should be determined by the capital requirement of individual banks. He further posits that, besides holding capital according to requirement, another more dynamic effect of this regulatory instrument and related to asymmetric information; is that the cost of raising equity for different banks affect their leverage. However, Gropp and Heider (2009); Rehnckrona (2011) found evidence for more similarities between corporate capital structure and bank financial structure than previously thought. They also conclude that capital regulation may only be of second order importance when determining the financial structure of banks. The position of Gropp and Heider (2009) and Rehnckrona (2011) on the similarities between corporate capital structure and bank financial structure is therefore, upheld for this study.

Financial structure theory for banking firms thus far has been derived from prior works and the capital structure of industrial firms. Existing researches has not done much on the application of this theory to banking institutions located in Nigeria. This adds increased complexity to the determination of Deposit money bank's financial structure policy by management. The difficulty is further exacerbated by the increased application of regulatory controls.

The primary goal of Deposit Money banks is to generate profits. However, Deposit Money bank's profitability is important not only for directly interested parties (shareholders, management, employees, client, customers, regulatory authorities, the community), but for the entire economy (Anyanwaokoro, 2008; Okafor, 2011; Mirjana & Vanja, 2006; Nwankwo, 1991).

Profit is socially desirable because the presence of profit is an indication that some degree of efficiency has been attained in the utilization or organization of resources. Profit making Deposit money banks add value to national wealth. They enhance the index of economic well-being for affected stakeholders, particularly, shareholders, depositors and government (Okafor, 2011).

Deposit Money Banks (DMBs) in Nigeria have undergone significant changes in their operations after the liberalization of the banking system in 1986 as a result of the International Monetary Fund (IMF) supported Structural Adjustment Programme (SAP), which was targeted at restructuring and redirecting the economy, eliminating price distortions and diversifying the export base. The programme triggered a whirlwind of economic and financial sector reforms. The reforms removed entry barriers to commercial banking, liberalized banking operations, promoted competition in banking, made banking operations more market driven, supported the improvement of institutional framework and more efficiently the performance of commercial banks, as it affected the profitability of the Deposit Money banks (Okafor ,2011; Xuezhi & Dickson ,2012).

Profitability of Deposit Money banks is necessary for product innovation, diversification and efficiency of commercial banks (Hempell, 2002). The stability of Deposit money banks as a whole in the economy depends primarily on profitability level. High profit levels have the tendency to absorb risks and shocks that Deposit money banks can face. Empirical evidence from Demirgue-Kunt and Detragiache (1999) indicated that the soundness of Deposit money banks' performance depends on profitability. The sustainability of banks profitability is very important to national economy. This is because banking institutions serves as financial intermediary and hence supports the flow of funds from borrower to end users of fund to grow economic activities.

Financial structure has significant influence on Deposit Money banks' profitability. In the broad-band sense, financial structure deals with the combination of long-term and

short-term obligations, and equity in financing the operations of a banking firm. The mix of these sources of capital such as common stock, debentures, retained earnings, and other long-term obligations is referred to as the financial structure of a banking firm (Anyanwaokoro, 2008). Profitability and efficiency ratios such as return on assets (ROA), net interest margin (NIM), and return on equity (ROE) are all influenced by debt which is a key component of financial structure. How much of long-term obligation that is used to finance the operations of banks is crucial since banks are highly levered by depending heavily on deposits of savers. Will abundant availability of debt in banks' financial structure give positive impact to Deposit money banks financial performance?

Before the modern finance era, a lot of effort was invested by firms and financial analysts in developing skills in financial structure engineering i.e. in developing the ability to select the combination of financing instruments that would add highest value to a firm (Okafor,2014).

According to Brander and Lewis, (1986) and Maksimovic, (1986) a high debt firm could turn aggressive (by investing more in long-term investments), increase its outputs and hence profitability. However Opler and Titman (1994) found that highly leverage firms lose market share to more conservatively financed competitors during industry downturns when high leverage is likely to lead to financial distress. This implies that Deposit money banks with high leverage may underperform due to vulnerability to fierce competition and high cost of borrowing especially during inflationary period with attendant high interest rate regime. According to Sharpe (1995) the cyclical nature of labor force is positively related to financial leverage levels. Sustainable profitability of a banking firm depends largely on the quality of management that it attracts, and many of the best managers choose to work for a company that provides better future opportunities over one that pays more but offers few opportunities for advancement. This implies that high debt may lead to inability to attract skilled team to manage the affairs of the bank and hence leading to inefficiency and overall poor profitability.

However, Deposit Money banks profitability is affected not only by financial structure but by both internal and external factors. Some of these could effectively be controlled by the banks' management while others may not be controlled internally. Thus the ability to improve profitability by banks' management depends on not only their skills and experiences but also the understanding of the economic context of the country where they operate.

Macroeconomic factors such as inflation, competition between banks and with other sources of funds, interest rates, and gross domestic products have implications on profit and debt hence the financial structure (Anyanwaokoro, 2008). During high inflation regime interest rates rise leading to high cost of borrowing which in turn affects the financial structure though net interest income of banks may increase. It is therefore inconclusive to study the financial performance of banks in Nigeria without looking at it from financial structure perspective.

According to Demirgüç-Kunt and Huizinga (1998) and Bikker & Hu (2002) there is a positive correlation between bank profitability and the business cycle. This implies that, banks' profitability increases during economic boom periods and decreases during recession, other things been equal. During economic boom (high GDP) period, more jobs are created thereby reducing unemployment. This leads to more savings at the banks and high spending because people can afford to spend more. Both individuals and businesses borrow from the banks thereby increasing profit and net income margin of banks. Contrary, during recession (low or declining GDP) period, businesses contract while unemployment increases resulting in low borrowing and high default rate leading to banks' poor performance (Bikker & Hu, 2002).

The extent to which inflation affects Deposit money banks' profitability depends on whether future movements in inflation are fully anticipated, which, in turn, depends on the ability of banks to accurately forecast future movements in the relevant control variables. An inflation rate that is fully anticipated raises profits as banks can correctly

adjust interest rates in order to increase revenues. On the other hand an unexpected inflationary change could raise costs due to sub-optimal interest rate adjustment. This implies that higher inflation may lead to lower net profitability. This is because it recovers borrowers' capability to meet requirement by eroding the real value of the debt burden. According to Bourke (1989), Molyneux and Thornton (1992), and Demirgüç-Kunt and Huizinga (1998), there is a positive relation between inflation and long term interest rates with bank performance. Gerlach and Peng (2003) also found that changes in profitability are directly related to the net interest margin and to the non-performing loan (NPL) ratio, which manipulate banks' provisioning decisions. Major component of banking profitability is the interest margin on loans (Doliente, 2003). High loan rates render the cost of funds increasingly excessive to potential users thereby reducing investment activity.

Similarly, exchange rate plays an important role in Nigeria's level of business with other economies around the world. Constant appreciation of the foreign currencies against the Nigerian Naira has direct impact on business performance in Nigeria. An increase in price of goods and services in Nigeria as a result of unfavorable exchange rate movements will in turn increase inflation hence affecting interest rates, loan rate and the composition of debt in the financial structure and possibly declining banks profitability.

In Nigeria, double digit inflationary rate poses financial planning challenges for businesses. According to Financial Stability Report of the Central Bank of Nigeria (2010), inflation rate (year-on-year) moderated substantially, although it remained at double digit all through 2009 to the first half of 2010. Headline inflation fell from 14.6 per cent at the end of the first quarter of 2009 to 11.8 per cent at end of March 2010 and averaged 12.0 per cent between the first quarters of 2008 and 2010. The relatively high level of inflation reflected the upward movement in food, fuel and housing prices.

The exchange rate, which was relatively stable during the first and second quarters of 2009, depreciated marginally during the third and fourth quarters and later appreciated

marginally in the first quarter of 2010. Interest rates rose in the first half of 2009, influenced by the global financial crisis which precipitated tight liquidity conditions in the banking system, but reversed in the last quarter, reflecting improvements in the liquidity conditions in the money market, as well as the CBN guarantee of all inter-bank transactions (CBN, 2010). The uncertain and unpredictable inflation and exchange rates have caused banks to record huge non-performing loans with its attendant impact on the earnings and capital of the banks. These trends which extends deep into 2013(CBN, 2013) makes it more compelling to study financial structure and profitability in the context of inclusive macroeconomic factors.

## **1.2 Statement of the Problem**

Corporate financing decisions involve complex processes such that existing theories can at best explain only certain facets of the diversity and complexity. Financial structure, which is the way bank's assets are financed, through short-term borrowings, long-term borrowings and owners' equity, is problematic to banks efficiency and profitability. The mix of long-term and short-term debts is very critical in the process of arriving at an appropriate financial structure for a banking firm. There are a number of arguments bothering on leverage ratio of the banking firm's financing decision. One school of thought notes that given certain conditions, there should be less emphasis on the level of leverage ratios of a banking firm (Mirjana & Vanja, 2006). Another school of thought emphasizes the effect of leverage ratios on banking firm's efficiency and profitability (Rahman & Mustafa, 2007). There exists another school of thought which struck a balance by maintaining that a given combined leverage ratio gives the banking firm better returns on their operations (Ikpefan & Enahoro, 2007). To what extent then does the degree of combined leverage bring either, positive or negative effects on banks' efficiency and profitability?

Profitability and efficiency ratios such as return on assets (ROA), net interest margin (NIM) and return on equity (ROE) are all influenced positively or negatively by debt which is a key component of financial structure. How much of long-term obligations required to finance the operations of banks is crucial since banks are highly levered by depending heavily on deposits of savers.

In their revised model, Modigliani and Miller (1963) relaxed the no corporate tax assumption, and demonstrated that increased use of debt financing could positively impact on the market value of firms. To what extent will such increased use of long-term debts affect the profitability of Deposit money banks in Nigeria?

Financial risk originates from banking firm's financing decision. The cost of capital is affected by the composition of the Deposit money banks' financial structure. Therefore, selecting the proper financing mix for a banking firm requires a consideration of the effect of variability in the earnings that would be available to the shareholders and the additional chance of insolvency to be borne by the equity holders as a result of the use of long-term debt – with fixed interest capital. Operating leverage is only one factor affecting variability. To this end banks management must be conversant with the operating and financial leverage effects to be able to make proper alteration in the bank's financial structure in order to improve profitability.

How can bank's management combine long-term and short-term obligations, with equity financing to ensure optimum profitability? What are the important factors in choosing appropriate amount of debt? Which source of finance is most effective in boosting bank's profitability? Is there a way of dividing the banking firm's capital into debt and equity so as to maximize the value of the banking firm? Does the choice of the financial and capital structures adopted by the banking firms affect its profitability profile? Do Nigerian banks prefer short-term obligations to long-term obligations and why?

Deposit money banks listing on the Nigerian stock exchange depend among other factors, on the level and structure of capitalization. The indication therefore seems to be

that capitalization has become a yardstick for assessing the strength and profitability of banks. Does equity financing have more effects on a banking firms profit than its debt financed capital? In particular, and in consideration of this country's peculiarities, can the financial structure behavior of the Nigerian Deposit Money banks be adequately understood and possibly restructured or manipulated in favour of long-term obligations towards achieving expected domestic development? These questions which are of utmost importance to corporate financial managers define the major frontiers of the subject of this study.

Financial structure, however, is not the only factor that impacts on the profitability of banks as indicated earlier in this work. Domestic environmental factors particularly gross domestic product growth rate, inflation, foreign exchange rate, and gross domestic product per capita- can negatively or positively influence bank's profitability.

The combinations of the above macro-economic variables as well as the financial structure impact on the profitability of banks in various ways. We need to understand the inter-relationship between macro-economic variables, financial structure and profitability of banks in the economy in order to put in place measures to enhance sustainable profit for the banks. It is therefore, necessary that we also evaluate the effects of some macro-economic variables on banks operations in order to address the effects of exogenous factors on the profitability and efficiency of Deposit money banks in Nigeria.

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

This study is designed to assess the effects of financial structure on the profitability of Deposit Money Banks in Nigeria. Specifically, the study intends to:

1. Determine the relationship between short-term obligations and profitability of Nigerian deposit money banks.
2. Evaluate the relationship between long-term obligations and profitability of Nigerian deposit money banks.

3. Ascertain the relationship between total obligations and profitability of Nigerian Deposit Money banks.
4. Determine the relationship between macro-economic variables (inflationary rate, exchange rate movements, Gross Domestic Product (GDP) and external debts) and profitability (ROA, ROE, NIM) of Nigerian Deposit Money banks.
5. Assess the relationship between equity capital and profitability (ROA,ROE, NIM) of Deposit money banks in Nigeria

#### **1.4 Research Questions**

To facilitate necessary understanding of the relationship between financial structure and profitability of Nigerian Deposit Money banks, the following questions will guide the study.

1. What is the relationship between short-term obligations and profitability of Nigerian deposit money banks?
2. What nature of relationship exists between long-term obligations and profitability of Nigerian deposit money banks?
3. Is there any notable relationship between total obligations and profitability of Nigerian Deposit Money banks?
4. What is the relationship between macro-economic variables (inflationary rate, exchange rate movements, Gross Domestic Product (GDP) and external debts) and profitability of Nigerian Deposit Money banks?
5. What is the nature of relationship between equity capital and profitability (ROA, ROE, and NIM) of Deposit money banks in Nigeria?

#### **1.5 Statement of Hypotheses**

With due consideration to the research objectives, as well as the problems and questions raised, the following hypotheses have been set to guide the study:

1. Ho: There is no significant relationship between short-term obligations and profitability of Nigerian Deposit Money Banks.
2. Ho: There is no significant relationship between long-term obligations and profitability of Nigerian Deposit Money Banks.
3. Ho: There is no significant relationship between total obligations and profitability of Nigerian Deposit Money Banks.
4. Ho: There is no significant relationship between macro-economic variables (inflationary rate, exchange rate movements, Gross Domestic Product (GDP), external debts) and profitability of Nigerian Deposit Money Banks.
5. Ho: There is no significant relationship between equity capital and profitability (ROA, ROE, and NIM) of Deposit money banks in Nigeria.

## **1.6 Significance of the Study**

The subject of the study has been carefully chosen based on the need for Deposit money banks as financial intermediaries, to be strategically positioned in the face of competition which characterizes the banking business.

The topic is timely as the global financial crises which have reached the real economy strongly demand a restructure of banks financial structure.

This study measured and obtained an optimal ratio for each and every component of the financial structure required for improved banks profitability.

It will enable the banks appreciate the importance of long-term obligations in their financing decisions and the contributions they could make to the profitability of the banks.

The stakeholders can also appreciate the importance of long-term obligations (fixed-interest capital) on profitability of banks. This study becomes invaluable if it can be established that long-term debt financing could positively impact on the market value of the Deposit money banks.

The shareholders who most times are against raising further equity or debt instruments can appreciate that the combination of leverage related cost and tax advantage of the debt, results in an optimal financial structure, hence improved bank efficiency and profitability.

From a theoretical perspective, the study will contribute to the existing body of knowledge on the topic of financial structure. The study aims to apply a more holistic view on the topic of optimal financial structure for banks, where previous studies were one-dimensional. As far as could be ascertained, this study will be among the first to consider the effects of financial structure on Nigerian Deposit money banks. The study aims to make a unique contribution by comparing the various funding mechanisms and funding mix adopted by Deposit money banks in Nigeria in an attempt to identify best practices.

From a practical perspective, the findings of the study would be valuable to management of Nigerian Deposit money banks in their decision making process and their attempts to maximize their firms' value, efficiency and profitability. Also, correct application of financial structure theory and compliance with regulations will decrease a bank's risk profile and in turn result in a more sustainable profit, stable monetary system and economy.

Thus, the work will contribute to fill gaps in the financial structure's theoretical puzzle in terms of testing theories in different contexts. Arguably, the study could then possibly make a contribution both to theory regarding financial structure and profitability as well as giving practical insight for Nigerian CFO's and CEO's regarding how to manage the

DMB's financial structure for achieving better financial performance (profitability), assuming such a link could be established. If not, this work could contribute to informing managers that what they do with the DMB's financial structure in Nigeria will not then affect profitability.

Although there has been a great deal of research on the subject of financial structure, this study makes a contribution to the literature in this area because it is an attempt to unfold the financial structure practices of commercial banks operating in a unique environment. This is the environment where there is a flat corporate tax rate and a financial market system that is not very efficient. Lack of market efficiency means information flow is not objectively available to all the interested parties.

Finally, the study will also complement the existing work on the topic, as well as provide the foundation upon which future research can be based.

## **1.7 Scope and Limitations of the Study**

This study on the effects of financial structure on profitability of Deposit Money Banks covered the operations of all the Deposit money banks in Nigeria from 1986 to 2013. The study is limited to Deposit money banks in Nigeria given their uniqueness in Nigerian financial system as major mobilizers of funds (transactions accounts) and their commitment to granting commercial credits.

The study used data sourced from the financial statements of all the Deposit money banks in Nigerian banks as compiled by the Central Bank of Nigeria (CBN), Nigerian Deposit Insurance Corporation (NDIC), Nigerian Stock Exchange (NSE) and Federal Bureau of Statistics covering the period 1986 to 2013.

The Deposit money banks' (DMBs) long-term obligations (debts) for the study are bonds (identified as bonds and debentures in the annual accounts of the Deposit money banks).

The DMBs' short-term obligations for the study include demand deposits, savings deposits, time deposits (of all maturities), foreign currency deposits, foreign liabilities, central government deposits, credit from central bank and all unclassified liabilities (inter-bank liabilities and other liabilities) incurred by banks.

Equity comprised all items under capital accounts; share capital, reserve funds, reserve for depreciation and non-performing assets, loans/lease loss provisions, etc.

Macro-economic variables namely inflation rate, gross domestic product, and Naira exchange rate were also extracted for the period under study.

**The period was selected for many reasons:**

- (1) It contained the two major reforms clusters in the history of banking in Nigeria; the fourth (Structural Adjustment Programme) reform cluster (1986-1999) and the fifth (Fourth Republic) Cluster (2000-2013).
- (2) In July 1986, Nigeria started to implement an IMF supported Structural Adjustment Programme (SAP) which was targeted at restructuring and redirecting the economy, eliminating distortions and diversifying the export base. The programme triggered a whirlwind of economic and financial sector reforms directed at deregulating the banking system, liberalizing banking operations, promoting competition in banking and making banking operations more market driven and profit oriented.
- (3) Nigeria returned to constitutional democracy in 1999 after sixteen years of military dictatorship which signaled the commencement of Nigeria's Fourth republic (banking reforms) covering 2000 to 2013.
- (4) The Phase 1 Fourth republic reforms (2001-2008) were banking sector efficiency driven. The primary motivation was to enhance banking sector competitiveness and improve the efficiency of banking services delivery. The Central Bank of Nigeria in July 2004 came up with a major policy reform that required banks

licensed in Nigeria to increase their paid up capital to a minimum N25billion (twenty- five billion naira) on or before December 31st 2005. This is sequel to the continued presence of illiquid and unhealthy banks in the banking system. The new requirement initially raised a lot of dust and became a subject of polarized debate amongst stakeholders and financial analysts over the desirability and feasibility of such high quantum of capital base. However, it appears that the preference of the CBN is for bigger and stronger banks to acquire or merge with the smaller and weaker ones.

The implication is that a highly capitalized bank will not have problems in carrying out its payments and clearing obligations.

- (5) The Phase 11 of the Fourth republic reforms (2008-date) was ostensibly intended to fine-tune the banking consolidation reforms of Phase 1 and to particularly tackle emerging post consolidation challenges and operational abuses which spilled off from the explosive growth of the banking sector occasioned by the phase 1 consolidation reforms. The reforms were intended to promote financial stability, improve the quality of banks generally, and create a healthy environment for future evolution of the sector as well as to increase the contribution on the banking sector to real sector growth and development.

### **Limitations of the Study**

Although every effort has been made to make this work up-to-date as much as possible; users are reminded that the world of finance and banking are fast changing. Nowhere are such changes more breath-taking as in Nigeria today. Attention is therefore drawn to the many banking reforms by the Central Bank of Nigeria, official reports, Government white papers, individual banks consolidation and post consolidation reports and periodicals in Nigerian financial system which the researcher used to update the literature.

The attention of the reader is also drawn to the aggregated nature of data for the study. Another constraint may arise from the intrinsic weakness of data base in Nigeria, having regard to the poor statistical culture in the country. We have poor habit in record-keeping and data management. Oftentimes, records from various government agencies are in conflict with one another.

Despite these odds, the work was able to come up with reasonable facts about the subject of the study.

### **1.8 Operational Definition of Terms.**

Financial structure deals with the combination of long-term and short-term obligations (debts); and equity capital in financing the operations of a firm (Pandey, 2009).

Capital refers to those pools of funds that a company commits to its fixed assets, to inventories, to account receivables, and to cash or marketable securities to lead to corporate growth (Uremadu, 2004).

Capital is a stock of money, possessed by a person or a business firm, that could be invested, from time to time, in order to earn income, but for which it is intended not to diminish (Akinsulire, 2010)

Capital Structure is the relationship which exists between the various classes of capital used by the firm in financing its operations ( Uremadu,2004).

Debt Financing- The use of external sources of funds in the financing mix of terms (Tim, Michael & Sheridan, 1997)

Bankruptcy- Legally declared inability of the firm to pay it creditors or *stakeholders* (Encyclopedia Britannia, 2008)

Net Profit Margin- The net profit margin is used to determine the proportion of revenue that finds its ways into profit (Pandey, 2005).

## **CHAPTER TWO**

### **REVIEW OF RELATED LITERATURE**

The related literature for this study has been reviewed under the following sub-headings:

**\* Conceptual Framework**

- Concept of Firm's financing Structure
- Bankruptcy, Cost of Bankruptcy and effects on the Firm
- The Concept of and uses of Financial Ratios
- Profitability and Debt Financing of the Firm
- Asset Utilization and the value of the Firm
- Liquidity and the Firms' Value
- Determinants of financing structure and Profitability in Banks

**\* Theoretical Framework**

- Overview of Modigliani and Miller Theorem
- The Trade-off Theory
- The Pecking-order Theory
- The Agency-cost Theory

**\* Empirical Review**

**\* Gap in Literature**

#### **2.1 Conceptual Framework**

##### **2.1.1 The Concept of Firm's financial Structure**

The importance of the financial structure as a measure of company growth and performance has been at the core of vigorous debate for many years. With the threat of the recession and global competitiveness to the survival of organizations, what constitutes an optimal financial structure had to be interrogated. Research suggests that for a firm's survival, especially in very difficult circumstances, financial structure is

essential to measure growth and performance (Voulgaris, Asteriou & Agiomirgianakis, 2004)

Most modern researches in the field of corporate finance have issues with the Modigliani and Miller (1958; 1963) proposition which states that in a world of perfect capital market and no taxes, a firm's financial structure will not influence its cost of capital. This proposition submitted that firms in a given risk class would be unaffected by financial gearing (Copeland, Weston and Shastri, 2005).

Borigham and Gapenski (1996) argued that an optimal financial structure can be attained if there exist a tax sheltering benefit provided an increase in debt level is equal to the bankruptcy costs. They suggest that managers of a firm should be able to identify when the optimal financial structure is attained and try to maintain it at that level.

This is the point at which the financing costs and cost of capital are minimized, thereby increasing firm's value and performance. Berle and Means (1932) put forward the agency theory which also contributes to the financial structure decision. This theory argues that conflicts arise from the possible divergence of interests between shareholders (principals) and managers (agents) of firms. The primary duty of managers is to make returns to shareholders thereby increasing the profit figures and cash flows (Elliot, (2002). However, Jensen and Meckling (1976); Jensen and Ruback (1983) argue that managers do not always run the firm to maximize returns to shareholders. As a result of this, managers may adopt non-profitable investments, even though the outcome is likely to be losses for shareholders. They tend to use the free cash flow available to fulfill their personal interest instead of investing in positive present value projects that would benefit the shareholders. Jensen (1986) argues that the agency cost is likely to exacerbate in the presence of free cash flow in the firm.

In an effort to mitigate this agency conflict, Pinegar and Wilbruch (1989) argue that capital structure can be used through increasing the debt level and without causing any

radical increase in agency costs. This will force the managers to invest in profitable ventures that will be of benefit to the shareholders. If they decide to invest in non-profitable projects and they are unable to pay the interest due to debt holders, the debt holders can force the firm to liquidation and managers will lose their decision rights or possibly their employment.

Leveraged firms are better for shareholders as debt level can be used for monitoring the managers (Boodhoo, 2009). Thus, higher leverage is expected to lower agency costs, reduce inefficiency and thereby lead to improvement in a firm's performance (Kochhar, 1996; Aghion, Dewatripont & Rey, 1999; Akintoye, 2008; Onaolapo & Kajola, 2010).

Empirical supports for the relationship between capital structure and firm performance from the agency perspective are many and in support of negative relationship. Zeitun and Tian (2007), using 167 Jordanian companies over fifteen year period (1989 – 2003), found that a firm's capital structure has a significant negative impact on the firm's performance indicators, in both the accounting and market measures.

Majumdar and Chhibber (2004) and Rao and Syed (2007) also confirm negative relationship between financial leverage and performance. Their results further suggest that liquidity, age and capital intensity have significant influences on financial performance.

Boodhoo (2009) typically describe capital structure as a mix of debt and equity capital maintained by the firm and also concluded in line with other definitions that the capital structure of a firm is very important since it relates the ability of the firm to meet the need of shareholders. Therefore, an appropriate capital structure is a critical decision for any business organization. The importance of the financial structure decisions for the firm cannot be more accurately summarized than the conclusion of Simerly & Mingfang (2000) when they said that financial structure decisions is important not only because of the need to maximize returns to various organizational constitutions, but also

because of the impact such decisions has on an organizations' ability to deal with its competitive environment.

The prevailing arguments were originally developed by MM in 1958, which assumes that an optimal financial structure exists for a firm that balances the risk of bankruptcy with the tax savings of debt and once, such is established; this capital structure could provide greater returns to shareholders than they would originally receive from an all equity firm. The above was affirmed by Davidson, Cheng and Hatfield (1994) and Brigham and Gapenski (1996). In fact, Brigham and Gapenski (1996) agreed that in theory, the MM model is valid. However, in practice, bankruptcy costs do not exist and these are directly proportional to the debt level of the firm.

Looking back at the conclusion of MM, the question which have always been in the minds of several researchers are; is there any optimal financial structure for the firm that would maximize the wealth of Shareholders? If there is, how then do we achieve such optimal capital structure?

Sultz (1990) supported the idea of optimal financial structure that would result from a compromise between benefits related to the reduction of cash flows and the inconveniences that these cash flows will bring when there are good investments opportunities. As for Chen and Kin (1979), they argued that it is suitable to look for optimal capital structure through arbitrage between tax benefits on one hand and substitute to debts and risks of bankruptcy on another hand. Concerning the issue of the choice of optimal financial structure, Jensen and Meckling (1976) argued that in the presence of taxes on profits, firms have the interest to issue debt assets because this will generate substantial tax economies which may boost the value of the firm proportionately to increase the debt ratio.

Nevertheless, it must be said here that, issuing debt may lead to increasing agency cost (Jensen & Meckling, 1976). In deriving an optimal capital structure for the firm,

Champion (1999) was even of the view that the use of debt was one way to improve the performance of an organization, while this can true in some circumstances, it fails to consider either the complexities of the competitive environment or the long term survival needs of the organization (Simerly & Mingfang, 2000).

Thus, Simerly and Mingfang (2000) were of the opinion that we can argue that when firms use debts to discipline managers or to achieving economic gain, it is the easy way out, however, in many instances, it can lead to the demise of the organization, thus, contributing to the fact that there is no optimal capital structure. We believe, they continued, that the question is framed incorrectly. Rather, than, what is an optimal mix of debt and equity that will maximize shareholder's wealth? It should have been under what circumstances should debt be used to maximize shareholders wealth and why? Thus, they find that, many firms do not have an optimal capital structure and the reason advocated by these firms was that in general, the performance of a firm is not compensation of the managers of the firm.

Also, in reviewing earlier works of MM, Miller (1977) argued that the tax advantage of debt is exaggerated by considering the corporate profit in isolation from personal income tax. He argues that the corporate tax advantage of debt is offset by personal tax rates on investors' debt income that are higher than tax rates on equity income. In addition, Breman and Schwartz (1978) also argued that the corporate tax advantage of debt is lower because the interest tax shield are lost if the firm goes through liquidation and bankruptcy. Furthermore, De Angelo and Masulis (1980) argued that the substitute tax shield such as investment tax credits also reduce the corporate tax advantage. Thus, no optional capital structure exists for the firm.

Consistent with the various questions raised concerning the optimality of the firm's capital structure, another question that has often been asked is 'can the MM irrelevance theories of capital structure hold in real world'? In answer to this question, MM shoot themselves on the foot because, their theory was based on certain assumptions which in

practice may not work. In fact, they assume a perfect capital market (no transaction or bankruptcy cost, perfect information, thus, firms and individuals can borrow at the same interest rates, no taxes and investment decisions are not affected by financing decisions) ( Brealey, Myers & Marcus, 2004).

Thus, if capital structure is irrelevant in a perfect market, then imperfection which exist in real world must be the causes of its relevance. Several theories have been advocated by several scholars, such theories like trade off theory of capital structure, pecking order theory of financial structure, agency cost theory of capital structure, market timing hypothesis ( Baker and Wurgler, 2002), accelerated investment effect theory (Lyandres & Zhdanor, 2007) among others. However, in this research, we will focus on the first three theories mentioned and how they are explained in relation to the capital structure of the banking firm.

### **2.1.2 Definitions of Capital Structure and its Components**

The term capital structure according to Kennon (2010) refers to the percentage of capital (money) at work in a business by type. There are two forms of capital: equity capital and debt capital. Each has its own benefits and drawbacks and a substantial part of wise corporate stewardship and management is attempting to find the perfect capital structure in terms of risk and reward payoff for shareholders. Alfred (2007) stated that a firm's capital structure implies the proportion of debt and equity in the total capital structure of the firm. Pandey (2005) differentiated between capital structure and financial structure of a firm by affirming that the various means used to raise funds represent the firm's financial structure, while the capital structure represents the proportionate relationship between long-term debt and equity.

The capital structure of a firm as discussed by Inanga and Ajayi (1999) does not include short-term credit, but means the composite of a firm's long-term funds obtained from various sources. Therefore, a firm's capital structure is described as the capital mix of

both equity and debt capital in financing its assets. However, whether or not an optimal capital structure exists is one of the most important and complex issues in corporate finance.

### **2.1.3 Components of a Firm's Capital Structure**

The various components of a firm's capital structure according to Inanga and Ajayi (1999) may be classified into equity capital, preference capital and long-term loan (debt) capital.

#### **2.1.3.1 Equity Capital**

Pandey (1999) defined equity capital as including share-capital, share premium, reserves and surpluses (retained earnings). Typically, equity capital consists of two types which include: contributed capital, which is the money that was originally invested in the business in exchange for shares of stock or ownership and [retained earnings](#), which represents profits from past years that have been kept by the company and used to strengthen the [Balance Sheet](#) or fund growth, acquisitions, or expansion. The cost of equity capital of a firm using the dividend growth basis can be expressed as:

$$K_e = d_0 (1 + g) / P_e + g \quad (1)$$

Where:  $K_e$  equals the cost of equity capital;  $d_0$ , the current dividend per share;  $P_e$ , the Ex-dividend market price per share and  $g$ , the expected constant annual growth rate in earnings and dividend per share.

#### **2.1.3.2 Preference Capital**

The preference share capital is a hybrid in that it combines the features of debentures and those of equity shares except the benefits. Its cost can be expressed as:

$$K_p = P_{div} / P_o \quad (2)$$

Where:  $K_p$  equals the cost of preference share;  $P_{div}$ , the expected preference dividend and  $P_o$ , the issue price of preference shares.

### 2.1.3.3 Debt Capital

The debt capital in a firm's capital structure refers to the long-term [bonds](#) the firm use in financing its investment decisions because the firm has years, if not decades, to come up with the principal, while paying interest only in the meantime. The cost of debt capital in the capital structure depends on the health of the firm's balance sheet. This can be expressed as:

$$K_d = Int/Bo \quad (3)$$

Where:  $K_d$  equals the before-tax cost of debt;  $Int$ , the interest element and  $Bo$ , the issue price of bond (debt). The after-tax cost of debt capital will be:  $K_d (1-T)$ . Where:  $T$  is corporate tax rate.

### 2.1.4 Bankruptcy, Cost of Bankruptcy and effect on the Banking Firm

According to Encyclopedia Britannica (2009), the term bankruptcy is legally declared inability or impairment of ability of an individual or organization to pay its creditors, creditors may file a bankruptcy petition against a business or corporation debtor (involuntary bankruptcy) in an effort to recoup a portion of what they are owed or initiate a restructuring. In majority of cases, however, bankruptcy is initiated by debtor (a voluntary bankruptcy that is filed by the insolvent individual or organization). In involuntary, bankruptcy petition may not be filed against an individual consumer debtor who is not engaged in business (Encyclopedia Britannica, 2009).

The Trade-off theory and Agency cost theory capital structure acknowledge that bankruptcy cost exist as a result of increased debt financing. Thus, there is a bankruptcy risk involved in the firms used of debt. Just as Chen and Kin (1979) found out, that

bankruptcy risk is that risk that a company will be unable to meet its debts obligations as often referred to as the default or insolvency risk. Much research on bankruptcy risk emerges to explain the theory of capital structure. In response to the MM proposition as modified by income tax, Baxter (1976) introduced debt financing in the study of bankruptcy and explained the reasons why firms did not use debt exclusively when raising capital. He believed that under the condition of rates increase, a firm's bankruptcy risk, thus, firms cannot continuously increase their debt rate. As he said, as debt rate increases, a firm's bankruptcy risk will increase, thus increasing its expected bankruptcy cost and offsetting the benefits of tax savings of debt interest.

Kraus and Litzenberger (1973) studied the optimal debt level and pointed out that the value of a firm with debt equal to the value of a firm without debt is the product of the market value of the debt and income tax rate minus the after tax value of its expected bankruptcy cost. They stressed the importance of the negative impact of bankruptcy cost towards a firm's value. While, Stiglitz (1972) believed that the probability of bankruptcy considers the potential bankruptcy risk and its resultant high bankruptcy cost, they may abandon their merger and acquisitions plans.

Under this view, Jensen (1986) concluded that under the bankruptcy mechanism, debt financing would usually create corporate governance effect on a firm's investment decisions. This is done due to the fact that debt financing would increase bankruptcy risk, thereby increasing the risk of manager's loss of control power. In order to reduce bankruptcy risk, a manager would reduce his/her business expenses, work harder and invest more carefully. Therefore, increases in debt financing may lead to less investment activities (Xing & Chen, 2005; Rashmi & Sinha, 2004). Myers (1977) examines the negative impact of bankruptcy risk from the perspective of investment deficiency. He believed that, under high debt level, a firm may not invest in project with expected positive net cash flows. He explained that if a firm goes bankrupt, creditors may be able to recover their losses but stakeholders would have to bear the

consequences of bad investment decisions.

Martin and Scott (1976) explored how debt capacity and capital investment cost is determined by the probability of bankruptcy multiplied by total debts. Martin and Scott (1976) point out that these firms which can control their investment cash flows fluctuation will be able to expand their debt capacity, thus, increase the optimal debt level. Jensen and Meckling (1976) concluded that in diversification, shareholding in most business ownership and management are separated. To them, potential conflict of interest exists between shareholders and managers because of self-interest, such as power and growth of a firm causing excessive investment (Jensen, 1986; Stulz, 1990). At this time, the firm's investment may increase bankruptcy risk and discourage the increase of debt level. They also believed that, when a firm's share ownership is more concentrated, shareholders could have more control of the firm.

As for Chen and Kin (1979), they argued that it is suitable to look for optimal capital structure through arbitrage between debt tax benefits, one hand and substitutes to debt and risk of bankruptcy on another hand, such optimum is linked to another variable, referring to the borrowing capacity of the firm. Indeed, in the presence of bankruptcy cost, a firm cannot borrow indefinitely as the firm will reach the limit beyond which no bond holder can accept to finance the bankruptcy; this is what is termed the borrowing capacity of a firm. The concept of capital structure will therefore have a sense only if it possible to show that the optimal level of borrowing for a firm is strictly impossible to achieve, within the theory of corporate finance, bankruptcy cost of debt can be described as the increased cost of financing with an increase in debt level of the firm, debt holder will have an upper hand in the decision making of the firms with regards to the strategies to be adopted (Boodhoo, 2009). This might lead to a conflict between the shareholder and debt holders as they do not share the same ideas. Continued Boodhoo (2009), thus, debt holders will ensure that to meet its' obligation more debt should be added. On the contrary, shareholders are more interested in returns that they should

obtain. However, if the profit is just enough to enough its debt obligations, then, management may not be able to pay out any excess cash flow left in the form of dividend, dividend because debt holders have priority over shareholders.

As stated by Florackis (2008), shareholders want management to invest in projects with higher expected returns which entails higher risk level so that they can get a return. This is hard, thus leading to the conflict of interest arises since debt holders will impose certain restrictions so that the firm can repay their debt obligations by preventing them from making risky investments. Hence, as managers, shareholders and debt holders try to impose different strategies, the governance structure of the firm will constrained, it can be argued that if debt holder exercised too much pressure on the management of the firm, this can lead to a drop in performance since too much pressure on the management of the firm, this can lead to a drop in performance since the debt holders will prefer that the firms invest in less risky project to meet debt obligation and prevent the firms from investing in projects that can ensure long return because of the higher level of risk involved and bankruptcy cost (Boodhoo, 2009).

Warner (1977) argues that the potential bankruptcy cost a firm face is reflected in the share price and this is taken into consideration by investors when they make investment decisions. Bankruptcy cost to Warner (1977) refers to the cost associated with declining credit terms with customers and suppliers. It thus, can be argued that suppliers would not be willing to give long term credit to the firm as the latter faces the risk of default and similarly customer would avoid buying products and services from a firm facing a high risk default since warranties and other after sales services will be void or at risk.

### **2.1.5 The Concept and Uses of Financial Ratios**

The history of financial ratio analysis dates back to the end of the previous century (Horrigan, 1968). However, modern quantitative analyses have been developed into financial ratio analysis segment during the last two decades with the advent of the

electronic data processing techniques (Timo & Teppo, 1994).

As asserted by Timo and Teppo (1994), financial ratios can be divided into several, sometimes, overlapping categories. Generally, a financial ratio is of the form  $X/Y$  where  $X$  and  $Y$  are figures derived from the financial statements or the other sources of financial information (Foster, 1998). In fact, Foster (1998); Salmi, Virtanen and Yli-Olli, 1990) say ways of classifying the ratios is on the basis where  $X$  and  $Y$  come from Timo and Teppo based on financial statements and if both or one of them comes from the income statement, the ratio can be called dynamic while if both come from the balance sheet, it can be called static. However, the concept of financial ratios can be extended by using other than financial statement information as  $X$  or  $Y$  in the  $XY$  ratio as suggested by them.

The traditionally stated major purpose of using data in the ratio form is making the results comparable across firms and over time by controlling for size (Lev and Sunder, 1979). Thus, Lev and Sunder(1979) in their seminar work in financial ratio analysis, pointed out that, using theoretical deductions, to control for size effect, the financial ratios must fulfill very restrictive proportionality assumption (about the error term, existence of the intercept, linearity and dependence on other variables in the basic financial variable relationship model.

$$Y = bx + e \text{ should have a ratio format as;}$$

$$Y/X = B + e/x$$

It is shown that the choice of the size deflator (the ratio denominator) is a critical issue. Furthermore, Lev & Sanders brought up the problems caused in multiple regression model where the explanatory variables are ratios with the same denominator. This is a fact that has been discussed earlier in statistics oriented literature like in Kuh & Meyers (1955).

However, two interrelated trends are evident in financial ratio analysis as stated by Whittington (1980). These are the theoretical discussion about the ratio format in financial ratios analysis and the empirical testing of the ratio model. While mostly tackling the former Whittington independently presented illustrative results finding the ratio specifications inappropriate in sampled U.K firms. Whittington also discussed the usage of the quadratic form in financial ratio analysis and find the significant instability in results was reported. The proportionality considerations in financial ratio analysis have also had implications on various facets of ratio analyses.

Barnes (1982) indicated how the non-normality of financial ratios can results from the underlying relationship of the constituents of the financial ratios. He was thus able to tie in the ratio formats aspects with the distributional properties of financial ratios. In the discussion on Barnes (1983) work, Horrigan (1983) put forward, that financial ratio analyses should be on the nature and uses of such ratio rather than arguments on methodology. Therefore, in line with Horrigan critique, the interpretation of financial ratio analysis should be to determine its usefulness to the decision making process of the interested parties (such as owners, management, employees, creditors, government and government agencies, researchers etc).

Thus, an investor evaluating different investment targets should be more interested in using financial ratios to determine the profitability of the firms which he/she is interested in and not the result of the size effect. McDonald and Morris (1985) were among the first to present empirical studies of the statistical validity of using financial ratio in appraisal. The authors use three models with two samples, one with a single industry, and the other with one randomly selected form ach industry branch to investigate the implications of homogeneity on proportionality.

However, Berry and Nix (1991) casted doubt on the generality of McDonald and Morris (1985) results over ratios and over industries. It must be stated here, that there has been a long tradition of developing and using financial ratios both in practice ad in the

literature of financial ratio analysis (Horrigan, 1968; Barnes, 1987; and Laitinen 1988). In fact, different approaches have been applied on using financial ratio. The questions however which have always been put forward had been on the method of classification of ratios used in any analysis (Salmi, Virtanen & Yli-Olli, 1990) and over time different approaches have been applied on the classification problems.

The first approach could be called a pragmatic or an authoritative approach. In this approach, the classification of financial ratios have largely developed, from established business practices and personal news of eminent financial analyst, this approach is seen in many standard textbooks both in Nigeria and abroad (Aho, 1981; Bernstein, 1989; Brealey & Myers, 1984; Foster, 1998; Fridson & Maracoco, 1986; Lev, 1974). The second approach is more deductive in approach, the classification of the financial ratios being used is based on the technical relationship between the different financial ratios. The “Du Pont Triangle” from the beginning of the century is a classic in this respect (Horrigan, 1968). The third approach has been inductive empirical classification of financial ratios using statistical techniques and factor analysis in particular. In this approach, factor analysis is used to reduce a large number of financial ratios into a smaller number of mutually exclusive categories covering the various aspects of the firm’s activities (Salmi, Dahstedf, Luoma & Haakkone, 1986). Methodologically, this means reducing a large number of measured variables into a smaller number of latent variables and then giving interpretative names to these latent variables.

Another major issue in financial ratio analysis is the coverage of selected financial ratios. Financial ratios have usually been selected from the traditional accrual ratio and as collaborated by Artto (1978), it also involves cash flows because as Artto opined, cash flows contain such information about the activities of the firm which is not present in the accrual based financial statement. In fact, Gombola and Ketz (1983) and Yli-Olli (1983) observed that cash flows ratios produce an independent and persistent factor necessary for making decisions.

In this research, three categories of financial ratio were used, these are profitability ratios (Net profit Margin, Earnings per share and Dividend per share), Efficiency ratios (Asset Turnover ratio), and Liquidity ratios (Current ratio) based on the view that these ratios are so important to the investors. Financial ratio analysis enables the analyst to compare items on a single financial statement or to examine the relationship between items on two financial statements since ratios adjust for size, using this analytical tool it facilitates intercompany as well as intra-company comparison. Profitability ratios are gauges of the company's operating success for a given period of time. Efficiency ratios measure how well the firm utilizes its assets, while Liquidity or Solvency ratios are measures of the short-term ability of the company to pay its debt when they are due and to meet unexpected needs of cash or ratios indicate the ability of the company to meet its long-term obligations on a continuing basis and thus to survive over a long period of time.

#### **2.1.6 Profitability and Debt Financing of the Banking Firm**

There are conflicting theoretical predictions on the effects of leverage on profitability (Harris & Raviv, 1991; Rajan & Zingales, 1995; Barclay & Smith, 2001; Booth et al 2001). In fact, Myers and Majluf (1984) predicted a negative relationship because they argue that firms will prefer to finance new investment with internal funds rather than debt in line with their pecking order theory and because of the signaling and asymmetric information problems. Thus for them, firms' financing choices follow a hierarchy in which internal cash flows (retained earnings) are preferred over debt and debt preferred over equity financing. According to the pecking order theory therefore, there is a negative relationship between profitability and debt financing of the firm (Margaritis & Psillaki, 2008).

In contrast with the Trade off and Contracting cost theories, it predicted a positive relationship between profitability and debt finance. Essentially, the trade-off theory suggests that the optimal capital structure for any particular firm will reflect the balance

between the tax shield benefits of debt and the increasing agency and financial distress cost associated with high debt level (Jensen & Meckling, 1976; Myers, 1977; Harris & Raviv, 1990). Similarly, Jensen (1986) argues that if the market for corporate control is effective, this will force firms to pay out cash by leveraging up, then, there will be a positive correlation between profitability and debt (Margaritis & Psillaki, 2008).

### **2.1.7 Asset Utilization and the Value of the Banking Firm**

Debt and equity are like sibling rivals within the traditional agency cost framing of the firm. While, shareholders want management to act in their best interest and maximize shareholder's wealth, management may have other objectives that at times may be at par with shareholders objective, with the construct, management may be inclined to resist new investment that principally benefits shareholders so as to ensure that creditors' interest are met with the result that over enhancing projects are delayed or abandoned (Myers, 1977; Jensen & Meckling 1976).

Lenders as well, risk the loss of wealth in the face of management opportunities that favours equity over debt. A respond to the above, was Carey (2007), who say ultimately at a cost to the borrower, is an increased covenant that restricts its actions and potentially furnish control right to lenders.

Amibud (2003) states that most corporate debt is private and most private lenders are banks and as often seen these days, banks do not just lend to firm but, they attach certain restrictions and covenant to user or at the extreme to the assets of these firms. In the view of Daniel (1989), covenants are acts as early warning that assist banks to manage credit risks permitting them to reassess borrowers, when weakened financial conditions increase the risk of opportunisms and mitigate loss by renegotiating loans in anticipation of, or following a breach. Therefore banks are able to monitor a borrower's compliance at the low cost, reinforcing the importance of loan conventions to corporate governance (Triantis & Daniels, 1995).

Convenient levels are determined in part, by the amount of borrower information that a lender possess or can cheaply acquire (David & Vassil, 2003). Thus if lenders is less informed, it is more likely to seek a stricter convenient in order to more closely control a borrowers' future bonds, higher covenants may be necessary in order to offset the lower levels of information available about a less transparent borrowers. One method of determining how the firms have been able to utilize its assets as a result of bad debt covenants resulting from borrowed fund (debt financing) is Asset Turnover ratio.

In fact, according to Zane, Kane and Marcus (2004), Asset turnover is a financial ratio that measures the efficiency of a company's use of its assets in generating sales revenue or sales income while Kennon (2009) see it as a ratio that calculated the total revenue for every Naira of assets a company owns. As Kennon (2009), puts it asset turnover ratio is meant to measure a firm's efficiency in using its assets. The higher the assets turnover rate the better for the firm, however, investors must be sure to compare a business to its industry as it is a fallacy to compare completely unrelated businesses.

### **2.1.8 Liquidity and the Banking Firms' Value**

The function of financial management is to review and control decisions to consult or recommit funds to new or ongoing uses. Thus, in addition to raising funds financial management is directly concerned with production, marketing and other functions within the enterprise whenever decisions are made about the acquisition or distribution of assets ( Ezra , 1969).

From the above, it could be observed that the liquidity decisions of the firm is as important as the investment decisions, financing decisions and dividend decisions of the financial manager. According to Pandey (2009) investment in current assets affects the firm's profitability and liquidity therefore current assets should be managed efficiently thus safeguarding the firm against the risk of illiquidity as lack of liquidity in extreme situation can lead to the firm's insolvency or financial distress. No wonder, Maksimovic

and Titman (1991) were of the opinion that while non-financial stakeholders are mostly likely to be concerned that a distressed firm will become capital constrained which could cause their managers to make short sighted cutbacks in value increasing investment critical to the firm's growth.

Conflicts have always arisen between profitability and liquidity while managing the current asset of the firm, because if the firm does not invest sufficient funds in current assets, it may become illiquid and therefore risky. But it would lose profitability as the current assets would not earn anything. Thus, a proper trade off must be achieved between profitability and liquidity (Van Horne, 1970). The profitability liquidity trade-off requires that the financial manager should develop sound techniques of managing current assets (Pandey, 2009), therefore, in order to avoid liquidity problem, the finance manager should be able to determine the future cash needs of the firm. Pandey (2009) further buttress the importance of liquidity to the firm when he stated that cash is important in acquiring current assets for the operation of the business and it is the basic input needed to keep the business running thus value created.

### **2.1.9 Determinants of financial structure and profitability in Banks**

Bank profitability is usually expressed as a function of factors which are internal and external to the bank. The internal factors originate from the bank balance sheets and income statements. The external factors cannot be controlled by the bank management but reflect the economic environment through which banks operate. A number of variables were considered for the two sets of factors.

#### **2.1.9.1 Bank Specific/Internal factors**

Studies using internal determinant draw on variables such as expense management, risk management, size for economies of scale and capital. It is debatable whether the expansion of banks enables costs to be lowered. If economies of scale exist, increased size will help to create systemic financial efficiency and shareholder value to a bank.

Economies of scale exist when the average cost decreases in scale over a relevant range as services expand.

#### **2.1.9.2 Size of Banks**

Size may benefit the bank through customers' preference of services from larger banks. Santomera and Eckles (2000) stress that the real gain of multi-product distribution may not be in production efficiencies but in customer service. A bank that produces various products and services usually reaps higher revenue and a better return from any customer segment, if consumers of financial services find it more advantageous to purchase multiple products from the same provider. Consequently, large banks can also increase their profits without any significant enhancements in their operational efficiency. Akhavein, Berger and David (1997); and Smirlock(1985) found that there exists a positive relationship between size and bank profitability.

Size may also result in instability of the institution. For example, a bad outcome in any one line of business may have a magnified effect on all lines of business and on the core franchise itself, in this way increasing the probability of loss making or the efficiency of a large financial institution may decrease if the consolidation creates organizational diseconomies to operate a larger, more diverse enterprise, or makes it difficult to serve some segments of the market.

Guru, Staunton and Balashanmuga (2002) in an attempt to identify the determinants of successful deposit found out that efficient expenses management was one of the most significant in explaining high bank profitability.

#### **2.1.9.3 Capital Ratios**

Capital adequacy and its availability to banks could be another factor that affects the earnings of banks. The availability of capital shows how banks can absorb shocks to their financial statement. Capital reduces the risk of failure by acting as a cushion

against losses and by providing access to banks to their meet liquidity needs. Lack of adequate capital may expose a bank to a high-risk exposure and possible capital adequacy problems. Berger (1995) discovered that one of the most important factors influencing bank profits is capital. Using the expected bankruptcy hypothesis, he states that increased capital leads to higher earnings due to reduced interest rates on uninsured funds, especially for riskier banks whose probability of bankruptcy decreases.

Large banks tap the capital markets regularly but small banks must pay a stiff premium to obtain capital, if it is available at all. Therefore, the size of banks affects their earnings through their access to capital. Naceur and Goaied (2001) while investigating the determinants of the Tunisian bank's performances during the period 1980-1995 found that the best performing banks are those with improved labor and capital productivity, high level of deposit accounts relative to their assets and reinforced equity.

#### **2.1.9.4 Risk Acquired**

In the past, poor asset quality and dismal levels of liquidity were the major causes of bank failures. Banks reduce their risk through diversifying their portfolio. Risk can be either credit related or liquidity related. A significant negative relationship between liquidity and profitability was found by Molyneux & Thornton (1992) among others. Bourke (1989) reports a negative relationship between credit risk and profitability. Bank operations involve the loaning out of depositors' money in a bid to earn return which can pay interest to deposits and also earn a bank profits. When the volume of unpaid loans accumulates therefore, the bank experiences lower returns.

#### **2.1.9.5 Bank Ownership**

One of the questions most research works attempt to answer is whether the ownership of a bank can influence its profitability. Little evidence is found to support this theory

i.e. whether privately owned banks will return relatively higher economic profits. Short (1979) established a negative relationship between government ownership and bank profitability. Barth, Caprio and Levine (2004) reported that government ownership is indeed negatively correlated with bank efficiency. However, studies done by Bourke (1989) and Molyneux and Thornton (1992) reported that ownership status is irrelevant for explaining profitability.

#### **2.1.9.6 Age of the firm**

Age of the firm is a standard measure of reputation in capital structure models. As a firm continues longer in business, it establishes itself as an ongoing business and therefore increases its capacity to take on more debt; hence age is positively related to debt. Before granting a loan, banks tend to evaluate the creditworthiness of entrepreneurs as these are generally believed to pin high hopes on very risky projects promising high profitability rates. In particular, when it comes to highly indebted companies, they are essentially gambling their creditors' money. If the investment is profitable, shareholders will collect a significant share of the earnings, but if the project fails, then the creditors have to bear the consequences (Myers, 1977).

To overcome problems associated with the evaluation of creditworthiness, Diamond (1989) suggests the use of firm reputation. He takes reputation to mean the good name a firm has built up over the years; the name is recognized by the market, which has observed the firm's ability to meet its obligations in a timely manner. Directors concerned with a firm's reputation tend to act more prudently and avoid riskier projects in favour of safer projects, even when the latter have not been approved by shareholders, thus reducing debt agency costs (by reducing the "temptation" to gamble at creditors' cost).

This perspective has also been seconded within the context of small business (Ang, 1991). It is important to note the extension of firm risk to the personal area of the

businessperson (given the unlimited liability of entrepreneurs) to be a way of managing the agency costs resulting from cases of more opportunistic behaviour. Given the fragmentation of information, and the high costs of control and evaluation, the firm's and the entrepreneur's reputations become a valuable asset in the management of relations between the principal (investor) and the agent (businessperson) (Landström, 1993).

Petersen and Rajan (1994) found that older firms should have higher debt ratios since they should be higher quality firms. Hall, Hutchinson & Michaelas (2004) agreed that age is positively related to long-term debt but negatively related to short-term debt.

Esperança, Ana and Mohammad (2003), however, found that age is negatively related to both long-term and short-term debt. Green, Murinde and Suppakitjarak (2002) also found that age has a negative influence on the probability of incurring debt in the initial capital equation, and no impact in the additional capital equation.

#### **2.1.9.8 Asset structure**

The asset structure of a firm plays a significant role in determining its capital structure. The degree to which the firm's assets are tangible should result in the firm having greater liquidation value (Titman & Wessels, 1988; Harris & Raviv, 1991). Bradley, Jarrel and Kim (1984) assert that firms that invest heavily in tangible assets also have higher financial leverage since they borrow at lower interest rates if their debt is secured with such assets.

It is believed that debt may be more readily used if there are durable assets to serve as collateral (Wedig, Sloan, Assan & Morriesey, 1988). By pledging the firm's assets as collateral, the costs associated with adverse selection and moral hazards are reduced. This will result in firms with assets that have greater liquidation value having relatively easier access to finance at lower cost, consequently leading to higher debt or outside financing in their financial structure.

In the case of small firms, the concession of collateral reduces the under-investment problem in the firms by increasing the probability of obtaining credit – functioning also as a management instrument in conflicts between entrepreneur and financiers, since the degree of the entrepreneurs' involvement in sharing business risk, by granting personal collateral, is clearly evident. It is further suggested that bank financing will depend upon whether the lending can be secured by tangible assets (Storey, 1994; Berger & Udell, 1998).

Empirical evidence suggests a positive relationship consistent with theoretical argument between asset structure and leverage for the firms (Bradley, Jarrel & Kim., 1984; Wedig, Sloan, Assan & Morrissey, 1988; Friend & Lang, 1988; MacKie-Mason, 1990; Rajan & Zingales, 1995; Shyam-Sunder & Myers, 1999; Hovakimian, Hovakimian & Tehranian, 2004). Kim and Sorensen (1986), however, found a significant and negative coefficient between depreciation expense as a percentage of total assets and financial leverage.

Other studies specifically suggest a positive relationship between asset structure and long-term debt, and a negative relationship between asset structure and short-term debt (Van der Wijst & Thurik, 1993; Chittenden, Hall & Hutchins, 1996; Jordan, Lowe & Taylor, 1998; Michaelas, Chittenden & Poutziouris, 1999; Cassar & Holmes, 2003; Hall et al., 2004). Esperança, Ana and Mohamed (2003) found positive relationships between asset structure and both long-term and short-term debt.

Marsh (1982) also maintains that firms with few fixed assets are more likely to issue equity. In a similar work, MacKie-Mason (1990) concluded that a high fraction of plant and equipment (tangible assets) in the asset base makes the debt choice more likely. Booth, Aivazian, Demircug-Kunt and Maksimovic (2001) suggested that the relationship between tangible fixed assets and debt financing is related to the maturity structure of the debt. In such a situation, the level of tangible fixed assets may help firms to obtain more long-term debt, but the agency problems may become more severe

with the more tangible fixed assets, because the information revealed about future profit is less in these firms. If this is the case, then it is likely to find a negative relationship between tangible fixed assets and debt ratio.

#### **2.1.9.9 Profitability**

The relationship between firm profitability and capital structure can be explained by the pecking order theory (POT), which holds that firms prefer internal sources of finance to external sources. The order of the preference is from the one that is least sensitive (and least risky) to the one that is most sensitive (and most risky) that arise because of asymmetric information between corporate insiders and less well-informed market participants (Myers, 1984). By this token, profitable firms with access to retained profits can rely on them as opposed to depending on outside sources (debt). Murinde and Kariisa-Kasa (2004) observe that retentions are the principal source of finance. Titman and Wessels (1988) and Bartov, Bodnar and Kaul (1996) agree that firms with high profit rates, all things being equal, would maintain relatively lower debt ratios since they are able to generate such funds from internal sources.

SMEs specifically face a more extreme version of the POT, described as a “constrained” POT by Holmes and Kent (1991) and a “modified” POT by Ang, (1991). This is mainly because they have less access to external funds, debt as well as equity, than do large enterprises. The theory’s application to SMEs implies that external equity finance issues may be inappropriate since these firms may not be listed on the stock market or may not qualify to go through private placements. However, the tax trade-off model predicts that profitable firms will employ more debt since they are more likely to have a high tax burden and low bankruptcy risk. Also, profitable firms are more capable of tolerating more debt since they may be in a position to service their debt easily and on time. Profitable firms are more attractive to financial institutions as lending prospects; therefore they can always take on more debt capital (Ooi, 1999). Scherr & Hulburt (1993) found that start-up firms with higher anticipated profitability have

higher debt to equity ratios.

#### **2.1.9.10 Firm growth**

Growth is likely to place a greater demand on internally generated funds and push the firm into borrowing (Hall, Hutchinson & Michaelas, 2004). According to Marsh (1982), firms with high growth will capture relatively higher debt ratios. In the case of small firms with more concentrated ownership, it is expected that high growth firms will require more external financing and should display higher leverage (Heshmati, 2001).

Aryeetey, Baah-Nuakah, Duggleby, Hettige and Steel (1994) maintain that growing SMEs appear more likely to use external finance – although it is difficult to determine whether finance induces growth or the opposite (or both). As enterprises grow through different stages, i.e., micro, small, medium and large scale, they are also expected to shift financing sources. They are first expected to move from internal sources to external sources (Aryeetey, 1998).

There is also a relationship between the degree of previous growth and future growth. Michaelas, Chittenden and Poutziouris (1999) argue that future opportunities will be positively related to leverage, in particular short term leverage. They argue that the agency problem and consequently the cost of financing are reduced if the firm issues short-term debt rather than long-term debt.

Myers (1977), however, holds the view that firms with growth opportunities will have a smaller proportion of debt in their capital structure. This is because conflicts of interest between debt and equity holders are especially serious for assets that give the firm the option to undertake such growth opportunities in the future. He argues further that growth opportunities can produce moral hazard situations and small-scale entrepreneurs have an incentive to take risks to grow. The benefits of this growth, if realized, will not be enjoyed by lenders who will only recover the amount of their loans, resulting in a clear agency problem. This will be reflected in increased costs of long-

term debt that can be mitigated by the use of short- term debt.

Empirical evidence seems inconclusive. Some researchers found positive relationships between sales growth and leverage (Kester, 1986; Titman & Wessels, 1988; Barton, Ned & Sundaram, 1989). Other evidence suggests that higher growth firms use less debt (Kim & Sorensen, 1986; Stulz, 1990; Rajan & Zingales, 1995; Roden & Lewellen, 1995; Al-Sakran, 2001). Michaelas, Chittenden and Poutzioris (1999) found future growth to be positively related to leverage and long-term debt.

Cassar and Holmes (2003) and Hall, Hutchinson and Michaelas (2004) showed positive associations between growth and both long-term debt and short-term debt ratios, while Chittenden, Hall and Hutchinson (1996), Jordan, Lowe and Taylor (1998), and Esperança, Ana and Mohamed (2003) found mixed evidence.

It is also important to note that the dividend payout of the firm could affect choice of capital in financing growth. Generally, firms with low dividend payout are able to retain more profits for investments. Such firms would therefore depend more on internally generated funds and less on debt finance. On the other hand, firms with high dividend payout are expected to rely more on debt in order to finance their growth opportunities.

#### **2.1.9.11 Firm risk**

The level of risk is said to be one of the primary determinants of a firm's capital structure (Kale, Thomas & Ramirez, 1991). The tax shelter-bankruptcy cost theory of capital structure determines a firm's optimal leverage as a function of business risk (Castanias, 1983). Given agency and bankruptcy costs, there are incentives for the firm not to fully utilize the tax benefits of 100% debt within the static framework model. The more likely a firm is exposed to such costs, the greater their incentive to reduce their level of debt within its capital structure. One firm variable that affects this exposure is the firm's operating risk; in that the more volatile the firm's earnings stream, the greater the chance of the firm defaulting and being exposed to such costs. According to

Johnson (1997), firms with more volatile earnings growth may experience more situations in which cash flows are too low for debt service. Kim and Sorensen (1986) also observed that firms with a high degree of business risk have less capacity to sustain financial risks and thus use less debt.

Despite the broad consensus that firm risk is an important determinant of corporate debt policy, empirical investigation has led to contradictory results. A number of studies have indicated an inverse relationship between risk and debt ratio (Bradley, Jarrel & Kim, 1984; Titman & Wessels, 1988; Friend & Lang, 1988; MacKie-Mason, 1990; Kale, Thomas & Ramirez, 1991; Kim, Mauer & Sherman, 1998). Other studies suggest a positive relationship (Jordan, Low & Taylor, 1998; Michaelas, Chittenden & Poutziouris, 1999). Esperança, Ana and Mohamed (2003) also found positive associations between firm risk and both long-term and short-term debt.

#### **2.1.9.12 Taxation**

Numerous empirical studies have explored the impact of taxation on corporate financing decisions in the major industrial countries. Some are concerned directly with tax policy, for example: MacKie-Mason (1990), Shum (1996) and Graham (1999). MacKie-Mason (1990) studied the tax effect on corporate financing decisions and provided evidence of substantial tax effect on the choice between debt and equity. He concluded that changes in the marginal tax rate for any firm should affect financing decisions. When already exhausted (with loss carry forwards) or with a high probability of facing a zero tax rate, a firm with high tax shield is less likely to finance with debt. The reason is that tax shields lower the effective marginal tax rate on interest deduction. Graham (1999) concluded that in general, taxes do affect corporate financial decisions, but the magnitude of the effect is mostly “not large”.

On the other hand, DeAngelo and Masulis (1980) observed that there are other alternative tax shields such as depreciation, research and development expenses,

investment deductions, etc., that could substitute the fiscal role of debt. Empirically, this substitution effect is difficult to measure, as finding an accurate proxy for tax reduction that excludes the effect of economic depreciation and expenses is tedious (Titman & Wessels, 1998).

Dammon and Senbet (1988) argue that there is also an income effect when investment decisions are made simultaneously with financing decisions. They suggest that increases in allowable investment-related tax shields due to changes in the corporate tax code are not necessarily associated with reduction in leverage at the individual firm level when investment is allowed to adjust optimally. They explain that the effect of such an increase depends critically on the trade-off between the “substitution effect” advanced by DeAngelo and Masulis (1980) and the “income effect” associated with an increase in optimal investment.

#### **2.1.9.13 Other factors**

Certain heterodox factors that are not typically included in conventional financial models are believed to also affect the capital structure decisions of SMEs. Green, Kimuyu, Manos and Murinde (2002), in analysing the financing behaviour of small enterprises in Kenya, used an eclectic but heterodox empirical model of the capital structure and financial decisions of micro and small enterprises. In this present study, as well, we include such factors as industry, location of the firm, entrepreneur’s educational background, gender of the entrepreneur, form of business and export status in explaining the financing decisions of SMEs in the sample. These are discussed later.

Variations due to industry effects are likely to be more pronounced for SMEs since most of them are “unitary firms” (Bolton, 1971) and this could have an impact on their capital structure. Service businesses, for example, are less likely to be candidates for bank loans because they often lack assets that can be used as collateral (Hisrich, 1989; Riding, Haines & Thomas, 1994). Correspondingly, businesses that are highly capital

intensive such as manufacturing, transportation and construction, may be more likely to use external capital. Bradley, Jarrel and Kim (1984) found that industry classification accounted for 25% of the variation in firm leverage, with capital intensive firms showing significantly higher leverage ratios. Scherr and Hulburt (1993) also found industry effects in a study of the capital structure of start-ups. It is argued, however, that service businesses, because of the nature of their business, are able to return profits faster than manufacturing firms. This means they may be in a position to repay their debt on time and take on more debt.

The corporate finance literature is not very clear on the effect of location and the choice of finance. However, it is expected that firms close to the capital city or urban centre would have easier access to debt finance than those located outside the capital city.

The educational background of the entrepreneur is believed to be positively related to debt, implying that better educated owners do have greater possibilities of borrowing. Better educated owners would find it easier to present a plausible case for a loan to an outside body. This would be particularly important if the owner had no book-keeping knowledge. Overall, the level of education appears to have an important positive impact on micro and small enterprises' debt-raising capacities (Green, Kimuyu, Manos & Murinde, 2002).

Gender of the small business owner may affect the capital structure choice of the firm. It is argued that women-owned businesses are less likely to use debt for a variety of reasons, including discrimination and greater risk aversion (Riding & Swift, 1990; Brush, 1992; Scherr & Hulburt, 1993). In addition, women may not network as effectively as men (Aldrich, 1989; Brush, 1992) and therefore may not have the same access to sources of information and debt capital as men do. Thus, they may turn to informal sources of finance such as personal financial resources (Kalleberg & Leicht, 1991; Loscocco & Robinson, 1991). Aryeetey, Baah-Nuakoh, Duggleby, Hettige and Steel (1994) agreed that the access of women entrepreneurs is limited principally by

their concentration in smaller enterprises and their lack of fully- documented property as collateral.

The form of business could affect the debt-equity decisions of SMEs. Shareholders of corporations and limited companies have limited liability against losses, whereas general partners and owners of sole proprietorships have unlimited liability. Consequently, shareholder–creditor conflicts are more likely among corporations and limited companies than they are for general partners and sole proprietorships. Thus, corporations and limited liability companies may be more likely to finance their projects with equity, while sole proprietors are more likely to employ debt financing (Brewer, Genay, Jackson & Worthington, 1996).

Following from the reasoning of the trade-off model, it is posited that international diversification reduces the expected cost of bankruptcy and allows for increased debt capacity. Firms involved in export business tend to be more diversified and as such are capable of accommodating more debt capital (Abor, 2004), implying that debt ratio rises with increasing international activities. Thus, as firms engage more in international business (exporting), they tend to employ more debt.

#### **2.1.9.14      Macro-economic/External Factors**

A number of studies have discovered that the macroeconomic environment has a direct effect on bank profits. The macroeconomic variables commonly used are inflation, interest rate, exchange rate and GDP. Gerlach and Peng (2003) indicated that net interest margin and the non-performing loan ratio are the two most important measures or determinants of bank profitability. Carbo-Valverde, Camba-Mendez and Rodriguez-Palenzuela (2007) establish that banks generate higher profit when there is a wide spectrum of income streams over the banks' income sources. There is a positive relationship between profitability and market share and also between concentration and profitability. He also found a positive relationship between profitability and risk and also

a positive correlation between market growth and profit which arise due to entry barrier.

Kunt and Huizinga (1998) analyzed how bank characteristics and the overall banking environment affect both interest rate margins and bank returns. Results suggested that macroeconomic and regulatory conditions have a pronounced impact on margins and profitability.

#### **i. Gross Domestic Product (GDP)**

Financial institutions' earnings and lending are expected to drop when GDP takes a downturn. As a result, the credit quality of the existing loans will be impaired and the demand for loans will fall as banks tighten their credit. The final outcome will be a reduction in profits especially for banks that depend on earnings from debt instruments.

Molyneux and Seth (1998) modelled the determinants of foreign bank profitability in the U.S. They found that capital strength, assets composition, commercial and industrial loan growth, and U.S. GDP growth were important factors in determining foreign banks' ROA. Williams (1998) studied the determinants of profitability of foreign banks operating in Australia. He found a positive effect of home GDP on foreign banks' profitability. Demirgüç-Kunt and Huizinga (2000) used the annual growth rate of GDP and GNP per capita to present evidence on the impact of financial development and structure on bank profitability. They found a positive relationship between inflation and interest rate on one side and bank profitability on the other. Bikker and Hu (2002) used GDP, unemployment rate and interest rate differential to identify possible cyclical movements in bank profitability.

All macroeconomic variables have highly significant relationship with bank profitability and have expected signs. According to Gerlach and Peng (2003) increases in GDP growth, inflation (INF) and all reduce bank net profitability. Higher inflation also lowers net profitability. This may be so because it recovers borrowers' capability to meet requirement by eroding the real value of the debt burden.

## **ii. Inflation**

The other commonly used macroeconomic determinant of bank profitability is the inflation rate. Inflation is associated with higher realized interest margin and greater profitability. Inflation fuels higher costs, more transactions and thus more branch networks and probably more income.

Inflation can either be fully anticipated or unanticipated. A fully anticipated inflation is equal to the expected inflation. In this case lending and borrowing contracts are adjusted to take into account the anticipated inflation rate. People do not earn interest by holding money therefore an increase in anticipated inflation will induce the people to shift from money into interesting earning assets like deposits. A question thus arises; will banks benefit out of this phenomenon? With unanticipated inflation, there is a redistribution of income from creditors (banks) to borrowers. There may also be cost implications on banks' decisions as well.

Demirguc-Kunt and Huizinga (1998) found that bank income increases more with inflation than bank costs do. Revell (1979) studied the relationship between inflation and profitability. He discovered that the effect of inflation on bank profitability depends on whether banks' wages and other operating expenses increase at a faster rate than inflation. Banks are faced with a problem of estimating future operating costs; which can be solved by accurately forecasting future inflation. Perry (1992) states that the extent to which inflation affects bank profitability depend on whether inflation expectations are fully anticipated. Banks can adjust their interest rates if they fully anticipate the inflation rate.

Gerlach and Peng (2003) study how changes in the Hong Kong dollar risk premium, calculated by a broadening of spreads between Hong Kong dollar and US dollar interest rates, may have influenced banks' total net interest margin and asset quality. Gerlach and Peng (2003) find that bank lending is directly related to economic growth and

fluctuations in property prices and that regulatory measure have facilitated limit banks' exposure to swing in the property market

### **iii. Interest Rate**

The interest rate is the yearly price charged by a lender to a borrower in order for the borrower to obtain a loan. This is usually expressed as a percentage of the total amount loaned. Banks make money when interest rates come down because the costs of the funds on deposit are reduced, whereas the earnings on their assets (loans) remain high or fixed. Banks lose money when interest rates go up because the costs of their funds on deposit increase whereas the earnings on their assets remain relatively low or fixed. Sudden changes in the interest rates can affect banks in different ways;

An increase in rates means banks will begin earning more interest income on their assets and paying more interest expense on their liabilities. However, because banks' liabilities typically tend to roll over faster than their assets, interest expense typically changes more than interest income in the short run, potentially squeezing profits;

Or changes in interest rates directly alter the market value of interest -bearing assets and liabilities. When interest rates rise, for example, the value of both assets and liabilities fall, but the effect is likely to be larger for assets than for liabilities, leading to a decline in net value. Although these changes in value do not pass through earnings, they do affect banks' capital positions;

Or there might be a risk (known as "basis risk") that not all interest rates will move together. The impact of rate changes on capital and earnings will then depend upon what types of assets and liabilities a bank has on its books and how the rates on these instruments change relative to one another. Changes in interest rates also have asymmetric effects across banks. Diamond (1991) suggests that real interest rates manipulate company's preference between risky and safe projects. Many studies show that bank performance is correlated with the business cycle (Lowe & Rohling, 1993;

Kaufman, 1998).

#### **iv. Exchange Rate**

Exchange rate plays a crucial role in global economic system. An exchange rate is the rate at which a currency trades for another on the foreign exchange market. In other words, it is a value of a currency as compared to another. A rise or fall of the domestic currency with foreign currencies in the free market exchange rate influences business performance positively or otherwise.

According to Shapiro (1974) and Dumas (1978) changes in exchange rates negatively impact multinational firms' cash flows, its profitability, and therefore its market value. Bartov and Bodnar (1994) also find negative and significant correlation between abnormal returns of U.S. multinational firms and lagged changes in the value of the dollar. On the contrary, different empirical evidence were established by Jorion (1990), Amihud (1993), and Bailey & Cheung (1995). They find no significant relationship between contemporaneous dollar fluctuations and U.S. multinational firms' stock returns.

#### **v. Trade Balance**

An important macroeconomic variable in Nigeria that creates so much volatility in the economy has to deal with economic interactions with other countries. Trade balance of Nigeria as a macroeconomic variable has effect on the profitability of Bank. This is because the strength of the Naira to a large extent is dependent on the ratio of Nigeria's import and exports. The balance is active if the export goods value exceed the import goods' costs (surplus), otherwise the balance is passive (shortfall). A surplus balance has a positive effect on the growth rate of the Naira and a negative balance will depreciates or weaken the value of the Naira against major trading currencies such as the dollar, Euro and the British pound. The bank loses on income from forex or forex profits should there be a negative balance and vice versa.

Income is made from the purchase and sale of foreign currencies and the bank always loses significantly if there is depreciation of the Naira especially against the US dollar.

Exported goods will only have a higher value if they are refined locally before export. It is also imperative that our exports have elastic supply. Ghana has always recorded a deficit trade balance as a result of exports of goods in their raw state and its time the Banks comes in to help by assisting local industries to enter into manufacturing.

## **2.2Theoretical Framework**

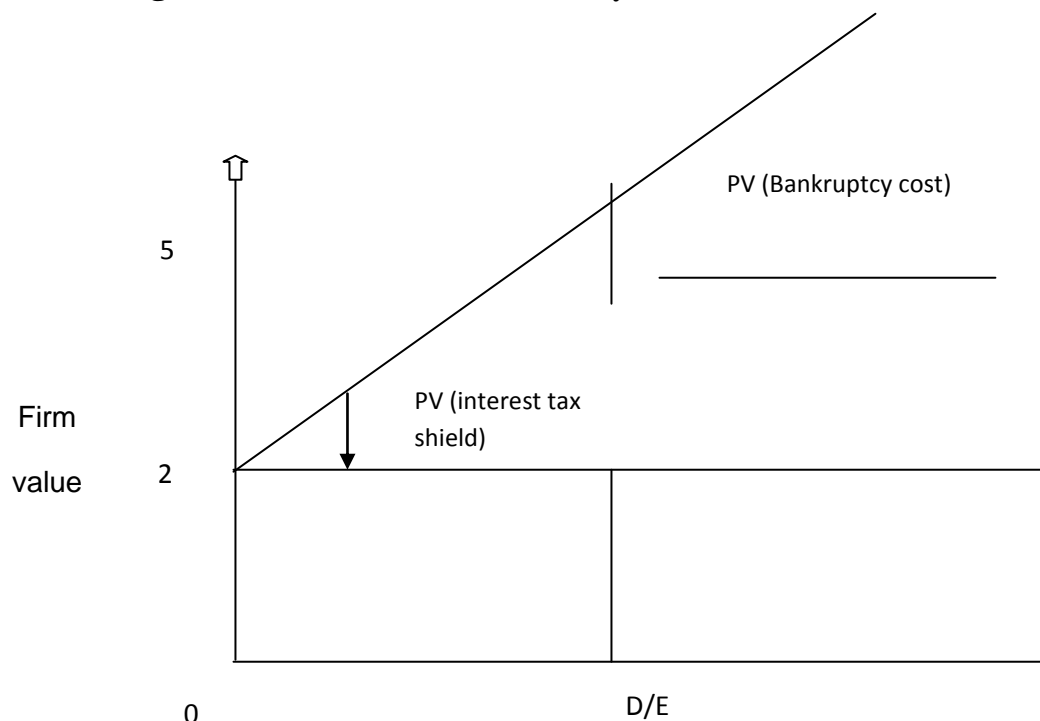
### **2.2.1 Static Trade- Off Theory**

Static Trade-off Theory (STT), explains that a firm follows a target debt-equity ratio and then behaves accordingly. The benefits and costs associated with the debt option sets this target ratio. These include taxes, cost of financial distress and agency costs. trade-off theory attempts that the optimal debt ratio is set by balancing the trade-off between the benefit and cost of debt, through this theory we can achieve the optimal capital structure when the marginal value of the benefits associated with the debt issues exactly offsets the increase in the present value of the costs associated with issuing more debt (Al-Qudah, 2011, Ebadi, et al., 2011; Ali et al, 2011).

The classical version of the trade-off theory of financial structure goes back to Kraus & Litzenberger (1974) and the tax savings benefits of debts. According to them, the trade-off theory is an idea that a company chooses and benefit of debt in the capital structure of the firm. The theory was propounded to counter the perfect market assumptions of MM (1958) and suggested that in the real world, bankruptcy cost exist for the firm. Kraus and Litzenberger (1974) concluded that, there is an advantage of financing with debt and also there is a cost of financing with debt. Therefore, the marginal benefit of further increases in debt declines as debt increases, while the marginal cost increases. Thus a firm that wants to optimize its overall value will focus on this trade off when choosing how much debt and equity to use for financing. The importance of the theory

is that, it explains the fact that corporations usually are financed partly with debt and partly with equity. The diagram on Fig.2.1 typically captures the trade off theory.

**Figure 2.1** Static Trade-off theory



Source: Simerly & Mingfang (2000)

From fig.2.1, as the debt equity value (i.e. leverage) increase, there is a trade-off between the interest tax shield and bankruptcy cost causing an optimal structure (D/E).

The empirical relevance of the trade-off theory has often been questioned. Miller (1977) for example compared this low balancing as akin to the balance between horse and rabbit contest in a stew of one horse and one rabbit. He said that taxes are large and they are sure, while bankruptcy is rare, therefore, according to Miller, it has low dead weight cost. Accordingly, he suggests that if the trade- off theory were true then firms ought to have much higher debt level that we often observe in reality. Myers (1984) was even more particular fierce critic of the theory. In his presidential address to the American Finance Association meeting, he proposed the perking order theory instead of the trade- off theory but the pecking order theory as well but in a different way.

However, Graham (2000) in his contribution to the trade-off theory used it to examine the interest tax spread between corporate bonds and tax exempt municipal bonds to estimate the tax rate paid by marginal investors in corporate bond empirically, and find that the theory may explain differences in D/E ratio between industries but it does not explain differences within the same industry.

### **2.2.2 The Pecking-Order Theory**

The Pecking Order Theory or Pecking Order Model was developed by Myers and Majluf in 1984. It states that firms prioritize their sources of financing according to the principle of least effort or of least resistance, preferring to raise equity as financing means of last resort (Simerly & Mingfang, 2000). Hence, the internal funds are used first and when it is depleted, debt is raised and when it is not sensible to issue any more debt, equity is issued.

As postulated by Myers & Majluf (1984), the theory tries to capture the cost of asymmetric information, thus the form of financing mix as firm chooses can act as a signal of its needs for external finance. In fact, they argued that equity is a less preferred means to raising capital because when managers (who are assumed to know better about the true condition of the firm than investors) issue new equity, investors believe the firm is overvalued and managers are taking advantages of this overvaluation, as a result investors will place a lower value to the new equity issuance. This confirmed the opinion of Simerly & Mingfang (2002).

In supporting the above opinion, Myers (2002), agrees that investors do exactly value the shares issued to finance the new investment. Various tests carried out as regards the pecking order theory have not been able to show that it is of first-order importance in determining a firm's capital structure as postulated by Myers & Majluf (1984); Simerly & Mingfang (2002). However, several authors have found that there are instances where it is a good approximation of reality. This was confirmed by Fama and French

(2002) and Myers and Sunders (1999) who found that some features of the data are better explained by pecking-order than by trade-off theory. However, Goyal and Frank (2003) indicated that pecking order fails where it should hold, namely, for small firms where information asymmetry is presumably an important problem (Goyal & Frank, 2003).

The tradeoff theory is built on models which suggest there is an optimal level of leverage. This optimal level reflects a number of benefits and costs related to debt financing. The majority of such models have as a main objective to contrast and expand the Modigliani and Miller models which are considered as a starting point for the development of all tradeoff models. In the early work these models included a limited number of costs and benefits, yet the most important ones remain the tax advantage of debt and the costs of bankruptcy and financial distress. Such models were suggested by Robichek & Myers (1966); Kraus & Litzenberger (1973); Scott (1976).

However, other studies by DeAngelo and Masulis (1980); Bradley, Jarrell and Kim (1984) suggested that along with the tradeoff of this set of costs and benefits, there are also other costs which have to be incorporated into the models. These are agency costs of debt, costs related to loss of non-debt tax shields, and costs related to differential personal tax rates between income from stocks and bonds.

However, the main interest of the study by Taggart, (1977); DeAngelo and Masulis, (1980); Marsh, (1982); Titman and Wessels, 1988) is on testing the predictions of the tradeoff theory regarding the determinants of the financing decisions. These determinants reflect a number of firm and industry characteristics, and are included as dependent variables in models developed to explain the financing behavior of the firm. Thus, if firms have a financing behavior consistent with the tradeoff theory, it is expected that certain variables, which determine their financing decisions, will follow certain patterns reflected in their financial statements and their market values, as measured in stock and bond markets. Hence, researchers in their attempt to discover

such financing behavior have developed models, such as regression models and deterministic models, which they test for patterns among several variables as predicted by their hypotheses based on the tradeoff theory. In the case of hypothesis rejection the evidence is against the tradeoff theory and other theories for explaining the financing behavior of a firm should be tested.

The existence of an optimal level of debt implies that firms should appear to have a fairly stable level of debt which reflects an optimal target level. Nevertheless, when the debt levels deviate from this target, the management of a given firm should take actions in order to adjust leverage to the optimal level. When the debt level moves towards its target, it is said that it “reverts to the mean”. This feature of leverage, i.e. the mean reversion, is the most important prediction of the tradeoff theory, and is pivotal for its validity. Thus, the majority of the studies which test the tradeoff theory, attempt to determine the firm’s target debt level, which is always unknown, and subsequently to examine whether leverage is adjusted accordingly.

Although the empirical findings of the research vary, a partial adjustment to a target debt level appears to be a valid finding among the studies. Thus, some studies (Taggart, 1977; Hovakimian, Hovakimian and Tehranian, 2004; Hovakimian, Opler and Titman, 2001; Fama and French, 2002) find evidence for a rather slow adjustment of the debt ratio to its target, while others (Auerbach, 1985; Flannery and Rangan, 2008) find that there is a relatively faster adjustment. Farhat, Cotei and Abygri (2009) find that the rate of adjustment to a target varies due to the institutional environment of the countries wherein the company operates.

For example Lopez-Gracia and Sogorb-Mira (2008) find, from a sample of Spanish companies, that small- and medium-sized companies adjust very slowly to their target.

Other studies distinguish between long term and short term debt ratios and study separately their adjustment to a target level. Taggart (1977) finds that the speed of

adjustment is relatively slow for long term debt. Marsh (1982) finds that firms behave as if they had a target adjustment for both long term and short term debt ratios. Jalilv and Harris (1984) indicated that large firms appear to adjust faster to the target level of long term debt than do small firms, while Auerbach (1985) suggests a faster speed of adjustment, particularly for the short term debt.

Another determinant of the financing decision which has been tested is the market timing consideration. Taggart (1977) reports rather questionable findings regarding the timing consideration, and Marsh (1982) finds evidence that the timing and the market conditions play significant roles in the decision when choosing between equity and debt. He thus gives support for Taggart's (1977) questionable evidence for the stock market timing consideration. Jalil and Harris (1984) find evidence that firms tend to time long-term debt and equity issues driven by interest rates and market conditions. Flannery and Rangan (2006); Kayhan and Titman (2007) also find evidence that the timing consideration is an important determinant for firms' financing decisions.

Masulis (1980, 1983) found evidence that capital structure changes have a positive effect on stock prices and firm values, which is consistent with the importance of the market timing and the tax based models on capital structure theory. Finally, from another point of view, Baker and Wurgler (2002) suggest that market timing is the only determinant of the financing decisions and that there is no optimal capital structure.

However, empirical findings from several studies stress some phenomena which are often inconsistent with, or question the validity of the predictions of the tradeoff theory. These anomalies are due to the static approach used by the majority of the studies to study a rather dynamic financing behavior. Hence, in an attempt to explain the actual financing behavior of firms, researchers (Krouse, 1972; Fischer, Heinkel and Zechner, 1989; Hennessy and Whited, 2005) developed dynamic models based on the traditional tradeoff models which they say explain these inconsistencies and expand the concepts of a static tradeoff theory into a more realistic framework without rejecting it.

An alternative explanation for the inconsistencies of the tradeoff theory came from the pecking order theory (Myers, 1984; Myers and Majluf, 1984) of financial structure. An early approach to test the predictions of the pecking order theory was by Auerbach (1985) who included the cash flow deficit as a variable in his model in order to investigate if there is any relation between the cash flow needs and the leverage of the firm. This is an interesting variable that could be added to a model intended to explain debt ratios, since it is one of the main determinants of pecking order theory where it is expected that the cash flow needs of a firm drive its debt ratios. However, as Auerbach (1985) concluded this variable in his model is unexpectedly insignificant.

Also Baskin (1989) found evidence in favor of the pecking order behavior of firms. He tested the pecking order theory by applying a regression of the debt ratio against growth and profitability. He shows that the debt ratio varies positively with past growth and inversely with past profits and he asserts that since borrowing behavior does not seem to be serially correlated, there is little indication of any adjustment towards optimal debt target levels.

The most important methodology for testing the pecking order theory comes from Myers (1999) who studied the relationship of the changes of debt and the financing deficit of the firm. Moreover, they are the first who conducted a comparative analysis between the tradeoff and the pecking order model on a sample of mature, listed corporations. They found evidence that the pecking order model explains corporate financing behavior. Also the tradeoff model, when tested independently, seems to explain the same financing behavior. However, when both models are tested jointly, there is a strong favor for the pecking order model. Moreover, they conducted a simulation of both models to test their relative explanatory power, and they concluded that the target- adjustment models are not rejected even when they are false. The pecking order theory, by contrast, can be easily rejected when it is false. This fact provided evidence for the pecking order model.

However, Chirinko and Singha (2000) questioned the validity of the inferences made by Myers (1999) regarding the evidence found in favor of the pecking order theory.

Goyal (2003) tested the pecking order theory for a sample of firms and over a rather long period. They suggested that internal financing is on average insufficient to cover the investment needs of a firm, consequently external financing is commonly used, and debt financing does not dominate equity financing. Both suggestions are at odds with the pecking order theory. Also they found evidence that the pecking order theory explains better the financing behavior of larger firms in the earlier years of their sample. Finally they concluded that although the financing deficit, which is a key variable in the pecking order model, explains to some extent the financing behavior of firms, the pecking order theory seems to have serious problems.

However, the majority of the research which has been conducted for testing the predictions of the pecking order theory is in comparison with the tradeoff theory. Thus, many studies (Shyam-Sander and Myers, 1999; Fama and French, 2002; Flannery and Rangan, 2008; Lopez-Gracia and Sogorb-Mira, 2008; Farhat, Cotei and Abygri, 2009) test jointly the predictions of both theories and find evidence for both theories.

Another very important notion suggested by a few researchers is that both theories appear to share predictions and to explain certain financing behaviors. For instance, a pecking order model applies better to large and mature firms, however they appear to have a target debt ratio without making the predicted adjustments towards it. This example points out that both theories can be observed under certain circumstances without being at odds.

Consistent with the fact that both theories explain certain financing behavior under specific circumstances, in the study by Bagley, Ghosh & Yaari (1998). They developed a class of dynamic models into a stochastic dynamic framework. They asserted that the

pecking order theory was consistent with the static tradeoff theory, and the two complement one another rather than compete. Opler, Titman and Saron (2001, 2002) stated that a dynamic tradeoff theory seems to explain better firms' behavior regarding capital structure decisions. That is, pecking order theory holds in the short run, and explains why the firms appear to drift away from target debt ratios, yet a static tradeoff theory holds in the long run and determines why firms tend to move toward a target debt ratio.

With respect to choosing between the two theories Myers (1984) states:

At this point we face a tactical choice between two research strategies. First, we could try to expand the static tradeoff story by introducing adjustment costs, possibly including those stemming from asymmetric information and agency problems. Second, we could start with a story based on asymmetric information, and expand it by adding only those elements of the static tradeoff, which implies that an integrated model combining all the alternative capital structure theories would be possible.

Furthermore, Myers (2001) regarding the findings of a simulation conducted on an earlier work with Shyam-Sander, see Shyam-Sander and Myers (1999), in order to test the relative power of both theories against each other states:-

*Why was the target-adjustment model not rejected even for simulated financing policies generated by pecking order? Evidently the pecking order generated mean-reverting debt ratios. Why? The answer is simple: the capital investments of firms are "lumpy" and positively serially correlated, and internally generated cash varies over the business cycle. Therefore firms will tend to have strings of years with financial deficits, followed by strings of surpluses, or vice versa. If the firms finance by pecking order, debt will "tend up" in deficit years and fall in surplus years. The pecking-order debt ratios will mean-revert, and the target-adjustment model will explain financing strategy, which also implies that both theories could complete each other.*

Nevertheless, according to Myers (2001), there is not a general theory of capital structure. Instead, they are conditional theories which emphasize different aspects of alternative financing strategies, which seem more plausible than a fully integrated theory of corporate financing decisions.

Myers (1999) regarding the mean reverting behavior of debt ratios (which is a proxy for the tradeoff theory) states that mean reversion in debt ratios can generate spuriously good fits, and significant coefficients for target-adjustment models, even when the mean reversion has nothing to do with optimal debt ratios, but simply reflects pecking-order financing coupled with cycles or mean-reversion in financial deficits or surpluses.

Concerning financing patterns, Ross (1977) and Heinkel (1982) observe that a firm with favorable prospects (good news) will raise new capital through debt financing while a firm with unfavorable prospects (bad news) will go for equity financing.

The implication is that if the stock market is efficient, the firms' prospect (public information) and its choice between debt financing (good news) and equity financing (bad news) will not affect shareholders value.

In evaluating and comparing the corporate financing practice in different markets, it is most appropriate to analyze firm financing using the pecking order model such that:

$$\text{Total financing } (T_f) = \text{Internal financing ratio } (I_f) + \text{External financing ratio } (E_f)$$

And since:

$$\text{External financing ratio } (E_f) = \text{Debt financing ratio } (D_f) + \text{Equity financing ratio } (E_f)$$

$$T_f = I_f + (D_f + E_f) \text{-----}(1)$$

In our context; the maturity structures of debt is deemed important and is considered in

analyzing firms' total financing mix; therefore:

$$T_f = I_f + [(Ld_f + Sd_f) + E_f] \text{ --- (2)}$$

Where;

$Ld_f$  = long-term debt financing ratio

$Sd_f$  = short-term debt financing ratio

These external financing signals when interpreted by the market portray;

- I. A positive correlation between debt financing and shareholder value.
- II. A negative correlation between equity financing and shareholder value.

### **2.2.3 The Agency-Cost Theory**

One of the defining characteristics of business in the 1990s was the adoption of the Agency theory to address the managerial excesses of the 1970s and 1980s (Simerly & Mingfang, 2000). The classical Agency concept was adopted by Berle & Means (1932). They observed that ownership and control which have been separated in larger corporations as a result of dilution in equity positions provided an opportunity for professional managers to act in their best interest. Thus, the Agency theory attempted to provide explanation to firm behaviors in area of choice financing. Despite the earlier works of Berle and Means (1932) theory research. Their analyses permitted the building up of interlink between the organization and the agency theory of corporate finance.

Since the seminal of Jensen and Meckling, vast literatures on the Agency theory explanations of capital structure have been developed (Haris & Raviv, 1991; Myers, 2001). As stated by Simerly and Mingfang (2000), much of the activities of management are associated with increasing the size of the organizations and management were motivated not by a desire for maximizing shareholders wealth but by opportunities for the self-aggrandizement, therefore, contractual device suggested by Agency theory to the shareholders. Thus, debt provides a means of bonding managers promises to pay out future cash flows and as well as providing the means for controlling opportunistic behavior by reducing the cash flows available for discretionary spending

thus ensuring that top managers attention is then clearly focused on those activities necessary to ensure that debt payments are made. As supported by Ross (1977), a performing firm is one that borrows and is capable to honour its commitment for reimbursement without any serious problem, by contrast, a bad firm is one that acts similarly but is a posterior, inapt to face debt reimbursement.

Agency theory also has important implication for the relationship between equity holders and debt holders (Simerly & Mingfang, 2000). Thus, while equity holders are interested in the return over and above the amount which is required to repay debt. Debt holders are only interested in debt payment specified in the contract. Also, it is seen that most equity holders are sometimes being interested in pursuing riskier business activities that debt holders would prefer, when this occurs, debt holders may charge higher prices for the capital and this constitutes greater control measures to prevent up managers, from investing in capital in riskier undertaking (Simerly & Mingfang, 2000).

Sultz (1990) and Harris and Raviv (1990) provided further development to the agency model. While Sultz's work is on hypothesis that the firm is in possession of important cash flows generating abundant liquidity, thus supporting the idea of an optimal capital structure of financing that would result from a compromise between benefits related to the reduction of cash flows and the inconveniences that this cash flows may be so weak when investment opportunities are good.

Harris and Raviv (1990) approached their research problem under a different angle. They estimated that conflicts between shareholders and managers can result from disagreement in optimal resources allocation. Thus Harris and Raviv(1990) predicted that firms with stronger liquidity value and therefore with less cost of information are more likely to contract new debts. This would lead them to rapidly experience failure thus favouring their control by investors.

A new approach, to testing the agency theory was studied by Allen and Wharton

(2002), according to them, agency costs represent important problems in corporate governance for both financial and non-financial industries, they assumed that the agency theory suggest that the choice of capital structure may help mitigate these agency cost. To them, under the agency cost hypothesis, high leverage or a low equity/asset ratio reduces the agency cost of outside equity and increases firm value by constraining or encouraging managers to act more in the interest of shareholders ( Allen & Wharton, 2002). Grossman and Hart (1982) and Williams, (1987) were of the view that greater financial leverage may affect managers and thus reduce agency costs through the threat of liquidation which causes personal losses to managers.

For Dybrig and Douglas (1984), their contribution to Agency theory is presented in the form of models in which managers have better information than investors but managers compensation schemes are fine to ensure optimal investment however, Shivdasani (1993) questions whether shareholders or board of directors could creditably commit to the optimal compensation schemes that Dybrig & Douglas (1984) had in mind. Other contributors to the Agency-cost theories are Shliefer & Vishney (1989); Berger, Ofek & Yermack, (1997); Lubakin & Chatterjee (1994); Elliot (2002); Jensen & Ruback (1983); Spence & Zackhauser (1971); Ross (1973); Smith & Warner (1979); Holthansen & Leftwich (1983) among others.

While Shleifer and Vishney (1989) are of the opinion that Agency cost may make the entrenchment of investment which adopt to firm's assets and operation to the manager's Berger, Ofek and Yermack (1997) found an inverse relationship between leverage and several measures of managerial entrenchment and also found that events that ought to reduce the entrenchment generally lead to increased leverage.

Kaplan (1994) find that legal changes that protect firms from takeover leads to lower leverage while Lubatkin and Chetterjee (1998) argue that increasing the debt to equity ratio will help firms ensure that managers are running the business more efficiently. Elliot and Elliot (2002) in supporting the agency cost theory stated that shareholders of

a company are the true owners and the duty of top management should be solely to ensure that shareholders' interests are met. In other words, the duty of top managers should be to manage the company in such a way that returns to shareholders are maximized thereby increasing the profit figures and cash flows.

In trying to outline problems that exist between management and shareholders, Jensen and Ruback (1983) stated that managers use the excess free cash flows available to fulfill their own personal interest instead of increasing returns to the shareholders. For Spence and Zechkauser (1971) and Ross (1973), contributions, they provided formal analyses of the problems associated with structuring the compensation of the agent to align with his or her incentive to the interest of the principal. Smith and Warner (1979) provided detailed analyses of the monitoring and bonding technology for control of the conflict of interest between bond holders and Equity holders demonstrating how observed bond contract should vary in response to these agency problems. Smith and Watts (1982) examine the control of the conflict between stakeholders and managers. They analyze the structure of management compensation contract focusing on the trade-off between salaries, stock options, restricted stock, bonus plans and other frequently observed compensation provisions. Myers and Smith (1982) analyze corporate insurance purchase and argue that insurance contract produce an efficient location of risk.

#### **2.2.4 Traditional Theory**

The traditional theory of financial structure postulates that debt capital is cheaper than equity and that as such a company can increase its value by borrowing up to a reasonable limit. This shows that an optimal level of leverage or gearing ratio exists. It also asserts that there exist a significant relationship between leverage and firm performance value in a company. The theory also posits that there exist a negative relationship between leverage and performance. This is as shown:

Per = f (leverage)

$$\text{Per} = \beta_0 + \beta_1 \text{lev} + \epsilon_t \dots \dots \dots 2.1$$

Where “per” represents firm performance and “lev” is leverage. From equation 2.1 the traditional theory assert that “lev” should be statistically significant in determining firm performance “per”.

Various works on financial structure and firm performance have modified the traditional capital structure theory by augmenting it with various control variables. Ahmad, Abdullah and Roslan (2012) augmented the traditional capital structure theory with four control variables; size, growth and efficiency.

This is seen below;

$$\text{Performance} = f (\text{lev}, z)$$

Where performance refers to the firm’s performance level, “lev” is the leverage level and “Z” is a vector of control variables that explains variations in firm’s performance. The modified equation between firm’s performance and financial structure can be seen below;

$$\text{Per} = \beta_0 + \beta_1 \text{lev} + \beta_2 z + \epsilon_t \dots \dots \dots 2.2$$

From equation 3.2, the traditional theory asserts that leverage or financial structure has a significant impact on firm’s performance. Also, the theory established a negative relationship between leverage or financial structure and firm’s performance. On the contrary, the Modigliani and Miller (MM) theory postulates that financial structure or leverage has no significant impact on firm’s performance.

### 2.2.5 Overview of Modigliani and Miller Theorem

The Modigliani and Miller irrelevance theory of the firm's financial structure herein referred to as MM forms the basis for modern thinking on financial structure (Arnold, 2007). Their theorem states that under a certain market prices possess in the absence of taxes, bankruptcy cost asymmetric information and in an efficient market, the value of a firm is unaffected by how that firm is financed (Modigliani & Miller, 1958). Accordingly, it does not matter if the firm's capital is raised by issuing stock or selling debt. It also does not matter what the firm's dividend policy is (Modigliani-Miller, 1961).

The theorem was originally proven under the assumption of taxes. It is made up of two propositions which can also be extended to a situation with taxes. Consider two firms which are identical except their capital structure. The first (firm U) is unleveraged. That is it is finance by equity only. The other firm (firm L) is levered; it is financed partly by equity and partly by debt. The Modigliani Miller theorem states that the value of two firms is the same.

WITHOUT TAXES.

PROPOSITION 1:  $V_U = V_L$

Where  $V_U$  = is the value of an Unleveraged firm,

= the price of buying a firm composed only of Equity

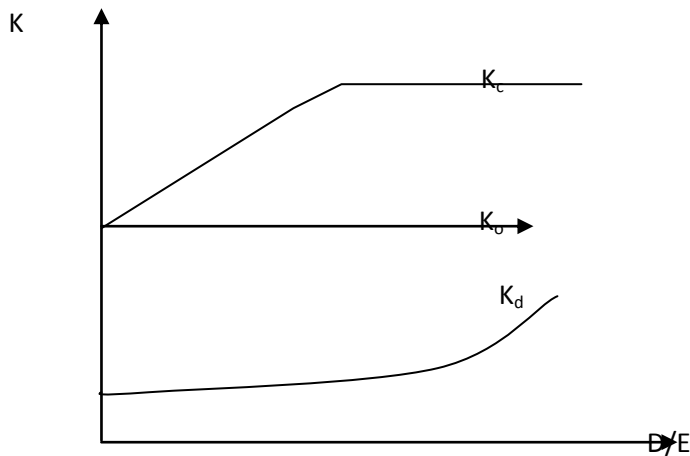
$V_L$  = is the value of a Leveraged firm

= price of buying a firm that is composed of some mix of Debt and Equity.

To see why this be true, suppose an investor is considering buying one of the two firms U and L. instead of purchasing the shares of the levered from L, he/she could purchase the share of firm U and borrow the same amount of money from the bank that firm L does. The eventual returns to either of these investments would be the same. Therefore,

the price of L must be the same as the price of U minus the money borrowed from the bank, which is the value of L's debt.

**Figure 2.2 PROPOSITION 2**



Sources: Pandey, (2005)

Proposition 2 is with risky debt. As leverage (D/E) increases, the WACC ( $k_o$ ) stays constant

$$\text{Here } K_e = K_o + \underline{D} (K_o - K_d)$$

Where  $K_c$  = required rate of return on equity

$K_o$  = Cost of capital for an equity firm

$K_d$  = cost of debt

D/E = Debt-to-equity ratio

Therefore, a higher debt-to-equity ratio lead to a higher required return on equity, because of the higher risk involved for equity holders in a company with debt. This formula is derived from the theory of Weighted Average Cost of Capita (WACC) (Ezzell, 1980).

### PROPOSITION WITH TAXES.

$$\text{PROPOSITION I: } V_L = V_U + T_C D$$

$V_L$  = value of levered firm

$V_U$  = value of Unlevered firm.

$T_C D$  = tax rate ( $T_C$ ) x value of debt

This means that there are advantages for firms to be levered, since corporation can deduct interest payment. Therefore, leverage lowers tax payments.

### PROPOSITION 2

$$R_E = R_O + \frac{D}{E} (R_O - R_d) (1 - T_C)$$

Where

$R_C$  = cost of equity

$R_O$  = Cost of capital for an all firm

$R_d$  = cost of debt

$D/E$  = Deb-to-equity ratio

$T_c$  = Tax rate

The MM theorem is also called the financial structure “irrelevance principle”, “irrelevance proposition” “neutrality proposition” or “the invariance proposition” (Pagano, 2005). In fact, Pagano says the Modigliani and Miller (MM) theory is a cornerstone of finance for two reasons. The first is substantive and stems from their nature of irrelevance proposition by providing a crystal clear benchmark case where financial structure and dividend policy do not affect the firm value, by implication, these propositions help us understand when these decisions may affect the value of firms and why. As Pagano continues, the entire subsequent development of corporate finance can be described essentially as exploring the consequences of relaxing the MM

assumptions. The second reason for the seminal importance of MM according to him is methodological, thus by relying on an arbitrage argument, they set a precedent not only within the realm of corporate finance but also an even more importantly within that of asset pricing.

As shown above with propositional formula, Modigliani and Miller produced two propositions, the first concerning the irrelevance of the firm value to its financial structure (Gordon, 1989; Modigliani & Miller, 1958) and the other concerning its irrelevance to dividend policy (Modigliani & Miller 1963). But it is the first of these two propositions that has always attracted the most of the attention, including even MM themselves. Indeed, as Pagano said, they produced the dividend irrelevance proposition mainly to deflect criticism of their first position (Pagano, 2005).

While the first MM theorem states the conditions under which the choice debt and equity to finance a given level of investment does not affect the value of a firm, implying that there is no optimal leverage ratio (MM, 1958; Pandey, 2005; Okafor, 1983; Gordon, 1989; Pagano, 2005; Arnold, 2007; Gieseke & Goldberg, 2004; Rubinstein, 2003; Brealey, Myers & Marcus, 2004). While the second MM theorem shows under the same conditions how dividend policy does not affect a firm's value, so there is no optimal payout ratio (MM, 1961, the irrelevance of a choice that at first sight would seem very important such as the capital structure decisions and the dividend decisions. In line with the above, the words of Merton Miller witness that this was the main message of the MM theorem. When considering his work with Franco Modigliani thirty years later, he stated:

*The view that capital structure is literally irrelevant or that “nothing matters” in corporate finance though still sometimes, attributed to us is far from what we actually said about the real world applications of our theoretical propositions. Looking back now, perhaps we should have put more emphasis on the other more upbeat side of the “nothing matters” coin showing that what doesn’t matter can also show, by implication*

*what does (Miller, 1988)*

However, it must be said that, the MM theorem have been a subject of enormous controversy (Gieseke & Goldberg, 2004). Aspects of this controversy were examined by Rubinstein (2003) who pointed out the statement and proof of an MM type result can be found in William (1938), so ab initio, MM were not the first to argue the irrelevance theorem, thus according to him, not only does Williams result predate the famous paper of MM by 20 years, compute the present value of the firm's debt by discounting at a risk-free rate, thereby neglecting firms that are subject to default?

The argument in William's 1958 work does not suffer from this constraint (Gieseke & Goldberg, 2004). Rubinstein (2003) concluded by looking backward to the MM theorem from the perspective of modern finance. In fact, he identified a minimal set of axioms required for MM to hold. These according to him are; there are no riskless arbitrage opportunities, operating income (from assets) is not affected by capital structure, the proportion of operating income that is jointly allocated to stocks and bonds is not affected by the firm's capital structure and the present value function, (the economy wide state price) is not affected by capital structure. These four axioms less as a statement that the leverage ratio is irrelevant to firm's value that as a benchmark from which to measure the ways in which leverage ratio affect firms value (Gieseke & Goldberg 204).

Pagano (2005) was of the opinion that he MM theorem establishes that a company's value that is the market value of its shares and debt is equal to the present discounted value of the company's cash flows, gross of interest, where the discount value is the required return for and its cash flows, that is by its assets and it is wholly independent from the composition of the liabilities used to finance the assets. The theorem according to him implies that the average cost of capital is independent of the volume and structure of debt and it equals the return required by investors for firms of the same risk

class” Even though, debt may appear cheaper than equity due to the presence of a risk premium, increasing leverage does not reduce the average cost of capital the firm, because its effect would be precisely offset by the greater cost of equity capital. As a result as Pagano (2005) continued, investment decisions can be totally decoupled from their financing, they should be guided only by the criterion of maximizing the value of such investment and the cost of capital to be used in rational investment decisions, that is, its total cost measured by the required rate of return on fully equity financed firms of the same risk class.

However, despite the criticism level against the irrelevance theorem of MM, it must be said that the entire development of corporate finance since 1958 (the publication date of the first MM article) have been the cornerstone of finance, thus have generated a lot of interest among finance scholars, however, the assumptions upon which their theorem was based when subject to real life situations cannot hold. This has led to the relaxation of their assumption of the MM theorem (Pagano, 2005).

First, the no tax-assumption was the first to be relaxed at the hand of MM themselves, who recognized that the preferential treatment of debt by the US tax code implied that an optimal capital structure would require a larger leverage than those observed in reality (MM, 1963) Much of the later work by MM according to Pagano (2005) and many others were in refining this basic assumption, and studying how it should be modified to take into account the different taxation of interest income and capital gain is at the personal level.

In many ways though, the analysis led to a considerable downward revisions of the earlier MM conclusion about the huge value increases that most U.S corporations could obtain by direction to find an offsetting cost to the tax advantage of debt and identified it in cost of bankruptcy (Pandey, 2009), thereby relaxing the second MM assumption. Increasing leverage would bring value increases in form of tax benefits but would also raise the probability of incurring the cost of bankruptcy (Brealey, Myers & Marcus,

2004). Under suitable assumptions, this could generate an interior optimum, a value maximization leverage that would equate the marginal benefit from tax savings with the marginal cost from the increased likelihood of bankruptcy (Pagano, 2005). Thirdly, a truly tidal flow of advances in corporate finance occurred by relaxing the third MM assumption that of “friction less market” the most widely analyzed “friction” was that arising asymmetric information in financial market, that is, adverse selection and/or moral hazard between external financiers and company managers (Sultz, 1990).

## **2.3 Empirical Review**

Miller and Modigliani (1958) suggested that under the specific assumption that the existence of complete competitive marketplace, no income tax, no break down costs, lack of agency costs and asymmetry among market participant and replacing internal financing resources with external financing resources, managers cannot change the firm value just because of change in financing resource combinations. In other words, firm value is different from its financial structure.

Chowdhury and Chowdhury (2010), empirically support the argument of Modigliani & Miller (MM). Their work tested the influence of debt-equity structure on the value of shares given different sizes, industries and growth opportunities with the companies incorporated in the Dhaka Stock exchange (DSE) and Chittagong Stock Exchange (CSE) of Bangladesh.

Staking and Babbel (1995) supported the hypothesis found by Modigliani & Miller. Jou (1999) found value of a firm initially increasing with financial leverage and then later falling with further increase in financial leverage.

Lara and Mesquita (2003) used multiple regression models to examine the relationship between capital structure and firms profitability in Brazil and conclude that: considering independent variables used in their study that include coefficients of short term debt and long term debt and also equity, results shows that there is a direct

relation between profitability and short term debt and also equity and indirect relation of it with long term debt. They indicate high interest rate and volatility policy for the country and believed that this position leads to uncertainty of local industry and can't take managerial decision timely and also avoid using advanced policy in debt.

Lara and Mesquita (2003) further stated that the choice between the ideal proportion of debt and equity can affect the value of the company, as much as the return rates can. The results indicate that the return rates present a positive correlation with short-term debt and equity, and an inverse correlation with long-term debt.

Elsas and Florysiak (2008) evaluated and summarized capital structure in German firms and indicated that even with the passing of 5 years from primary study of Lara & Mesquita (2003) yet choosing optimal and ideal capital structure isn't possible and is the main challenge of researchers. In this study equity is as a positive and effective factor on capital structure and long term debt shows the reverse position.

Vishnu and Nageswara (2007) showed that according to empirical evidence there is a relationship between industrial pricing and type of industry with capital structure and firms performance is in relation with debt ratios of firm. Comparing method of evaluating firm performance was equal with industry average in which firms were active and results of the study also support of reducing avoidable hypothesis cost at emergency time.

Fosberg and Ghosh (2006) conducted a research on U.S security exchange and New York security exchange. They discovered that as companies in New York exchange used debt 5 to 8 percent more than other companies in their financial structure, it proved that relationship between capital structure and ROA in New York security exchange is negative.

Akbarpour and Aghabeygzadeh (2011) investigated the relationship between financial structure and accounting measurement for evaluating performance (ROA, ROE) in listed firms of Tehran exchange in 2005-2010. Due to some constraints, 101 firms were chosen as research sample. Then, data was collected by library research and Rahavard Novin software and calculation was done for examining 3 financial structures and 2 accounting measurement for evaluating performance. Multiple regression and T and F statistics were used to test the research. Results indicate that there is a significant relationship between financial structure and ROA, but there isn't such a significant relationship between financial structure and ROE.

Namazi and Shirzadeh (2004) in their research examined effect of capital on firm's profitability in Tehran security exchange in different industries. Research sample include 108 listed firms from different industries. That information related to ratio mean to assets and equity in a 5 year period was centralized and tested. And also information about debt ratio mean to assets and return of assets (ROA) collected and tested for that prior. In order to test hypothesis regression and correlated coefficient were used. Results of the tests indicate that generally there is positive relation between financial structure and profitability. But this relationship is so weak from the statistical point of view, because relationship between capital structure and profitability also depends on the industry and optimal structure of capital as determined in different industries.

Naser (2006), in his research suggested that market added value is one the economic measures of firms evaluation and performance measurement. This research is done in firms and industries that recently attract main part of financial funds in 1999-2005. Hypotheses tested show that capital structure and their setting is effective on market added value of the studied firms.

Framarzi (2007) examined the relationship between capital structure and firms' profitability. In this research ROA is a dependent variable and also 3 variables as independent variable. Research shows a relationship between financial structure and

profitability but this relation is so weak.

Asghari (2009) evaluated the relationship between financial structure with firms profitability, with comparability approaches between strategic and non-strategic industries. ROA was chosen as dependent variable and 3 variables as independent variable. Research result shows that relationship between financial structure and firm's profitability and also between strategic industries and this difference is so weak.

Omorgie and Erah (2010) studied capital structure and corporate performance in Nigeria between 1995 and 2009. The focus of the study is that appropriate capital structure is the major condition for corporate performance in the Nigerian economy. This is because corporations depend on leverage for expansion of investment. The study made use of secondary data, sourced for a period of 16 years and concluded that capital structure has not sustained effective funding required for growth and development of corporations.

Osuji and Odita (2012) studied the impact of capital structure on financial performance of Nigerian firms using a sample of thirty non-financial firms listed on the Nigerian Stock Exchange during seven year period, 2004 – 2010. Panel data for the selected firms were generated and analyzed using ordinary least squares (OLS) as a method of estimation. The result showed that a firm's capital structure surrogated by Debt Ratio (DR) has a significantly negative impact on the firm's financial measures (Return on Asset (ROA) and Return on Equity(ROE)).

Mojumder and Chiber (2004) and Rao and Syed (2007) also confirmed a negative relationship between financial leverage and performance. Their results further suggest that liquidity, age and capital intensity have significant influence on financial performance.

Booth, Ajvaziah, Demirguc-Kunt and Maksimovic (2001) assessed whether capital structure theory is portable across developing countries with different institutional

structures. The sample firms in their study were from Malaysia, Zimbabwe, Mexico, Brazil, Turkey, Jordan, India, Pakistan, Thailand, and Korea. Booth, Ajvaziah, Demircug-Kunt and Maksimovic (2001) used three measure of debt ratio; total debt ratio, long-term book debt ratio, and long-term market debt ratio with average tax rate, assets tangibility, business risk, size, profitability, and the market to book ratio as explanatory variables. The study showed that the more profitable the firm, the lower the debt ratio, regardless of how the debt ratio was defined. It also showed that the more the tangible assets, the higher the long-term debt ratio but the smaller the total debt ratio.

Booth, Ajvaziah, Demircug-Kunt and Maksimovic (2001) concluded that the debt ratio in developing countries seemed to be affected in the same way by the same types of variables that were significant in developed countries. However, they pointed out that the long-term debt ratios of those countries are considerably lower than those of developed countries. This finding may indicate that the agency costs of debt are significantly large in developing countries or markets for long term debt are not effectively functioning in these countries.

Bevan and Danbolt (2002) who extend the work of Rajan and Zingales (1995) tested the determinants of capital structure in the UK non-financial firms by using four measures of financial leverage. They used non-equity liabilities to total assets, total debt to total assets, total debt to capital (where capital is defined as total debt plus common shares with preferred shares), and adjusted debt to adjusted capital. All the measures were regressed on market-to-book value, natural logarithm of sales (size), profitability, and tangibility of assets. They found that determinants of gearing were significantly changed with respect to each measure of debt used.

With the same gearing definition as Rajan and Zingales (1995), Bevan and Danbolt (2002) report similar results. However, they provide evidence suggesting that the determinants of gearing established by Rajan & Zingales (1995) are dependent on the

definition of gearing used.

In their later work, Bevan and Danbolt (2004) provide evidence suggesting that the relationship between leverage and its determinants is affected by the methodology used to analyse the sample data, specifically whether it controls for firm and time-specific heterogeneity or not. They found that there have been significant differences in the results of pooled data and panel data analysis.

Bevan and Danbolt (2004) as Bevan and Danbolt (2002) use market-to book value, natural logarithm of sales (size), profitability, and tangibility of assets as determinants of capital structure. In addition to the time invariant and firm specific heterogeneity, the focus was on the variety of long - run and short run debts components rather than on the aggregate measures. They found that large firms use long and short term debt more than small ones. Tangibility is found to be positively related to both short and long-term debt, while profitability is found to be negatively related. However, they found that profitable firms tend to use short-term debts more than less profitable one.

Strebulaev (2003) argued that even though a positive relation exists between profitability and leverage, the optimal leverage ratio can be expected. In his work, he discovered that there is a negative relation between profitability and the actual leverage ratio. Because of transaction costs, firms do not rebalance their leverage ratios constantly; instead, they allow them to move within a range surrounding the optimal leverage ratios.

Azhagaiah and Premgeetha (2004) suggested that the rapid ability to acquire and dispose of debt provides the desired financial flexibility of firms with a goal for growth. The non-debt tax shield and growth rate are statistically significant, which means that these variables are the major determinants of the capital structure in India.

Chen (2004) suggested that some of the insights from the modern finance theory of capital structure are transferable to China in that certain firm-specific factors that are

relevant for explaining capital structure in a developed economy are also relevant in China. The significant institutional differences of financial constraints in the banking sector in China are the factors influencing firms' leverage decision.

Chen and Zhao (2004) suggested that dynamic tax considerations are unlikely to be the main reason for the negative relation between profitability and leverage either.

Deesomsak (2004) suggested that the capital structure decision of firms is influenced by the environment in which they operate, and finds a significant but diverse impact on firms' capital structure decision.

Loof (2004) found the idea that the more unique a firm's asset is the thinner the market is for such assets. Hence one may expect that uniqueness be negatively related to leverage.

Voulgoaris, Asteriou and Mirgianakis (2004) found that profitability is one of the major determinants of capital structure for both small and medium enterprises and large scale enterprises size groups. However, efficient assets management and assets growth are found essential for the debt structure of large scale enterprises as opposed to efficiency of current assets, size, sales growth and high fixed assets, which were found to affect substantially the credibility of small and medium enterprises.

Huang and Song (2005) investigated the determinants of capital structure in Chinese market. They found that leverage (long-term debt ratio, total debt ratio, and total liability ratio) decreases with profitability, non-debt tax shield and managerial shareholdings, while it increases with firm size and tangibility. In addition, the tax rate positively affects long-term debt ratio and total debt ratio. Furthermore, they found a negative relationship between leverage and firm growth opportunities.

Hennessy and Whited (2005) argued that the dynamic tax considerations can also cause a negative relation between profitability and leverage ratios. Therefore, these firms are

more likely to face internal fund-debt financing decisions. On the other hand, less profitable firms, due to lack of internal funds, are more likely to face the debt-equity financing decisions, and show that debt financing is relatively less attractive in the debt-equity financing decision because of different tax rates. Therefore, a negative relation between profitability and leverage ratio can be induced when firms facing internal fund-debt and debt-equity decisions are mixed together.

Abor (2005) performed an empirical study on the twenty two sampled firms which were listed in the Ghana and found that short term debt has significantly positive relationship with ROE. He argued that short term debt were less expensive leading to an increase in profit levels. The results also showed that profitability increases with size and sales growth. For long term debt, the result shows a significantly negative relationship. Thus, it implies that an increase in the long term debt is associated with decrease in profitability due to its more expensive nature. For total debt, the result showed a significantly positive relationship. This implies that, an increase in the debt position is associated with an increase in profitability thus; the higher the debt will be the higher profitability.

Abor (2007) also found a significantly negative relationship between all the measures of capital structure and firm performance (ROA) in the case of Ghana. In the South African sample the result between short term debt and return on asset is statistically significant positive relationship. Thus, it indicates that short term debt is seemed to be relatively less costly. Hence, increasing short term debt is due to low interest rate and could result in high profit levels. For long term debt and total debt, the result show significantly negative association with ROA.

Chakraborty (2010) employed two performance measures, including ratio of profit before interest, tax and depreciation to total assets and ratio of cash flows to total assets, and two leverage measures, including ratio of total borrowing to asset and ratio of total liability to sum total of liability and equity, and reported a negative relation between

these ones.

Ibrahim (2009) examined the impact of capital structure choice on firm performance in Egypt, using a multiple regression analysis in estimating the relationship between leverage level and firm's performance. The study covers between 1997 and 2005. Three accounting based measures of financial performance (return on Equity, return on Assets and gross profit margin) were used. The result revealed that capital structure choice decision in general, has a weak-to-no impact on firm's performance.

Stulz (1990) noted that debt can have both a positive and negative effect on the value of the firm (even in the absence of corporate taxes and bankruptcy cost). He built a model in which over investment and under investment can be alleviated by debt financing. His model assumes that managers have no equity ownership in the firm and receive utility by managing a larger firm. The "power of manger" may motivate the self-interested managers to undertake negative present value project. In order to solve this problem, shareholders force firms to issue debt.

Ogbe (2013) employed the traditional theory of capital structure to determine the significance of leverage and macroeconomic variables on firm's performance from 2000 to 2010. The study makes a comparative analysis of the selected firms which are classified into highly and lowly geared firms setting a leverage threshold of above 10% as being highly geared. A static panel analysis was used to achieve the objectives of the study. Using fixed effect regression estimation model, a relationship was established between performance (proxied by return on investment) and leverage of the firms over a period of ten years. The results provide strong evidence in support of the traditional theory of capital structure which asserts that leverage is a significant determinant of firms' performance. A significant negative relationship is established between leverage and performance.

Onaolapo and Kajola (2010) conducted a study on the impact of capital structure on the

performance of Nigerian firms focusing only on the non-financial firms for a period of seven year (2001-2007) from agency cost theory point of view. The study revealed that capital structure surrogated by debt ratio (DR) has a significantly negative impact on firm's financial measures, return on asset (ROA), and return on equity (ROE). This result provides evidence in support of agency cost theory.

Pratomo and Ismail (2006) studied capital structure-and the performance of Islamic Banks of Malaysia. Profit efficiency of a bank was set as an indicator of reducing agency cost and the ratio equity of a bank as an indicator .of leverage. Their findings are in consistent with the agency hypothesis i.e. higher leverage or a lower equity capital ratio is associated with higher profit efficiency.

Berger and Wharton (2002) in the same vein, studied capital structure and firm performance testing agency cost theory hypothesis with a complete attention on the banking sector. Findings here are as well consistent with the agency costs hypothesis – higher leverage or a lower equity capital ratio is associated with higher profit efficiency.

Oke and Afolabi (2011) investigated the impact of capital structure on industrial performance in Nigeria taking five quoted firms into account with debt financing equity financing and debt/equity financing as proxies for capital structure while profit efficiency a surrogate for performance. For equity and debt equity finances, a positive relationship existed but a negative relationship between debt financing and performance.

Besies, Anup and Suman (2010) studied the impact of capital structure on the value of firm in the context of Bangladesh economy or industrial sector by gathering secondary data of publicly listed companies traded in Dhaka Stock Exchange (DSE) and Chittangong Stock Exchange (CSE) using share price as a proxy for firm's value and different ratios for capital structure decision. It was found that maximizing wealth for the shareholders require perfect combination of debt and equity and that cost of capital

is negatively correlated and therefore to be reduced to minimum level.

Furthermore, Ong and Teh (2011) investigated the capital structure and firm performance of construction companies for a period of four years (2005-2008) in Malaysia. Long term debt to capital, debt to capital, debt to asset, debt to equity market value, debt to common equity, long term debt to common equity were used as proxies as the independent variables (capital structure) while return on capital, return on equity, earnings per share, operating margin, net margin were used to proxy the corporate performance. The result shows that there is relationship between capital structure and corporate performance.

In Jordan, Zeitun and Tian (2007) conducted a study on capital structure and corporate performance on 167 Jordanian Firms between 1989-2003. They found a significantly negative relationship between capital structure and corporate performance. Many variables such as ROA, ROE, PROF, Tobin's Q, MBVR, MBVE, PIE were used to measure performance while leverage, growth, size, tangibility, STDVCF were proxies for capital structure.

Dare and Sola (2010) studied on the actual impact of capital structure on firm performance on Nigerian Petroleum industrial sector. Earnings per share and dividend per share surrogated performance while leverage ratio proxied capital structure. The study reported a positive relationship between the variables employed.

In Sri Lanka, Pratheepkanth (2011) carried out an investigation on capital structure and financial performance of some selected companies in Colombo Stock Exchange between 2005 - 2009. Capital structure was surrogated by debt while performance was proxied by gross profit, net profit, ROI/ROCE, ROA. The results show that the relationship between the capital structure and financial performance is negative.

On the U.S banking industry, using the ratio of equity to gross total assets (ECAP) to proxy capital structure and profit efficiency (EFF) for firm performance, Berger and

Wharton (2002) concluded that higher leverage is associated with higher profit efficiency which confirms agency costs hypothesis.

Bodhoo (2009) investigated on financial structure and performance of Mauritian listed firms and found that below a certain range of leverage, firm's performance tends to be negatively related with the debt ratio.

Onimisi (2011) on his effect of financial structure on the Nigerian manufacturing firm's performance found that capital structure really affects firm's performance.

Ebaid (2009) examined the financial structure and performance of firms, basically the aim was to check the relationship between debt level and financial performance of companies (listed at Egyptian stock exchange during the period of 1997 to 2005). By using the three accounting based measure of performance (ROA) return on assets (ROE) return on equity and gross profit margin. He found that there is negative significant influence of short term debt (STD) and the Total debt (TD) on the financial performance measured by the return on asset (ROA) but no significant relationship was found between long term debt (LTD) and this measure of financial performance. He also proposed that there is no significant influence of the debt (TD, STD and LTD) on financial performance measured by both of gross profit margin and Return on equity. The results also indicated that control variable firm size has no significant effect on the firm's performance. In this study least squares regression model was used to check the performance of the firms.

San and Heng (2011) examined the relationship between financial structure and corporate performance of firms in Malaysia before and during 2007 crisis. 49 construction companies were taken from Malaysia which were listed in Main board of Bursa Malaysia from 2005 to 2008. These forty- nine companies were divided in three units like small, medium and large or big size. Always financial crisis occurred through the poor corporate performance in the Malaysia construction industries and construction

activities are the major source of growth and development in Malaysia. In this research, capital structure independent variables used are Long term debt to capital (LDC), debt to capital (DC), debt to asset (DA), debt to equity market value (DEMV), debt to common equity (DCE), long term debt to common equity (LDCE) and (Corporate performance) dependent variables are return on capital (ROC), return on equity (ROE), return on asset (ROA), earnings per share (EPS), operating margin (OM) and net margin (NM). The pooling regression model is employed to test the influence of financial structure on the company's performance method of ordinary least square (OLS) is used to estimate the regression line (OLS) is used to minimize the error in estimated and actual points. The result shows that, there is relationship between capital structure and corporate performance in the interim. The results also indicated that there are no relationship between the various variables that are examined in this study. For the big construction companies only return on capital (ROC) and Earnings per share (EPS) for large construction companies have significant relationship with capital structure, mean while Return on capital (ROC) and Debt equity to market value (DEMV) are the most correlated and showing the strongest relationship among all the variables examined. Basically, debt equity to market value (DEMV), long term debt to capital (LDC) and debt to capital (DC) have direct influence on corporate performance of the large companies and other independent variables don't affect the dependant variables. Debt to capital (DC) has direct impact on corporate performance of small companies and yet other in-dependant variables don't affect the dependent variables.

Ahmad, Abdullah and Roslan (2012) investigated the impact of capital structure on firm performance by analyzing the relationship between operating performance of Malaysian firms. Modigliani & Miller (1958) have theoretically argued and proved that capital structure is irrelevant in a perfect market condition, characterized by the capital market with no taxes, no transaction costs and homogenous expectations; other works that assume several market imperfections on the contrary suggested that capital structure decisions are relevant since it can affect shareholders wealth. Modigliani & Miller

(1963) suggested that in the existence of corporate taxes, firms should use as much debt capital as possible in order to maximize their value by maximizing the interest tax shield. The dependent variables used in this research are ROA( Return on asset), ROE (return on equity) and control variable are firm size (SIZE), sales growth (SG), growth (AG), firm efficiency and independent variables are long-term debt (LTD), short- term debt (STD) and total debt (TD). All the companies are public listed organizations in the Malaysia. Specifically the Modigliani-Miller theorem; trade-off theory and pecking order theory were reviewed to provide sufficient understanding of how much capital structure could affect firm's performance.

This study covers two major sectors, consumers and industrial sectors with 58 firm's sample starting from 2005 to 2010 with total of 358 observations and two general pooled regression models used. Findings of the study validated that STD and TD have significant relationship with return on asset (ROA) while Return on equity (ROE) and all capital structure indicators have significant relationship. The significant relationship between short-term debt, long-term debt and total debt with ROE is consistent with the findings of (Abor 2005; Mesquita & Lara, 2003). The positive significant relationship between long-term debts with ROA is coherent with the findings of (Philips and Sipahioglu 2004; Grossman and Hart, 1986), which indicates that higher levels of debt in the firm's capital structure is directly, associated with higher performance levels and other finding is that Return on Equity (ROE) is not significant associated with all the capital structure variables.

Amidu (2007) conducted a study to investigate the dynamics involved in the determination of the capital structure of the Ghananian banks. The dependent variables used in the study were the leverage (LEV) - total debts divided by total capital; short-term debt ratio (SHORT) - total short-term debt to capital while long-term debt ratio (LONG) is the total long-term debt divided by total capital. The explanatory variables include (PRE) profitability, (RSK) risk, and asset structure (AST), tax (TAX), size

(SZE) and sales growth (GROW). The regression line model is use in this research and the result was a negative relationship between profitability and leverage. The results of prior studies show that higher profits increase the level of internal financing (Titman & Wessels 1988; and Barton,1989).

Profitable banks accumulate internal reserves and this enables them to depend less on external funds. The results of this study show that profitability, corporate tax, growth, asset structure and bank size influence bank's financing or capital structure decision. The significant finding of this study is that more than 87 percent of the bank's assets are financed by debts and out of this short-term debt appear to constitute more than three quarters of the capital of the banks. This highlights the importance of short-term debts over long-term debts in Ghanaian banks financing.

Pal and Soriya (2012) suggested that intellectual capital (IC) affect performance of Indian pharmaceutical and textile industry. The data was gathered from the 105 pharmaceutical companies and 102 textile companies. Dependent variables used in this study includes MB (market to book value), ROA (return on Asset), ATO (asset turnover ratio) and ROE (return on equity), independent variables are PC, DER, VAIC and sales. Correlation and regression analysis were conducted to find the results. The use of MB as the market valuation is also debatable because the market sentiments of the stakeholders may not always consider financial statements of the company.

Yongvanich and Guthrie (2005) and Abeysekera and Guthrie (2005) classified intellectual capital into three components: external capital, internal capital and Human capital. Profitability measured by ROA clearly indicates that; profitability of the companies is reflected through intellectual capital performance. Findings of the study may be exercised by the managers to organize and utilize 'intellectual capital' to have additional profitable output. Return on equity is found to be positively influenced by 'intellectual capital' in case of pharmaceutical industry indicating that these firms are generating profits from every unit of shareholders' equity.

Abor (2007) examined the industry classification and capital structure of Ghanaian SMEs. The analytical technique employed was regression. The dependent variables were LDR, SDR and TDR, independent variables in the model are defined as: industry dummy (IND) = constructed as a categorical variable; (= 0 if manufacturing, 1 if agriculture, 2 if construction and mining, 3 if hospitality, 4 if information and communication, 5 if pharmaceuticals and medical services, 6 if wholesale and retail trading, 7 if general business services). The control variables (C) include firm age = number of years, since commencement of business, firm size = log of total assets, asset structure = fixed tangible assets divided by total assets (i.e. the proportion of total assets that has collateral value. It is a measure of the firm's collateral value), profitability (PRE) = profit before interest and taxes/total assets, growth (GROW) = average growth in sales.

The outcomes of the research show which little as well as moderate businesses within the farming field show the very best funds framework as well as resource framework or even security worth, since the at wholesale prices as well as list industry business possess the lowermost financial debt percentage as well as resource framework. The actual regression outcomes shows that farming, pharmaceutical drug as well as healthcare sectors rely much more upon long-term (LTD) as well as short-term financial debt (short term debt) compared to the actual production field. The outcomes additionally display how the building as well as exploration business is actually not as likely in order to rely on short-term financial debt (STD), whilst resort as well as food rely much more upon long-term financial debt (LTD) and less upon short-term financial.

Cummins and Harrington (1988) used the CAPM model to examine the property-liability insurance industry, and subsequently found a significant relationship between the expected return and systematic risk and unsystematic risk. Dependent variables are used reserve to liability ratio and equity ratio and independent variables are profit

margin and returns on assets (ROA) as well as Structural formula modeling that involve factor-analysis as well as path- analysis. The research proposed 4 crucial results. Very first, based on the empirical outcome, the study design offers superb goodness-of-fit. In other words, utilizing several monetary indices superbly steps the particular monetary elements. 2nd, the administrative centre framework exerts an adverse as well as substantial impact on functional danger. 3rd, there isn't any reciprocal relationship however the one-way impact in between funds framework as well as functional danger. 4th, the actual functional danger exerts an adverse as well as substantial impact on success.

Komnenic and Pakrajcic (2012) empirically investigated the impact of intellectual capital (IC) on organizational performance as well as to identify the IC components that may be the drivers of the traditional indicators of business success. Dependent variables are used in this research (HEC) Human capital efficiency and (SCE) structural capital efficiency and independent variables are (ROA) return on asset, (ROE) return on equity and control variable were (CEE) capital employed efficiency. Regression results of this study reveal that human capital is positively associated with all three corporate performance measures. The hypothesis regarding a positive association between structural capital and MNCs' profitability and productivity has been confirmed only partially since the results indicate that the structural capital variable shows a statistically significant and positive relationship only with the performance measure return on equity.

Muhammad, Ammar and Muhammad (2013) examined the impact of capital structure on performance of Pakistani banks. The study extends empirical work on capital structure determinants of banks within country over the period of five years from 2007 to 2011 by utilizing data of banks listed at Karachi stock exchange. Multiple regression models are applied to estimate the relationship between capital structure and banking performance. Performance is measured by return on assets, return on equity and

earnings per share. Determinants of capital 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 capital structure and performance of banking industry.

Christopher, Schafer and Talavera (2006) in their study find that there exists strong effect of short-term and long-term debts on profitability. According to them, the organization which prefers financing through long-term debts has low profitability and on the alternative, if a firm uses short-term financing, it earns more profits. In this particular study in which their data covered 1988 to 2000 period, they were able to prove a hypothesis that firms using short-term debt financing are relatively more profitable than the firms using long-term debts. This view tends to favour commercial banks' sources and uses of funds. Demand deposit liabilities are short-term sources of funds to banks and through various short-term channels banks lend short-term funds to rake in huge profits (Luckett, 1984).

Pandey (2004) explains the relationship between capital structure and market structure; and capital structure and profitability. The results suggest that capital structure and market structure have cubic relationship that at lower and high range of Tobia Q ratio firms are using high debt; and at medium range, they use less debt. This is due to agency costs and bankruptcy costs because when firms take more debts there are chances of bankruptcy because the firms might not be able to repay the debts in future. Regarding relationship between profitability and capital structure they conclude that there is a saucer-shape relationship between capital structure and profitability because of the interplay of agency costs, costs of external financing and the interest rate and tax shield.

Andrea and Mateus (2003) while conducting a study on financial structure choices adapt Booth *et al* (2001) which is evident of the fact that the financial structure decisions of firms in developing countries are influenced by the same variables as in

developed countries. They tested the same variables for Portugal and Hungary where firms have a combination of debt and equity in their capital mix. They discover that although these factors are the same but differ, to some extent, because the ratios are affected by country specific factors such as inflation, status of capital market and growth rates of the country. They further verify the Pecking Order Theory, asymmetric information, and agency cost theories and conclude that the more profitable companies have lower debt ratios, which conform to the Pecking Order Theory.

Drobetz and Fox (2005) discuss determinants of capital structure and two hot issues: Trade-off theory and Pecking Order Theory. In trade-off, there exist three main factors, agency costs, tax shields and bankruptcy costs. Due to these three factors more profitable firms use more debt than equity. In Pecking Order Theory, more profitable firms use less debt than equity because firstly, they use retained earnings, then use debt, and at third option, they use equity financing. They are of the view that if investment opportunities abound then after using retained earnings the firms should use debts to exhaust these opportunities, otherwise there would be no need to take debts.

Eriotis, Frangouli and Neokosmides (2002) investigate the relationship between debt to equity ratio and firm's profitability. They also consider the level of firm's investment and degree of market power and discover that those firms that prefer to finance their investment activities using equity capital are more profitable than firms who finance by using borrowed capital.

Hadlock and James (2002) while assessing the financial slack provided by the banking system to the companies, report that the decision of financing of corporate assets through debt or equity is mainly influenced by the market evaluation of the shares thus confirming the pecking order hypothesis. After analyzing the financing decision of 500 non-financial companies, the authors conclude that the firms chose bank financing because market interprets loans and advances as a positive step because firms prefer that financing choice which results into high returns.

Mesquita and Lara (2003) examine the relationship between capital structure and profitability of some Brazilian firms. They are of the view that there is a difficult decision as to whether company should use debt or equity and this decision becomes more difficult when a company is operating in an unstable environment and that this problem occurs largely in Brazil. They also examine effect of short and long-term financing on return on equity (ROE). They conclude that in the short-run there exists inverse relationship between debt and profitability. Although they fail to indicate how significant is this relationship in either direction of impact.

Booth, Aivazian, Demirguc-Kunt and Maksimovic (2001) assess the portability of capital structure theories across developing countries with different structures of economic and financial institutions. After analyzing firms in 10 countries they reveal that the same variables are pertinent in making decision about capital structure across the countries studied irrespective of the fact that the countries have different structures of institutions and development stages. However, there exist country peculiarities at work which create differences in the outcomes of the decisions regarding capital structures of firms studied. They conclude that however, some structures are portable across different countries but most of the things are to be done at local levels which are quite different due to the structure and country factors such as growth rate, inflation, and others.

Raheman, Zulfiqar and Mustafa (2007) investigate the effect of capital structure on the profitability of firms listed on Islamabad Stock Exchange using Pearson's correlation coefficient and regression analysis on 94 non-financial firms for period 1999-2004 on a pooled OLS model. They find that capital structure has a significant effect on the profitability of these firms. Specifically, they discover that long-term debts have negative relationship with profitability while equity is positively correlated with profit. They therefore subscribe to a balanced financing mix to avoid unforeseen future losses.

In Nigeria, Uremadu and Efobi (2008), examined the impact of capital structure on

corporate profitability in Nigeria using 10 manufacturing companies for 5 years (2002-2006) using Pearson's correlation coefficient and OLS regression model on a pooled time series data. They found that ratio of long-term debt to equity capital (gearing) has a positive and significant impact on return on capital employed (ROCE). They recommend that company management should properly manage composition of their capital structure more especially as it relates to long-term debts and equities including corporate reserves.

Khalaf (2013) studied the impact of capital structure on performance of Jordanian banks. The annual financial statements of 12 commercial banks listed on Amman Stock Exchange were used for the study which covers a period of five (5) years from 2007-2011. Multiple regressions was applied on performance indicators such as Net Profit (NP), Return on Capital Employed (ROCE), Return on Equity (ROE) and Net Interest Margin (NIM) as well as Total Debt to Total Funds (TDTF) and Total Debt to Total Equity (TDTE) as capital structure variables. Multiple regression models are applied to estimate the relationship between capital structure and banking performance. The results show that bank performance, which is measured by net profit, return on capital employed and net interest margin is to be significantly and positively associated with total debt; while total debt is found to be insignificant in determining return on equity in the banking industry of Jordan.

Olivier, Boubacar, Pierre and Martin (2014) studied the effect of banks' capitalization on banks' Return on Equity (ROE) in France based on debate on the costs for banks of the increase in capital requirements under Basel III. They bring empirical evidence on this issue by analyzing the effect of different capitalization measures on banks' ROE 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 an increase in capital leads to a significant increase in ROE, albeit the economic effect is modest. Furthermore, the method chosen by a bank to increase capitalization (i.e.

raising equity) does not alter the result. Over the period, they find 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. Looking at revenue and cost components, the positive effect of capital on the ROE appears to be driven by an increase in efficiency.

Mehran and Thakor (2011) empirically examine how capital ratio influences the target's price in banking acquisitions in the United States over the 1989-2007 period. They find that acquirers pay more for targets with a higher capital ratio in terms of assets fair-value and goodwill.

Empirical findings also suggest that banks with higher capital ratio attract more loans and deposits (e.g. Calomiris & Mason, 2003; Kim, Kristiansen & Vale, 2005).

In a recent study, Berger and Bouwman (2013) test how capital ratio influences bank performance during financial crises from 1984 to 2010 in the United States. They analyze whether highly capitalized banks gain market share and have a higher probability of survival. Small banks with higher capital ratios have a higher probability of survival and higher market share both in 'normal' times and during financial crises. These results hold for large banks but only during financial crises episodes.

Abbasali, Esfandiar, Milad. Vida, and Mohammad (2012) in their study investigated the impact of capital structure on the financial performance of companies listed in the Tehran Stock Exchange. They studied and tested a sample of 400 firm-years among Companies Listed in the Tehran Stock Exchange in the form of 12 industrial groups during the years 2006 to 2010. In this study, Variables of return on assets ratio (ROA) and return on equity ratio (ROE) used to measure the financial performance of companies. Results suggest that there is a significant negative relationship between debt ratio and financial performance of companies, and a significant positive relationship between asset turnover, firm size, asset tangibility ratio, and

growth opportunities with financial performance measures. But the relationship between ROA and ROE measures with the firm age is not significant. Also, some of the studied industries have effect on firm performance. In addition, the research results shows that by reducing debt ratio, management can increase the company's profitability and thus the amount of the company's financial performance measures and can also increase shareholder wealth.

Céspedes, Gonzalez and Molina (2010) investigated the relationship between capital structure and ownership in seven Latin American countries during 1996 to 2005. In this study, the numbers of 6766 firm-years were selected as a sample. They concluded that there is a positive relationship between leverage and ownership concentration. Also, the research results indicate a positive relationship between leverage and growth variable, and a negative relationship between leverage and profitability and larger firms have more tangible assets.

Abor (2005) reviewed the impact of capital structure on profitability of the 22 companies listed in Ghana Stock Exchange during 1998 to 2002. Results showed that there is a significant positive relationship between capital structure (total debt to total assets ratio) and return on equity (ROE). Also he indicates that profitable companies have more dependence to financing through liability and high percent (%85) of liabilities of these companies are short term liabilities.

San and Heng (2011) in their research studied the relationship between capital Structure and Corporate Performance of Malaysian Construction Sector during 2005 to 2008. In this study, 49 companies were selected as samples. Results showed that there is a significant relationship between capital structure and corporate performance.

Aburub (2012) in his research investigated the impact of capital structure on the firm performance of companies listed in Palestine Stock Exchange during 2006 to 2010 in which 28 companies were selected as samples. In this study, five measures of Return

On Equity (ROE), return on assets (ROA), earnings per share (EPS), market value to book value of equity ratio (MVBR) and Tobin Q ratio as the measures of accounting and market of firm performance evaluation and also as dependent variables., and four measures of short-term debt to total assets ratio (SDTA), long-term debt to total assets ratio (LDTA), total debt to total assets ratio (TDTA) and total debt to total equity ratio (TDTQ) as the measures of capital structure and also as the independent variables were selected. Results indicate that the capital structure has a positive effect on firm performance evaluation measures.

Sunder and Myers (1999) examined the effect of four factors: assets tangibility, growth opportunities, company's tax status and profitability on the capital structure (debt ratio) of 157 American companies in the period of 1979 to 1981. Research results indicate a significantly positive relationship between assets tangibility with debt ratio and a significantly negative relationship between debt ratios with firm profitability. Moreover, there is no significant relationship between two variables, growth opportunities and the tax status with the debt ratio.

Rajan and Zingales (1995) studied the determinant factors of capital structure of common company corporations in seven large countries around the world (America, Japan, Germany, France, Italy, Britain and Canada) during 1987 to 1991. In this study, they chose 4557 companies as samples of these seven countries. Research findings indicate that financial leverage has negative relationship with profitability and market value to book value ratio and positive relationship with the value of tangible fixed asset and firm size.

Chen and Strange (2005) investigated the relationship between the variables of firm size, firm age, business risk, sale growth rate, tax, profitability and intangible assets with debt ratio (capital structure) in 2003 in 972 stock companies in China and concluded that the relationship between these variables and debt ratio depend on the basis of calculation of dependent variable (market value or book value).

Sogorb-Mira (2005) surveyed the impact of small and medium companies' features on their capital structure in Spain during 1994 to 1998. In this study, he used data of 6482 nonfinancial companies in 8 industry order. Results show that tax reserves and profitability of these companies have negative relationship with capital structure while size, growth opportunities and assets structure in these companies have positive relationship with capital structure.

Daskalakis and Psillaki (2005) in their research reviewed the determinants of Capital Structure of the SMEs in the Greek and the French companies. This study was performed on the 1252 Greek companies and 2006 French companies during a six-year period from 1997 to 2002. In this study, they used from assets structure (tangible assets to total assets ratio), size, growth opportunities and profitability of company as determinants of capital structure. Results showed that assets structure and profitability have negative relationship with debt ratio (Capital Structure) in both countries, but firm size and growth opportunities have positive relationship with Capital Structure.

Harris and Raviv (1991), Chevalier (1995) and Kovenock and Phillips (1995) Surveyed the effect of various industries on capital structure decisions and concluded that the type of industry can affect the use of debts and firms performance.

Fosberg and Ghosh (2006) in the research conducted on the 1022 companies in the New York Stock Exchange (NYSE) and 244 companies in the America Stock Exchange (AMEX) concluded that the relationship between capital structure and ROA is negative.

Houang and Song (2006) in the research conducted on the 1200 Chinese companies during 1994 to 2003 concluded that financial leverages has negative relationship with return on assets and growth opportunities.

Andersen (2005) reviewed the relationship between capital structure and firms performance for 1323 companies from various industries and concluded that there is a significant relationship between capital structure and ROA.

Mramor and Crnigoj (2009) also concluded that there is a significant negative relationship between financial leverage (total debt to total assets ratio) and return on assets ratio (ROA).

Skopljak and Luo (2012) studied how capital structure affect firm performance of Authorised Deposit-taking Institutions (ADIs) using explicitly Australian data. The study investigated the relationship between capital structure and firm performance of Australian ADIs. Their findings show a significant and robust quadratic relationship between capital structure and firm performance of Australian ADIs. At relatively low levels of leverage an increase in debt leads to increased profit efficiency hence superior bank performance, at relatively high levels of leverage increased debt leads to decreased profit efficiency as well as bank performance. This according to them can most likely be attributed to financial distress outweighing any gains made from managerial performance improving.

Margiratis and Psillaki (2007) test for profit efficiency and the role capital structure plays in its determination. They define profit efficiency as the difference between maximum potential output and actual output while keeping input constant. These inefficiencies are considered to be direct outcomes of agency cost. Furthermore, reverse causality is tested for by regressing firm performance as measured by profit efficiency against the capital structure of firms. This investigates the validity of the efficiency-risk hypothesis and the franchise value hypothesis.

A very similar definition of profit efficiency to that of Berger and Udell (1994) is adopted in Margiratis & Psillaki's (2007). A comprehensive 12,240 New Zealand firms from the 2004 New Zealand Annual Enterprise Survey make up the dataset. These are primarily constituted by Small and Medium Enterprises, and according to the Ministry of Economic Development in New Zealand are defined as employing less than 19 workers. Their findings match expectations gathered from agency cost theory, pecking order theory, and to a lesser extent, static theory. Using the entire range of data

they conclude that debt levels have a significant, positive affect on profit efficiency. In other words, the observations show that an increase in proportions of debt level lead to an increase in profit efficiency (which is used as a proxy for firm and managerial performance).

Furthermore, the data is then tested for reverse causality; this incorporates testing for the efficiency-risk hypothesis, as well as the franchise-value hypothesis. The former hypothesis states that more efficient firms choose higher debt to equity ratios, as higher efficiency reduces the cost of bankruptcy risk and financial distress. The latter states that more efficient firms may choose lower debt to equity ratios in order to protect economic rents derived from higher efficiency from the possibility of liquidation. Quantile regression is used to test for reverse causality and therefore the effect of firm efficiency on debt proportions.

The findings show validity of both hypotheses, though at different spectrums of the data. At the low to mid-range of the leverage distribution, more efficient firms select higher debt level showing evidence for the efficiency-risk hypothesis. At the high end of the leverage distribution range, evidence for the franchise-value hypothesis is shown; higher efficiency firms choose relatively lower debt ratios.

Opler and Titman (1994) specifically studied the effects of financial distress among high leveraged firms in relation to relatively low debt firms during industry downturns. The firm performance acts as proxy by operating profit as well as relative market share. It was found that, as predicted in the franchise-value hypothesis, highly leveraged firms do suffer more than their low debt counterparts in an economic downturn.

Cambello (2003) studied the impact of capital structure on firm performance of product markets in booms and recessions. He found that firms with high debt are affected most (negatively) by recession when there are competitors with relatively lower debt financing in direct contest. No such relationship was witnessed for firms operating in

high debt industries.

Agrawal and Knoeber (1996) examine seven control mechanisms which are commonly used to manage agency cost of firms. Among them is a control variable for debt, and the paper's findings contradict that of agency cost theory; increased debt proportions have a significantly negative affect on firm performance when the ordinary least squares regression (OLS) was run. These results may be fogged, however, by statistical limitations such as multicollinearity etc., Such statistical flaws can cause individual variables to take on inaccurate or skewed values. When the two-stage least squares (2SLS) model is run using the same data-set, debt is insignificant but shows a positive sign in regard to firm performance.

Rao, Al- Yahyae, and Syed (2007) examined the relationship between capital structure and financial performance. It is motivated by a desire to explain debt use by Omani firms. The results of the study suggested that, contrary to the Trade-off Theory of capital structure, there is a negative association between the level of debt and financial performance. This they attributed to the high cost of borrowing and the underdeveloped nature of the debt market in Oman. The tax savings that the firm receives by using debt does not seem to be sufficient to outweigh the costs of using debt including the high interest cost.

In their study, Frank and Goyal (2003) tested the Pecking order theory over the 1971 through 1998 period. They found that, in contrast to Pecking order theory, internal financing is not sufficient to cover investment spending on average, external financing is heavily used, and debt financing does not dominate equity financing.

On the issue of determinants of capital structure, Bancel and Mittoo (2004) found that large firms are less concerned about bankruptcy costs, and high-growth firms consider common stock as the cheapest source of funds and use windows of opportunity to issue common stock.

Another study by Hovakimian, Hovakimian and Tehranian (2004) concluded that the importance of stock returns in studies of corporate financing choices is unrelated to target leverage and is likely to be due to the correlation between Pecking order theory and Market timing behavior theory. This study also found that profitability has no effect on target leverage. Unprofitable firms issue equity to offset the excess leverage due to accumulated losses. Thus, this study supports the notion that firms have a target capital structure. However, preference for internal financing and the temptation to time the market by selling new equity, when the share price is relatively high, interfere with the tendency to maintain the firm's debt ratio close to its target.

Abbadi and Abu-Rub (2012) studied the relationship between the market efficiency and capital structure of Palestinian financial institutions. The study established a model to measure the effect of capital structure on the bank efficiency measured by ROE, ROA, Total deposit to assets, total loans to assets and total loans to deposits were used to measure capital structure. They found that leverage has a negative effect on bank profits, an increase in each ROA and Total Deposit to Assets increase bank efficiency. They also tested the effect of the above variables on bank market value measured by Tobin's Q and found that Leverage has a negative effect on market value of the bank, a positive and strong relationship between market value and ROA and bank deposits to total deposits.

Abu (2012) investigated the impact of capital structure on non-financial firms' performance. The study used panel data procedure for a sample of 28 listed companies on the Palestinian Securities Exchange (PSE) over the period of 2006- 2010. The results showed that firm's capital structure had a positive impact on the firm's performance measures, in both the accounting and markets measures.

Khan (2012) and Saaedi and Mahmoodi (2011) used panel data techniques to investigate the relationship between firm's capital structure and its performance.

Khan (2012) applies a pooled ordinary least square regression on 36 engineering sector firms in Pakistan. Results indicate a significantly negative relationship between the firm's performance measured by the return on assets, gross profit margin and Tobin's Q, while a negative but not statistical significant relationship between financial leverage and firm performance measured by the return on equity.

Saaedi and Mahmoodi (2011) use pooling panel model to test how different capital structure indicators affect the firm's performance indicators finding a positive relationship between the capital structure and performance measured by earnings per share and Tobin's Q.

Ramezani Seyed and Pejman (2013) investigate the capital structure with performance of firms listed at Tehran stock exchange. Capital structure as dependent variable contain ratio of short term debts to total assets, ratio of long term debts to total assets and ratio of total debts to total assets. Also, performance as independent variable includes Tobin's Q ratio and firm size control variable. In order to this, sample contain 81 firms through listed firms in Tehran stock exchange has been chosen that is studied comparatively between big and small industries in four groups of industry during 2005- 2011. Results from analyzing data show that there is positive and significant relationship between capital structure and firm performance. Significant level of F statistic represent that all regression model are valid. Also, amounts of adjusted determinant coefficient in each three models indicate that more than 60% of Tobin's Q (dependent variable) changes are explained by research control and independent variables.

Pouraghajan, Malekian, Emamgholipour, Lotfollahpour and Mohammadpour (2013) studied the impact of capital structure on financial performance of firms listed at Tehran stock exchange and they selected 400 year-firm from 12 industry groups during 2006-2012 as sample and use asset and stockholder equity efficiency for evaluating performance. Results of this research represented that there is negative and significant

relationship between debt ratio and firms financial performance and positive and significant relationship between asset turnover ratio, firm size, assets visibility ratio and firm growth opportunities variables with financial performance indexes.

Nasirzade and Mostaghiman (2011) examined main components of capital structure in a paper. These components are assets structure, beneficiary (operating income to total assets ratio), liquidity, size and growth opportunity that is investigated in firms listed at stock exchange. They analyzed sample containing 269 firms from 17 different industries during 2002-2006. Results showed that there wasn't significant relationship between assets structure and firm growth opportunity but there was adverse relationship between beneficiary, liquidity and firm size components with capital structure.

Nikbakht and Peykani (2009) explored relationship between capital structure and accounting performance evaluation criteria (ROA, ROE) of firms listed at Tehran stock exchange during 2002-2007. And are used the data of 57 firm as sample. The results of their research showed that there was significant relationship between capital structure ratio and accounting performance evaluation criteria (ROA, ROE).

Izadinia and Rahimi -Dastjerdi (2009) investigated impact of capital structure on shares efficiency rate and earnings per share during 1998-2005 for sample containing 51 firms listed at Tehran stock exchange. Results of research showed that there was direct relationship between debt to stockholder equity ratio (independent variable) with shares efficiency rate and earnings per share (dependent variable). Also there was significant relationship between debts to asset ratio with earnings per share.

Arbabian and Safari- Geraeli (2009) studied the impact of capital structure on beneficiary of firms listed at Tehran stock exchange during 2001-2006 and selected 100 firms as sample. Results of research showed that there was positive relationship between short term debts to asset ratio with firm beneficiary and also between total debts to asset ratio with beneficiary. But there was negative relationship between long

term debts to asset ratio with beneficiary.

Namazi and Shirzad (2005) examined relationship between capital structure and beneficiary of firms listed at Tehran stock exchange in different industries during 1996-2000 and selected 108 firms as sample. Results of research indicated that there was generally positive relationship between capital structure and firm beneficiary. But this relationship statistically is weak.

Awunyo-Vitor and Badu (2012) empirically investigated the relationship between capital structure or leverage and performance of listed banks in Ghana from 2000 to 2010. Data for the study 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 banks performance. The study shows that there is high level gearing among listed banks. This 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. The regression result also revealed that capital structure is inversely related to performance of the listed bank in terms of return on Equity and Tobin's q.

## **2.4 Gap in Literature**

In the literature, a number of researchers examined the relationship between financial structure and firm performance. According to Ebaid (2009) and Kyereboah-Coleman (2007), studies on the relationship of financial structure on firm performance have been few and most of them focus on developing markets, such as Asia or Eastern Europe. However, there are few works which investigates the relationship between financial structure and firm performance among banking firms in Nigerian . Especially, most of them did not specifically assess the relationship between financial structure and profitability of commercial banks in Nigeria. Therefore, our intention is to fill this gap

by conducting a research covering financial structure and all the Deposit money banks in Nigeria during the period of 1986-2013.

Furthermore, researches on financial structure and the effects on profitability investigated so far have found different results with different contexts. Accordingly, there is no specific result, which can be generalized on the extent of the relationship between financial structure and banking firm profitability, thus there is a constant need for new research in different context for achieving a more complete understanding for the dynamics of the financial structure and firm profitability interplay.

Therefore, it is very interesting to see the relationship in Nigeria, which has developed, diverse, and steadily growing economy. Additionally, as a sign of being a developing country, banking firms integrate to financial markets and use financial services, in which debt and leverage have important function. As we know that leverage ratios affect financial structure and hence capital structure and thereby financial performance and Nigerian banking firms are on average very highly leveraged. Thus, we would like to find the relationship between financial structure and profitability of Nigerian banks for a period 28 years (1986-2013).

Available works on financial structure and profitability of banks did not capture the effects of equity capital (owners' equity) on banks' profitability. It is important to address this in order to determine the contribution of equity capital on financial performance of banks, so as to be in a position to properly advice management on the quantum of debt to introduce into the financial structure.

Furthermore, it has been the practice of the Central Bank of Nigeria over the years to increase the capital base of the Deposit money banks in a bid to strengthen the efficiency and soundness of the banks. It is therefore necessary to evaluate the effects of this important component of financial structure on profitability of the banks.

The study also determined the effects of long term obligations on profitability of

deposit money banks. This is more so as Nigerian banks debts obligations of more short-term nature. The result of the findings will encourage the banks to source more long term debts with its advantages.

## **CHAPTER THREE**

### **RESEARCH METHODOLOGY**

#### **3.1 Research Design**

This study applied descriptive and quantitative research techniques based on ex-post facto research design to study the effects of financial structure on profitability of Deposit Money banks in Nigeria. The uses of mathematical and statistical techniques including models are the key tools in the conduct of quantitative research. Quantitative research mainly explores objective relationships among variables in a particular study. Using quantitative research methodology for this study is clearly in line with Cooper and Schindler (2001) who explained that the approach allows for the use of numerical facts and model specification. A study of the above subject therefore, lends itself to the main tenets of quantitative research methodology to help find out objectively the empirical relationship between financial structure, macroeconomic factors (variables) and profitability of Nigerian Deposit Money banks that may be generalized for industry and policy analysis. To this end, the study relies on time series data on the variables already documented and available for public use.

Thus, two analytical tools were used in this study, viz: descriptive statistics and multiple regression analytical models. Multiple analytical models were used to estimate the relationship (or otherwise) between DMBs' profits and identified components of financial structure. The descriptive statistics were used to conduct economic analysis on the financial structure components. The adapted model used Cross-sectional time series data covering 1986-2013 to determine the influence of financial structure variables on DMBs' profitability. Finally, the study applied data on an ordinary least squares (OLS) approach to conduct the investigations and analysis.

#### **3.2 Nature and Sources of Data**

Secondary data derived from the financial statement of the Nigerian banks, Central Bank of Nigeria Statistical Bulletin, World Bank data base, Nigerian Deposit Insurance Corporation, Annual Report and Statement of Accounts, Nigerian Stock Exchange,

Fact Book, over a 28 years period (1986-2013) were used for the study based on the panel data approach. Stock and Watson (2007) described panel data to be synonymous with longitudinal data such that each data is observed from a cross-sectional perspective. This is statistically prudent because the financial structure, macro-economic and profitability ratios which represent the independent and dependent variables respectively correspond to different time series for Nigerian Deposit Money banks over the period of the study. Essentially, the decision on the variables to be included in the study was guided by data availability as well as theoretical justification.

### **3.3 Model Specification**

Regression is one of the most popular and common statistical techniques in social sciences. With a multiple regression model, researchers can investigate the relationship between a response variable and more than one explanatory variable. The reason is that researchers can apply statistical models to evaluate explanations of social phenomena (Scarbrough & Tanenbaum, 1998). Furthermore, it is useful in the social sciences because researchers require more than one source of information to make adequate prediction (Hutcheson & Sofroniou, 1999).

The researchers employed OLS regression analysis for the study. A static framework is more suitable because OLS regression also help to keep the sum of the squared error of the observed values for the dependent variable from those predicted by the model at minimum level.

Ordinary least squares (OLS) investigate the relationship between a dependent variable and a collection of independent variables as multiple regression do. In general terms, ordinary least squares estimation is aimed at minimizing the sum of squared deviations of the observed values for the dependent variable from those predicted by the model.” (Statasoft.com, 2012).

Although regression analysis deals with the dependence of one variable on other variables, it does not imply causation-that is, it is assumed that the variables in question are not bilaterally related, the independent variables are not collinear, and the disturbance terms are normally distributed and not serially correlated. Thus, the OLS technique is suitable because of its simplicity and the validity of its assumptions.

The value of a dependent variable is defined as a linear combination of the independent variables plus an error term.

$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \dots + \beta_k X_k + \varepsilon$$

Where the  $\beta$ s are the regression coefficients,  $X$ s are column vectors for the independent variables and  $\varepsilon$  is a vector of errors of prediction. The model is linear in the  $\beta$  parameters, but may be used to fit nonlinear relationships between the  $X$ s and  $Y$ . “The regression coefficients are interpreted as the change in the expected value of  $Y$  associated with a one-unit increase in an independent variable, with the other independent variables held constant. The errors are assumed to be normally distributed with an expected value of zero and a common variance” (Pohlmann & Leitner, 2003)

To effectively study the effects of capital structure on the profitability of Deposit money banks in Nigeria, we used regression models based on the independent variables, dependent variables and control variables. We adopted and modified the model of Phansamon and Yalçın (2012) who conducted a study on a quantitative study of the influence of capital structure on firm performance of Swedish listed firms;

$$ROA, ROE, ROI = \beta_0 + \beta_1 \text{STD/TA} + \beta_2 \text{LTD/TA} + \beta_3 \text{Size} + \beta_4 \text{Growth} + \beta_5 \text{Intangible} + \gamma \text{Dind} + \gamma \text{Dyear}$$

In which

**ROA:** Return on asset (Net Income / Total Assets)

**ROE:** Return on equity (Net Income / Shareholder's Equity)

**ROI:** Return on investment (Profit / Investment)

**STD/TA:** Short-term debt to total asset

**LTD/TA:** Long-term debt to total asset

**TD/TA:** Total debt to total asset

**SIZE:** Natural logarithm of total assets

**Growth:** Annual change on sales

**Intangible:** Intangible assets to total assets

**Dind :** Industry dummy

**Dyear:** Year dummy

We adopted and modified the model to include more variables, viz: value of equity capital, value of Net interest margin, value of GDP, value of total debt, value of external debts, value of interest rates and value of exchange rate in Nigeria. Because we employed profitability proxies, the above model is therefore modified to determine the effects of financial structure on the profitability of DMBs in Nigeria. In doing this we developed five simple definitional models to guide our analyses. These models are as follows;

### **Model 1**

$$\text{ROA} = \beta_0 + \beta_1 \text{STO} + \beta_2 \text{LTO} + \beta_3 \text{TO} + \beta_4 \text{EQUITY} + \beta_5 \text{SIZE} + \beta_6 \text{EXR} + \beta_7 \text{EXD} + \beta_8 \text{GDP} + \mu_t \dots \dots \dots 3.2$$

### Model 2

$$ROE = \beta_{0ii} + \beta_{1ii} STO + \beta_{2ii} LTO + \beta_{3ii} TO + \beta_{4ii} EQUITY + \beta_{5ii} SIZE + \beta_{6ii} EXR + \beta_{7ii} EXD + \beta_{8ii} GDP + \mu_t \dots \dots \dots 3.3$$

### Model 3

$$NIM = \beta_{0iii} + \beta_{1ii} STO + \beta_{2ii} LTO + \beta_{3iii} TO + \beta_{4iii} EQUITY + \beta_{5iii} SIZE + \beta_{6iii} EXR + \beta_{7iii} EXD + \beta_{8iii} GDP + \mu_t \dots \dots \dots 3.4$$

### Model 4 i

$$ROA = \beta_{0iv} + \beta_{1iv} INF + \beta_{2iv} INT + \beta_{3iv} EXD + \beta_{4iv} SIZE + \beta_{5iv} EXR + \beta_{6iv} GDP + \mu_t \dots \dots \dots 3.5$$

### Model 4 ii

$$ROE = \beta_{0iv} + \beta_{1iv} INF + \beta_{2iv} INT + \beta_{3iv} EXD + \beta_{4iv} SIZE + \beta_{5iv} EXR + \beta_{6iv} GDP + \mu_t \dots \dots \dots 3.6$$

### Model 4 iii

$$NIM = \beta_{0iv} + \beta_{1iv} INF + \beta_{2iv} INT + \beta_{3iv} EXD + \beta_{4iv} SIZE + \beta_{5iv} EXR + \beta_{6iv} GDP + \mu_t \dots \dots \dots 3.7$$

### Model 5 i

$$ROA = \beta_{0v} + \beta_{1v} EQUITY + \mu_t \dots \dots \dots (3.8)$$

### Model 5 ii

$$ROE = \beta_{0v} + \beta_{1v} EQUITY + \mu_t \dots \dots \dots (3.9)$$

### Model 5 iii

$$NIM = \beta_{0v} + \beta_{1v}EQUITY + \mu_t \dots \dots \dots (3.10)$$

ROA:	Return on Assets
ROE:	Return on Equity
NIM:	Net Interest Margin
STO	Short- Term Obligations for the DMBs
LTO	Long –Term Obligations for the DMBs
TO	Total Obligations for the DMBs
SIZE	Firm Size in time
EXR	Exchange rate
LIT	Legal interest rate
INF	Inflation rate
EXD	External Debt
EQUITY	Equity Capital for the DMBs

$\beta_{0i} \dots \beta_{0iii}$  Regression equation intercepts (constant)

$\beta_{1i} \dots \beta_{6iii}$  Regression coefficients to be estimated

$\mu_t$  Error term or random variable

Model 1 represents the relationship between short-term obligations and DMBs' profitability (return on assets)

Model 2 represents the relationship between long-term obligations and DMBs' profitability (return on equity)

Model 3 captured the relationship between total obligations and DMBs' profitability

(net interest margin)

Model 4 captured the relationship between the macroeconomic variables and profitability of the DMBs.

Model 5 captured the relationship between equity capital and the profitability of deposit money banks.

### **3.4 A Prior Expectation**

It is expected that there will be a direct relation between profitability and short term obligations and indirect relation between profitability and long term obligations.

It is expected that firm size in terms of total assets will have a positive effect on the profitability of Nigerian banks.

A strong positive relationship is expected between short- term obligations and the profitability of DMBs.

Equity capital will have a positive relationship with profitability of DMBs in Nigeria.

It was expected that the macroeconomic variables (Inflation, Gross Domestic Product, External Debts and Interest rates) will exhibit significant positive relationship with ROA, ROE and NIM.

Exchange rate is expected to have a negative relationship with the profitability of banks. As exchange rate is volatile high exchange is expected to negatively impact on banks profit.

Firm size will have unpredictable relationship with bank profitability. There is consensus in academic literature that economies of scale and synergies arise up to a certain level of size. Beyond that level, financial organizations become too complex to manage and

diseconomies of scale arise. The effect of size could therefore be nonlinear; meaning that profitability is likely to increase up to a certain level by achieving economies of scale and decline from a certain level in which banks become too complex and bureaucratic.

### **3.5 Description of Variables for the Study**

#### **3.5.1 Dependent Variables**

For the purpose of this study, the profitability variables are the dependent variables. The profitability variables or ratios to be used are return on equity (ROE), return on asset (ROA) and net interest margin (NIM)( proxy for yield on earning assets (YEA)). The return on equity is an important measure of profitability in that it indicates what rate of the profit that accrues to shareholders.

At the same time, it indicates or signals the efficiency of management in generating returns for shareholders who are overly concerned with value maximization. The return on equity is computed as the ratio of the pre-tax profit divided by the total equity capital.

$$\text{That is ROE} = \frac{\text{Profit Before Tax} \times 100}{\text{Total equity}}$$

The return on asset measures the profitability with respect to the level of the assets hence it is expressed as the profit before tax divided by total assets.

$$\text{That is ROA} = \frac{\text{Net Income} \times 100}{\text{Total assets}}$$

Net interest margin is expressed as the difference between the interest income and the interest expenses divided by the earning assets. The net interest margin (NIM) will control for the market power of banks. In this study, the yield on earning assets (YEA) is adopted as proxy for NIM (Okafor, 2011).

### **3.5.2 Independent Variables**

For the purpose of this study, the independent variables are representative of leverage ratios and the control variables.

The leverage ratios are as follows:

#### **3.5.2.1 The Ratio of Short-Term Debt (Obligations) to Total Capital**

Abor (2005 and 2007) stated that short-term Debt to capital ratio (STD/TC) is measured by dividing short-term debt with total capital.

Short term capital to debt=short term debt/capital

This is expressed as short –term debt as a ratio of total capital to determine how much short term debt is used to finance the activities of Deposit money banks in Nigeria and how this affect profitability over the years. In this study, short-term debt includes all the deposits of the banks less fixed deposits of more than 18months to maturity. A positive relationship is expected when the dependent variables are regressed against this variable in line with the fact that banks are heavily leveraged but mostly with respect to deposits which tend to be short lived.

#### **3.5.2.2 The Ratio of Long-Term Debt (Obligations) to Total Capital**

Mesquita and Lara (2003) and Abor (2005) have used long term debt to capital (LTDTTC) as a measure of capital structure and it is calculated by following formula:

Long term debt to capital= long term debt/capital

This ratio determines the degree to which Deposit Money banks use long term debts to finance their activities and how this reflects in profitability measures over time. In this study, long-term debts are bonds; shown as debentures, notes and deposit (cash)

certificates and fixed deposits of more than 18 months to maturity. Since banks tend to utilize more deposits it is expected that an inverse relation will exist between the dependent variables and this ratio.

### **3.5.2.3 The Ratio of Total Debt (Obligations) to Total Capital**

The focus of financial structure is the use of total debt as against equity to influence profitability. For the purpose of this study, this ratio is calculated by dividing total debt by total capital.

Total debt to capital = total debt / total capital.

This ratio measures the extent to which bank operations are financed by total debt (i.e. short-term plus long-term obligations of banks). The expected relation between the dependent variable and this ratio is expected to be negative.

### **3.5.2.4 Firm Size**

To measure firm size (SIZE) different methods are used by scholars. According to Titman and Twite (2003) firm size is calculated as natural log of total book value of assets. In this study we will use the book value of the total assets to calculate the firm size (SIZE). Firm size =  $\ln(\text{book value of total assets})$

According to Abor (2005), firm size contributes to corporate profitability as large firms have greater opportunity to take on more debts to finance their operations. In using the size of the firm as control variable for the study, the natural logarithm is taken on the assets of the banks over the period of 23 years to be covered by the study.

### **3.5.2.5 Sales Growth**

Sales growth (% change in net interest income) is also significantly important in that from financial and capital structure theories such as pecking order theory and information asymmetry there is a relationship between profitability and sales growth.

### **3.5.2.6 Macro-economic Variables**

The real GDP growth rate (GDP), and the CPI inflation level (INFL) are used to control the effect of the economic environment on bank's profitability. Gross domestic product is important because the overall economic activities affect banking business. In periods of flourishing economic activity, demand for finance from banks increase to finance various needs of the deficit units in the economy. Inflation spells out the rate at which prices of goods and services are change over a period of time. This feeds into the level of interest rate hence the lending rate of banks. Past studies have reported a positive relationship between inflation and bank profitability. High inflation rates are generally associated with high loan interest rates, and therefore, high incomes. We expect GDP growth rate to have a positive impact on bank's profitability according to the well-documented literature on the association between economic growth and financial sector performance.

**3.5.2.7 Tangible assets:** It considers the control variables and measured by dividing the net fixed assets to total assets (Dessi & Robertson (2003), Weill (2007) and Margrates & Psillaki(2010)).

Asset Tangibility = Net fixed Assets/ Total Assets

### **3.6 Analysis of Data**

The ratios to be computed will be imported into excel for running the regression using SPSS. Descriptive statistics, Pearson correlation, and General Least Squares (GLS) Regression will be used in analyzing the hypothesis, with profitability ratios as dependent variables while the macroeconomic and financial structure variables were considered the independent variables. Both profitability and leverage ratios will be computed with data extracted from the annual financial statements of Deposit Money banks in Nigeria from 1986 to 2013. This means that twenty-seven (28) years data will be used which reflect the recent and past performances of Nigerian banks. The annual financial statements will be compiled from Central Bank of Nigeria Statistical Bulletin

(for various years), Central Bank of Nigeria Banking Supervision Annual Report (for various years), Nigerian Deposit Insurance Corporation, Annual Statement of Account (for various years) and the Nigerian Stock Exchange Fact Book (for various years) which reports the annual financial statements of banks in Nigeria on yearly basis.

### 3.7 Evaluation of Estimate

We hope that our regression models will explain the variation in the dependent variable fairly accurately. If it does, we say that "the model fits the data well." Evaluating the overall fit of the model also helps us to compare models that differ with the data set, composition and number of independent variables, etc.

- The *t-statistic* are testing whether any of the coefficients might be equal to zero. The *t-statistic* is calculated simply as  $= \frac{\beta_j}{\sigma_j}$ . If the errors  $\varepsilon$  follows a normal distribution,  $t$  follows a Student-t distribution. Under weaker conditions,  $t$  is asymptotically normal. Large values of  $t$  indicate that the null hypothesis can be rejected and that the corresponding coefficient is not zero.
- The *p-value*, expresses the results of the hypothesis test as a significance level. Conventionally, *p-values* smaller than 0.05 are taken as evidence that the population coefficient is not zero
- *R-squared* is the coefficient of determination indicating goodness-of-fit of the regression. This statistic will be equal to one if fit is perfect, and to zero when regressors  $X$  have no explanatory power whatsoever. This is a biased estimate of the population *R-squared*, and will never decrease if additional regressors are added, even if they are irrelevant.
- *Adjusted R-squared* is a slightly modified version of  $R^2$ , designed to penalize for the excess number of regressors which do not add to the explanatory power of the regression. This statistic is always smaller than  $R^2$ , can decrease as new regressors are added, and even be negative for poorly fitting models:

$$R^{-2} = 1 - \frac{n-1}{n-p}(1 - R^2)$$

- *Durbin–Watson statistic* tests whether there is any evidence of serial correlation between the residuals. As a rule of thumb, the value smaller than 2 will be an evidence of positive correlation.
- *Akaike information criterion* and *criterion* are both used for model selection. Generally when comparing two alternative models, smaller values of one of these criteria will indicate a better model.
- *Standard error of regression* is an estimate of  $\sigma$ , standard error of the error term.
- *Total sum of squares*, *model sum of squared*, and *residual sum of squares* tell us how much of the initial variation in the sample were explained by the regression.
- *F-statistic* tries to test the hypothesis that all coefficients (except the intercept) are equal to zero. This statistic has  $F(p-1, n-p)$  distribution under the null hypothesis and normality assumption, and its *p-value* indicates probability that the hypothesis is indeed true. Note that when errors are not normal this statistic becomes invalid and other tests such as for example Wald test or LR test should be used.

## **CHAPTER FOUR**

### **DATA PRESENTATION AND ANALYSIS**

This chapter is a vital aspect in any research work. It serves as the deciding point for any research effort because it gives meaning and shape to the raw data collected during the research activities. The critical position occupied by data presentation, analysis and interpretation is given to the fact that conclusion and recommendations concerning a research work are derived from this chapter.

In this chapter, the researchers examined in conjunction with the preceding chapters, various hypotheses under the review of the topic- “effects of financial structure on profitability of Nigerian Deposit Money Banks”- by analyzing the data gathered from the Central Bank of Nigeria Statistical Bulletin, the National Bureau of Statistical, Federal Office of Statistics, Nigerian Deposit Insurance Corporation, Nigerian Stock Exchange Fact book etc.

#### **4.1 Data Presentation and Analysis of Research Hypothesis one**

The secondary data used for data presentation and analysis of hypothesis one are presented in tables 4.1a, 4.1b and 4.1c.

Table 4.1a. Data on financial structure and profitability for Hypothesis One

<b>YEAR</b>	<b>ROA</b>	<b>STO</b>	<b>LTO</b>	<b>TO</b>	<b>SIZE</b>	<b>EXR</b>	<b>GDP</b>	<b>EXD</b>	<b>EQUITY</b>
<b>1986</b>	1.56	38300		38300	39.6788	313.3	69146.99	41452.4	5.1
<b>1987</b>	1.59	48400		48300	49.8284	120.2	105222.8	100789.1	6.5
<b>1988</b>	1.79	56100		56,100	58.0272	120.5	139085.3	133956.3	7.7
<b>1989</b>	1.54	62200		62200	64.874	107.6	216797.5	240393.7	9.1
<b>1990</b>	2.16	79200		79200	82.9578	100	267550	298614.4	11.9
<b>1991</b>	1.96	113200		113200	117.5119	85	312139.7	328453.8	18.3
<b>1992</b>	3.14	132600	172	132772	159.1908	70.5	532613.8	544264.1	29.1
<b>1993</b>	4.21	196300	186	196486	226.1628	77.2	683869.8	633144.4	40.3
<b>1994</b>	2.79	260100	2924	263024	295.0332	142.8	899863.2	648,813	53.2
<b>1995</b>	2.35	337300	4651	341951	385.1418	122.1	1933212	7168666	82.8
<b>1996</b>	2.1	398100	5133	403233	458.7775	167.7	2702719	617320	165.1
<b>1997</b>	0.81	500300	10510	510810	584.375	193.1	2801973	595931.9	257.7

<b>1998</b>	2.88	587100	6331	593431	694.6151	203.6	2708431	633077	330.6
<b>1999</b>	2.07	916776	11275	928050	1070.02	78.9	3194015	2577374	261.2
<b>2000</b>	2.7	1359753	12423	1372176	1568.839	81	4582127	3097384	250.3
<b>2001</b>	4.82	20225543	25610	2048153	2247.04	79.95	4725086	3176291	379.7
<b>2002</b>	2.63	2241596	24533	2266129	2766.88	80.48	6912381	3932855	601.1
<b>2003</b>	2	24799913	30657	2510649	3047.856	81	8487032	4478329	701.9
<b>2004</b>	2.58	3064169	3032	3067201	3753.278	80.74	11411067	4890270	979.0
<b>2005</b>	0.75	35605499	4016	35609515	4515.118	81.32	14572239	2695072	1,808.5
<b>2006</b>	0.59	5780328	3748	5784076	7172.932	81.94	18564595	451461.7	2,066.8
<b>2007</b>	5.92	8676520	79779	8756299	10981.69	81.87	20657318	431079.8	3,275.0
<b>2008</b>	4.29	12478800	76066	12554866	15919.56	82.28	24296329	493180.2	7,492.0
<b>2009</b>	-64.92	11839617	343469	12183086	17522.86	82.57	24794239	590441.1	10,150.2
<b>2010</b>	3.91	14721949	391804	15113754	17331.56	82.86	5.42E+11	689845.3	5,296.4
<b>2011</b>	-0.04	15278400	146400	15424800	19396.63	154.7	5.67E+11	605489.2	6,493.3
<b>2012</b>	2.64	17489800	160500	1.77E+08	20447.4	155.2	6.08E+10	853065.9	7,470.7
<b>2013</b>	2.15	20127700	304400	2.04E+08	23098.8	155.7	6.53E+10	714321.3	7,456.6

Sources: (I) Central Bank of Nigeria Statistical Bulletin – Various Years

(ii) Nigerian Stock Exchange Fact Book – Various Years

(iii) NDIC Annual Report – Various Years

(iv) Computations By the Researcher

(v) Central Bank of Nigeria. Banking Supervision Annual Report- Various Years

KEY:- ROA: Return on Assets; ROE: Return on Equity; NIM: Net Interest Margin;

STO: Short- Term Obligations for the DMBs; LTO: Long –Term Obligations for the DMBs;

TO: Total Obligations for the DMBs; SIZE: Firm Size in time; EXR: Exchange rate;

INT: Interest rate; INF: Inflationary rate; EXD: External Debt; EQUITY: Equity Capital for the DMBs

## Test of Hypothesis One

$H_0$ : There is no significant relationship between short-term obligations and profitability of Nigerian Deposit Money Banks

$H_1$ : There is significant relationship between short-term obligations and profitability of Nigerian Deposit Money Banks

### 4.1.1 Pearson Correlations

**Table 4.1b Correlations Matrix for Hypothesis 1**

	ROA	STO	LTO	TO	SIZE	EXR	GDP	EQUITY	EXD
ROA	1.000000	-0.075090	-0.487652	0.033974	-0.292206	0.105707	0.059505	-0.521398	0.134473
STO	-0.075090	1.000000	0.373322	0.428757	0.500506	-0.166831	0.232758	0.452024	0.040465
LTO	-0.487652	0.373322	1.000000	0.485232	0.834355	0.018304	0.567731	0.822290	-0.318990
TO	0.033974	0.428757	0.485232	1.000000	0.662169	0.307440	0.068610	0.556673	-0.191332
SIZE	-0.292206	0.500506	0.834355	0.662169	1.000000	0.075449	0.531083	0.952642	-0.374511
EXR	0.105707	-0.166831	0.018304	0.307440	0.075449	1.000000	0.112406	0.038146	-0.296500
GDP	0.059505	0.232758	0.567731	0.068610	0.531083	0.112406	1.000000	0.395316	-0.217759
EQUITY	-0.521398	0.452024	0.822290	0.556673	0.952642	0.038146	0.395316	1.000000	-0.388035
EXD	0.134473	0.040465	-0.318990	-0.191332	-0.374511	-0.296500	-0.217759	-0.388035	1.000000
Probability	0.000000	0.009343	0.002156	0.000000	0.035949	0.000000	0.000000	0.000409	0.008316

Source: Computation by researchers, 2015

A Pearson product-moment correlation coefficient was computed on Table 4.1b to assess the relationship between short-term obligations and profitability Nigeria Deposit Money Banks

Table 4.1b shows that Pearson coefficient of correlation between STO and ROA is -0.075 while  $p = 0.009$ . Since,  $p$  is less than 0.05, the Pearson product-moment correlation coefficient is significant at 0.05 level of significance. The negative sign of the Pearson's  $r$  implies that the relationship between return on Assets and short-term obligations is inverse. In other words, short-term obligations explain about 8% variation in ROA.

The Pearson coefficient of correlation between LTO and ROA is -0.487 while  $p = 0.002$ . Since,  $p$  is less than 0.05, the Pearson product-moment correlation coefficient is significant at 0.05 level of significance. The negative sign of the Pearson's  $r$  implies that the relationship between long-term obligations and Return on Assets is inverse. In other words, Long-term obligations explain about 49% variation in ROA.

In addition, the Pearson coefficient of correlation between TO and ROA is 0.034 while  $p = 0.000$ . Since,  $p$  is less than 0.05, the Pearson product-moment correlation coefficient was significant at 0.05 level of significance. The positive sign of the Pearsons'  $r$  implies

that the relationship between total obligations and Return on Assets is positive. In other words, total obligations explain about 34% variation in ROA.

However, the Pearson coefficient of correlation between SIZE and ROA is -0.292 while  $p=0.180$ . Since,  $p$  is greater than 0.05, the Pearson product-moment correlation coefficient was insignificant at 0.05 level of significance. The negative sign of the Pearson's  $r$  implies that the relationship between Firm size and Return on Assets is negative. In other words, firm size explains about 29% variation in ROA.

Furthermore, the Pearson coefficient of correlation between EXR and ROA is 0.105 while  $p=0.166$ . Since,  $p$  is greater than 0.05, the Pearson product-moment correlation coefficient was insignificant at 0.05 level of significance. The positive sign of the Pearson's  $r$  implies that the relationship between Exchange Rate and Return on Assets is positive. In other words, Exchange Rate explains about 11% variation in ROA.

Also, the Pearson coefficient of correlation between GDP and ROA is 0.059 while  $p=0.000$ . Since,  $p$  is less than 0.05, the Pearson product-moment correlation coefficient was significant at 0.05 level of significance. The positive sign of the Pearson's  $r$  implies that the relationship between Gross Domestic Product and Return on Assets is positive. In other words, Gross Domestic Product explains about 11% variation in ROA.

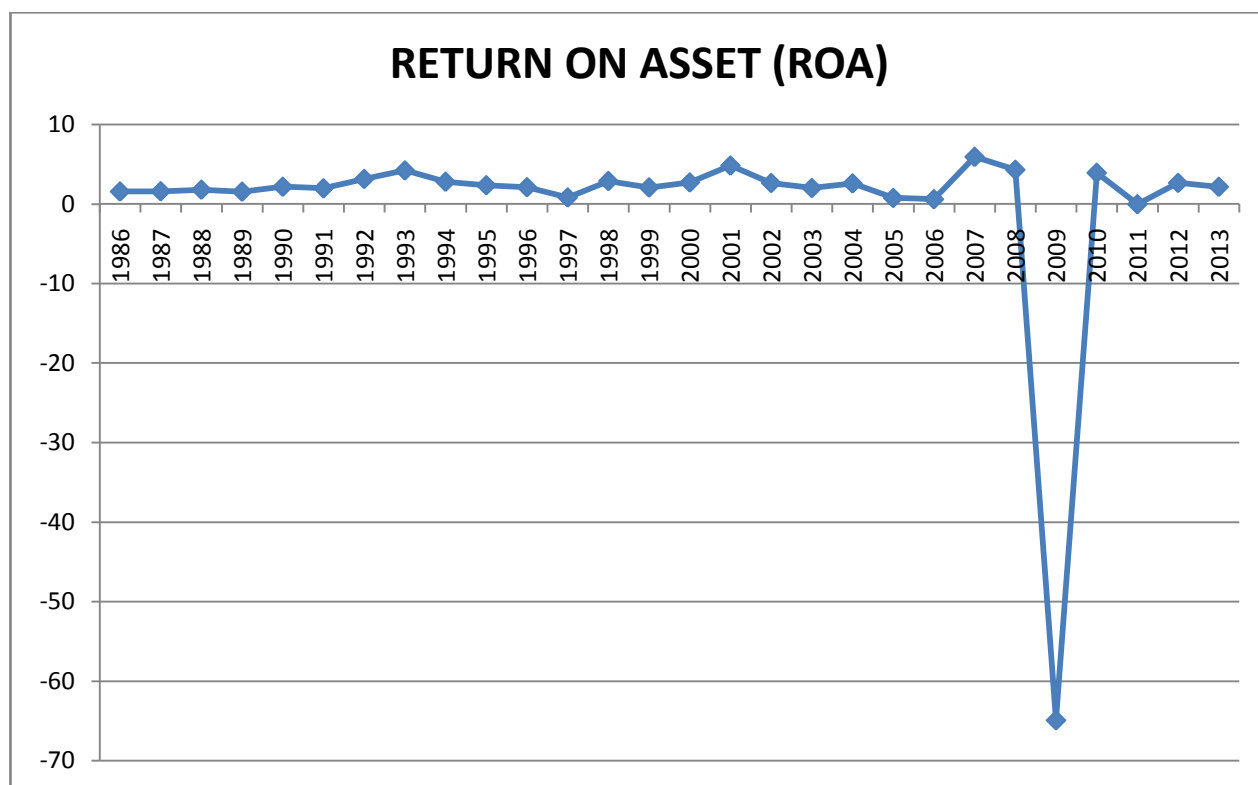
The Pearson coefficient of correlation between EXD and ROA is 0.139 while  $p=0.026$ . Since,  $p$  is less than 0.05, the Pearson product-moment correlation coefficient was significant at 0.05 level of significance. The positive sign of the Pearson's  $r$  implies that the relationship between External Debt and Return on Assets is positive. In other words, External Debt explains about 14% variation in ROA.

Finally, the Pearson coefficient of correlation between EQUITY and ROA is -0.521 while  $p=0.008316$ . Since,  $p$  is less than 0.005, the Pearson product-moment correlation coefficient was significant at 0.05 level of significance. The negative sign of the

Pearson's  $r$  implies that the relationship between Equity Capital and Return on Assets is negative. In other words, Equity explains about 52% variation in ROA.

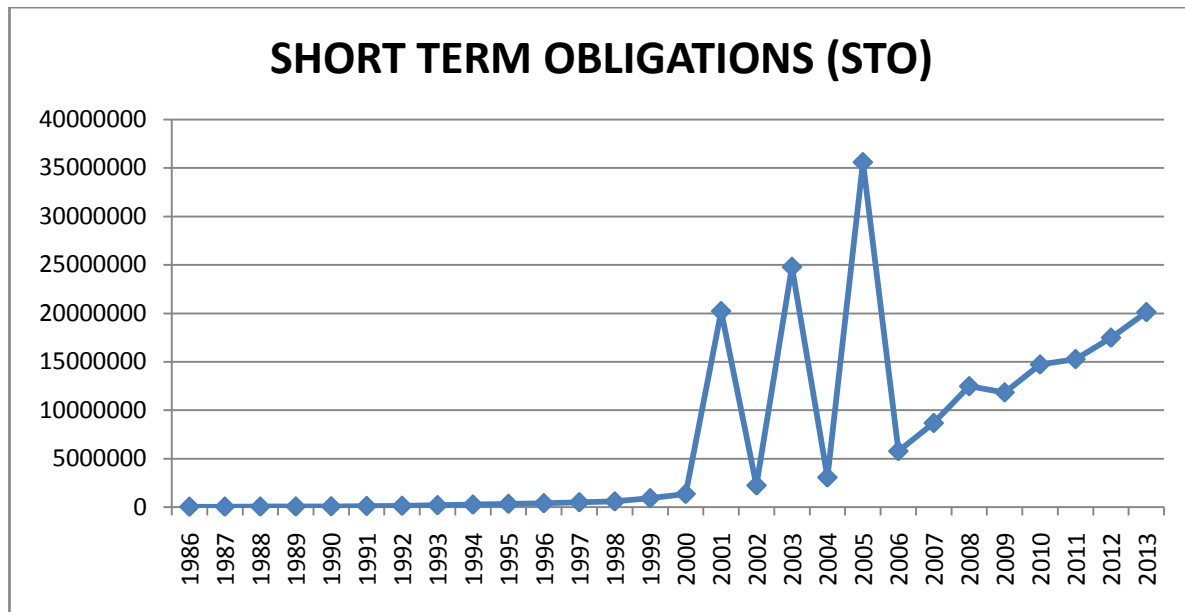
### Trends of the Financial Structure

**Fig.4.1 Return on Assets (ROA) Trends (1986-2013)**



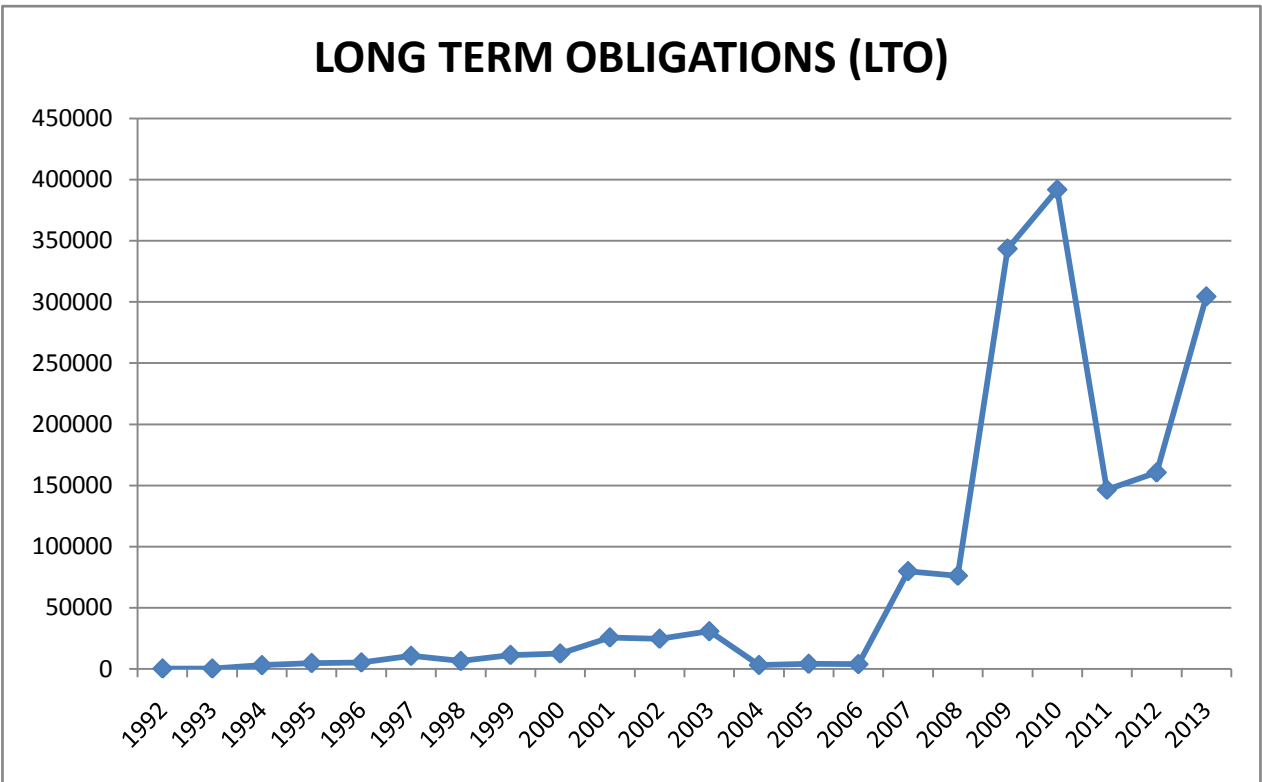
Return on Assets shows a steady rise and fall reaching its peak rise in 2007 and a very sharp fall in 2009 and a continuous undulating rise and fall from 2010 to 2013.

**Fig.4.2 Short Term Obligations (STO) Trends (1986-2013)**



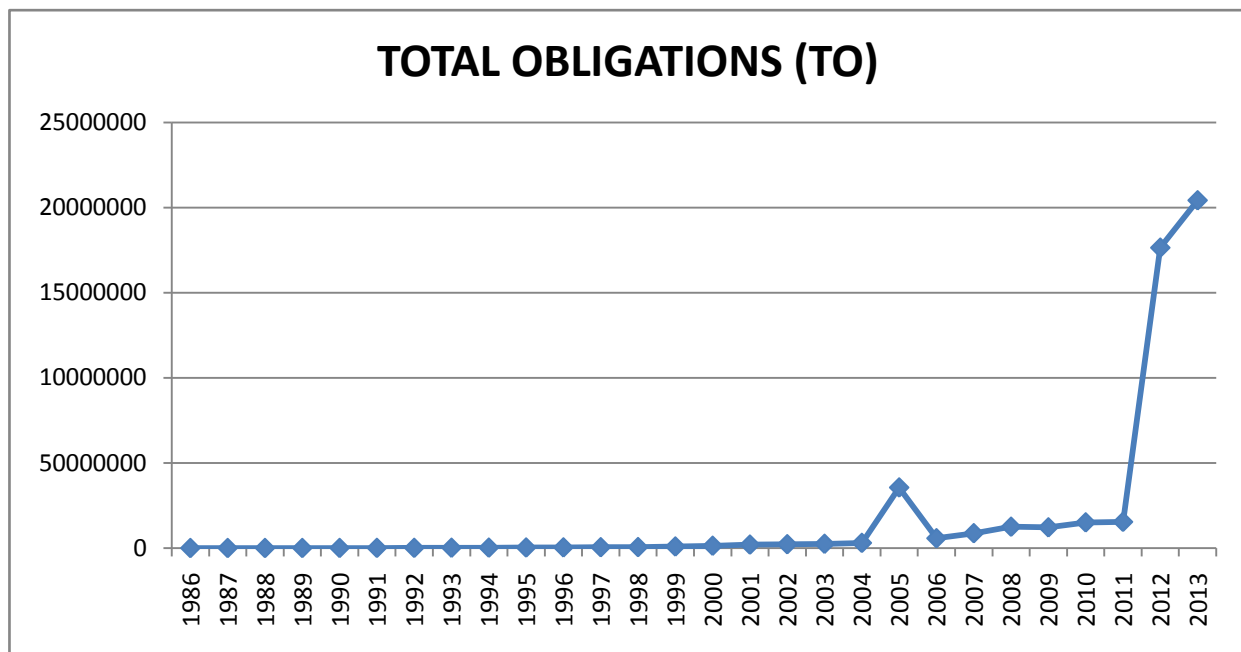
The trend for short term debts shows that short term debts has been on the rise with a sharp rise in 2001 and a sharp fall in 2002 and sharp rise giving a zig zag movements of sharp rise and sharp fall between 2000 to 2007. With a steady rise from 2008 to 2013.

**Fig. 4.3 Long Term Obligations (LTO) Trends (1986-2013)**



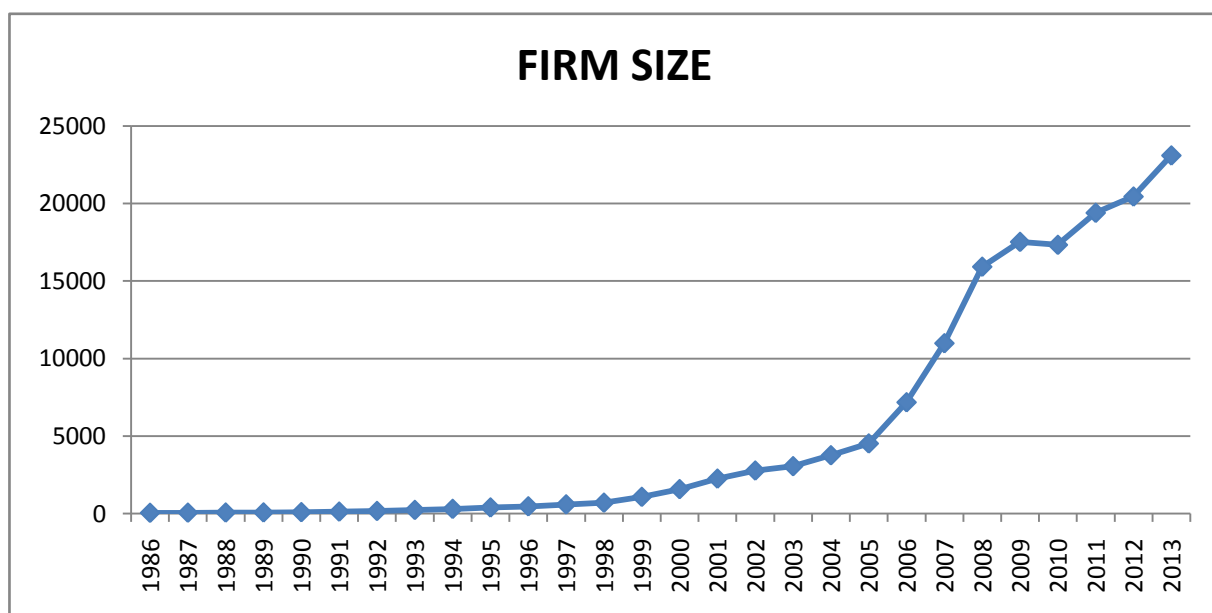
Long Term Debt shows a steady slow rise until 2003 before having a fall 2004 maintaining a steady movement until 2006 when it began a rise reaching its highest peak in 2010 and another sharp fall in 2011 before beginning another rise.

**Fig. 4.4 Total Obligations (TO) Trends (1986-2013)**

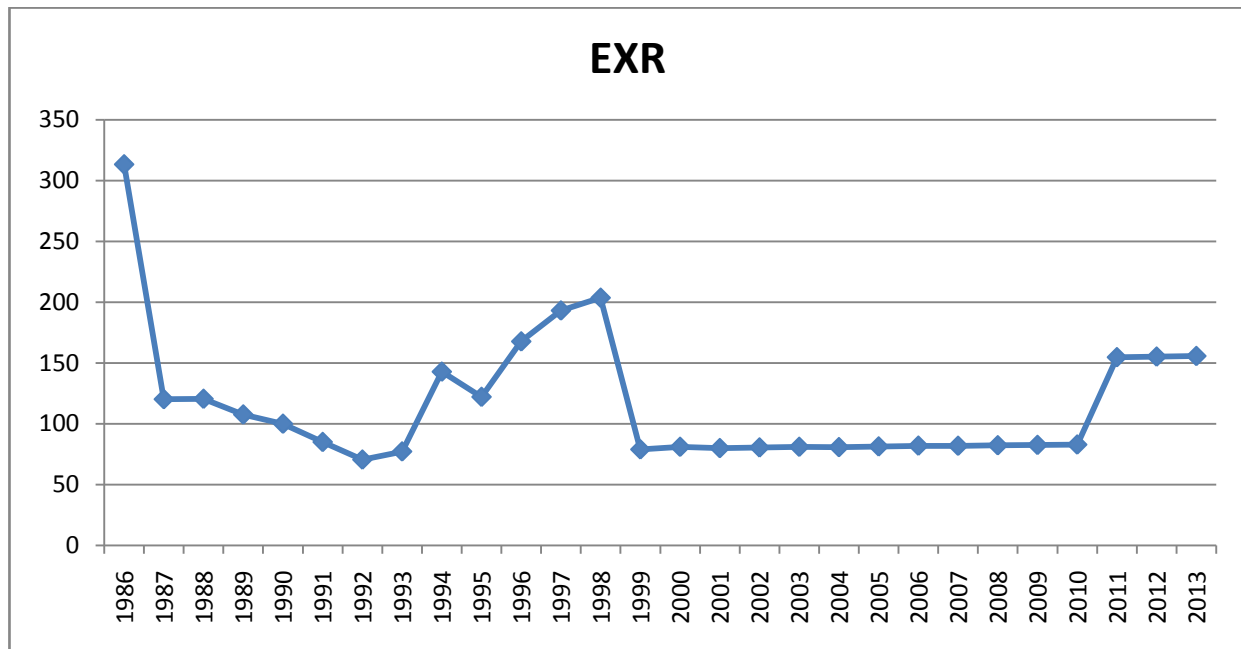


Trend of total debts shows a steady linear movement from 1986 to 2004 when it took a sharp rise reaching its first highest peak in 2005 and a fall in 2006 before beginning a steady rise until getting to 2011 before beginning a very sharp rise. Reaching its highest peak in 2013.

**Fig. 4.5 Firm Size (FS) Trends (1986-2013)**

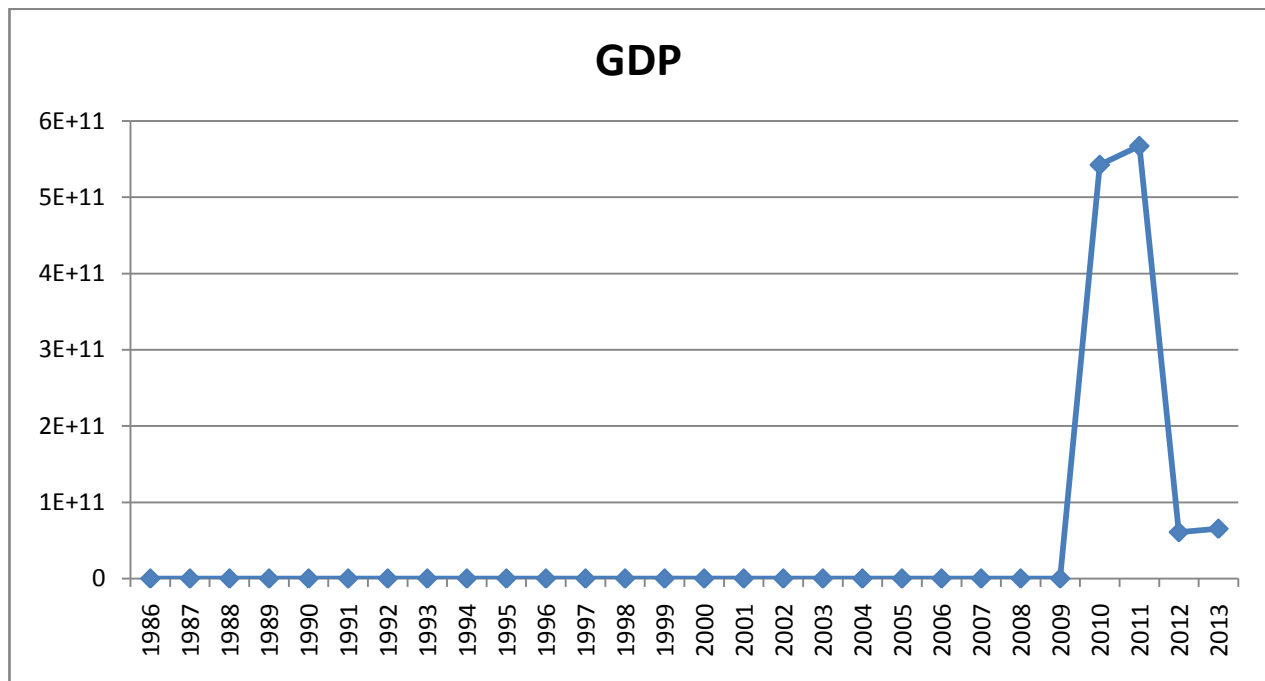


**Fig. 4.6 Exchange rate Trends (1986-2013)**



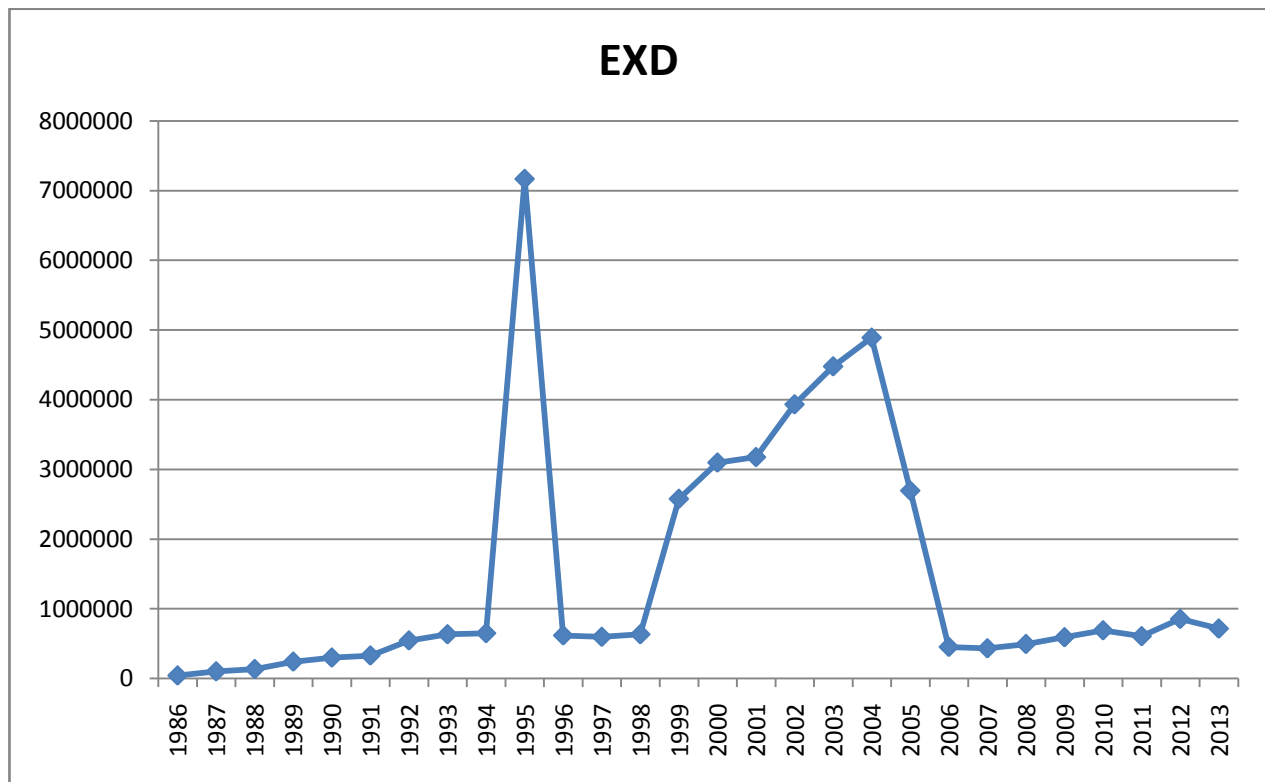
Exchange rate began with a high rise and a sharp fall 1987 reaching its lowest fall in 1992 before rising to its second peak in 1998 and a sharp fall in 1999 maintaining a steady movement until 2010 before taking a sharp rise in 2011 maintaining steady movement till 2013.

**Fig. 4.7 Gross Domestic Products (GDP) Trends (1986-2013)**



Trend on GDP shows a steady linear movement until 2009 when it took a high rise in 2010 and reaching its highest height in 2011 and a sharp fall in 2012 before beginning a rise in 2013.

**Fig. 4.8 External Debts (EXD) Trends (1986-2013)**



Trend on external debts (Fig. 4.8) showed that external debts has a steady liner rise until it got to 2004 when it had a sharp rise reaching its first highest peak then a fall 1996 maintaining a steady rise until 1998 when it took another rise before maintaining a rise reaching its second peak in 2004 before falling 2006 and began another linear rise in 2007 till it got to 2012.

**Fig. 4.9 Trend on Equity Capital (1986-2013)**

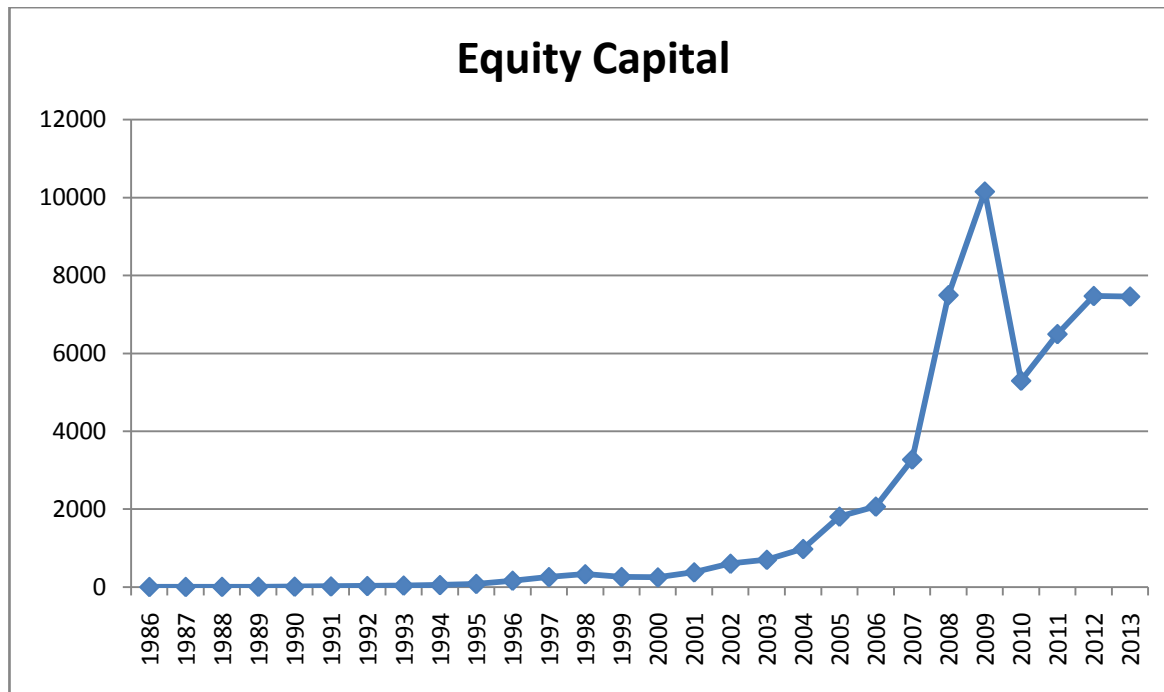


Fig. 4.9 showed that equity capital has insignificant growth from 1986 to 1995 while it shows a step rise from 1996 reaching its peak 2009 before taking a sharp drop in 2010 and begins another steady rise in 2011 reaching its second peak in 2012.

#### 4.1.2 Determining the fitness of the model

**Table 4.1c Model Summary for model 1**

Dependent Variable: ROA

Method: Least Squares

Date: 08/03/16 Time: 09:19

Sample (adjusted): 1992 2013

Included observations: 22 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	1.534481	6.576970	0.233311	0.8189
STO	-3.84E-08	2.02E-07	-0.190014	0.8520

LTD	-7.45E-05	2.84E-05	-2.627916	0.0199
TD	2.13E-08	7.10E-08	0.300556	0.7682
SIZE	0.004185	0.001370	3.055458	0.0086
EXR	-0.003230	0.047751	-0.067650	0.9470
GDP	7.63E-12	2.22E-11	0.344454	0.7356
EXD	-5.25E-07	1.02E-06	-0.514308	0.6157
EQUITY	-0.010214	0.002718	-3.758336	0.0021
<hr/>				
R-squared	0.825865	Mean dependent var	-0.437727	
Adjusted R-squared	0.738798	S.D. dependent var	14.47208	
S.E. of regression	7.396381	Akaike info criterion	7.115146	
Sum squared resid	765.8904	Schwarz criterion	7.511889	
Log likelihood	-70.26661	Hannan-Quinn criter.	7.208607	
F-statistic	9.485366	Durbin-Watson stat	2.974763	
Prob(F-statistic)	0.000218			

### ***The Coefficient of Determination ( $R^2$ )***

The coefficient of determination ( $R^2$ ) from our regression result in Table 4.1c is 0.825. This implies that 83% of the total variation in Return on Assets is explained by the predictors. This shows that the explanatory power of the variables is relatively high, but not sufficient to conclude that the predictors have significant effect on Return on Assets.

### ***The Adjusted $R^2$***

The Adjusted  $R^2$  supports the claim of the  $R^2$  with a value of 0.738 indicating that 73% of the total variation in the dependent variable – Return on Assets is explained by the independent variables. Thus, this supports the statement that the explanatory power of the variables is high.

### ***Standard Error Test***

It tells us how much the observed values differ from the values on the regression line. The standard errors for the two explanatory variables were all low (7.396) which indicates a good fit.

### ***Durbin-Watson statistic***

The value of the Durbin-Watson statistic ranges from 0 to 4. As a general rule of thumb, the residuals are uncorrelated is the Durbin-Watson statistic is approximately 2. A value close to 0 indicates strong positive correlation, while a value of 4 indicates strong negative correlation. From the table above Durbin-Watson statistic is 2.9 which that the residuals are strongly negatively correlated.

### ***4.1.3 Statistical significance***

The *F*-ratio in the table tests whether the overall regression model is a good fit for the data. The table shows that the independent variables statistically significantly predict the dependent variable, *F stat* = 9.485, and Prob (*F-stat*) = 0.0002  $p < .0005$ . This implies that ROA has significant relationship with predictors.

$$ROA = \beta_{0i} + \beta_{1i}STD + \beta_{2i}LTD + \beta_{3i}TD + \beta_{4i}SIZE + \beta_{5i}EX + \beta_{6i}GDP + \beta_{7i}EXD + \beta_{8i}EQUITY\mu_t \dots \dots \dots 3.2$$

$$ROA = 14.613 - (1.08 \times STD - (0.000 \times LTD) + (2.14 \times 10^7 \times TD) - (0.001 \times SIZE) - (0.073 \times EX) + (7.22 \times 10^{11} \times GDP) - (5.25 \times 10^7 \times EXD) - (0.0102 \times EQUITY) + \mu_t$$

### ***4.1.4 Estimated Model Coefficients***

### ***Coefficients***

Coefficients show how much the dependent variable ROA varies with the independent variable when all other independent variables are held constant.

The coefficient, for STO is equal to  $-1.08 \times 10^7$ . This means that for each one-year increase in STO, there is a decrease in ROA by  $-1.08 \times 10^7$ .

In addition, coefficient, for LTO is equal to  $-0.00012$ . This means that for each one-year increase in LTO, ROA reduces by  $0.00012$ .

Also, coefficient, for TO is equal to  $2.14 \times 10^7$ . This implies that for each one-year increase in TO, there is an increase in ROA by  $2.14 \times 10^7$ .

However, coefficient, for SIZE is equal to  $-0.00072$ . This implies that for each one-year increase in SIZE, there is a decrease in ROA by  $0.00072$ .

Furthermore, coefficient, for EXR is equal to  $-0.073$ . This implies that for each one-year increase in SIZE, there is a decrease in ROA by  $-0.073$ .

Moreover, coefficient, for GDP is equal to  $7.22 \times 10^{11}$ . This implies that for each one-year increase in GDP, there is an increase in ROA by  $7.22 \times 10^{11}$ .

In addition, coefficient, for EXD is equal to  $-5.25 \times 10^7$ . This implies that for each one-year increase in EXD, there is an increase in ROA by  $-5.25 \times 10^7$ .

Finally, coefficient, for EQUITY is equal to  $-0.0102$ . This implies that for each one-year increase in EQUITY, there is a decrease in ROA by  $-0.0102$ .

#### ***4.1.5 Statistical significance of the independent variables***

This tests whether the unstandardized (or standardized) coefficients are equal to 0 (zero) in the population. If  $p < .05$ , we can conclude that the coefficients are statistically

significantly different to 0 (zero). The  $t$ -value and corresponding  $p$ -value are located in the "t" and "Sig." columns, respectively, as highlighted in table 4.1c

From the "**Prob**" column that it can be seen that STO (0.8520), TD (0.7682), EXR (0.9480), EXD (0.615) and GDP (0.7356) are statically insignificant with the dependent variable ROA while LTO (0.0199), SIZE (0.0086), and EQUITY (0.0021) show statistical significance with the dependent variable Return on Assets

### ***In Summary***

The Pearson coefficient of correlation as well as multiple regression analysis were carried out to predict relationship and extent of association between Short Term Obligations, Long Term Obligations, Total Obligations, Firm Size, Exchange Rate, Gross Domestic Product, External Debts, Equity and profitability of Nigerian Deposit Money Banks using Return on Assets (ROA) as Dependent variable.

Result from Pearson coefficient of correlation on Table 4.1b shows that the extent of associations between Return on Assets and Short Term Obligations (8%), Total debts (3%), Exchange Rate (11%), GDP (6%), and External Debts (13%) are quite low while Return on Assets and Long Term Obligation (48%), Size (29%) Equity (52%) has significantly improved association.

Multiple regressions shows that ROA has significant relationship with LTO, TO, GDP and EQUITY while ROA shows insignificant relationship with STO, SIZE, EXR, EXD.

In conclusion, since the prob (F-statistic) = 0.0002 < 0.05; we reject the null hypothesis and therefore conclude that there is significant positive relationship between Short-Term Obligations and profitability of Nigerian Deposit Money Banks.

## **4.2 Data Presentation and Analysis of Research Hypothesis Two**

The secondary data used for data presentation and analysis of hypothesis two are presented in tables 4.2a, 4.2b and 4.2c.

Table 4.2a. Data on financial structure and profitability for Hypothesis Two

<b>YEAR</b>	<b>ROA</b>	<b>STO</b>	<b>LTD</b>	<b>TD</b>	<b>SIZE</b>	<b>EXR</b>	<b>GDP</b>	<b>EXD</b>	<b>EQUITY</b>
<b>1986</b>	1.56	38300		38300	39.6788	313.3	69146.99	41452.4	5.1
<b>1987</b>	1.59	48400		48300	49.8284	120.2	105222.8	100789.1	6.5
<b>1988</b>	1.79	56100		56,100	58.0272	120.5	139085.3	133956.3	7.7
<b>1989</b>	1.54	62200		62200	64.874	107.6	216797.5	240393.7	9.1
<b>1990</b>	2.16	79200		79200	82.9578	100	267550	298614.4	11.9
<b>1991</b>	1.96	113200		113200	117.5119	85	312139.7	328453.8	18.3
<b>1992</b>	3.14	132600	172	132772	159.1908	70.5	532613.8	544264.1	29.1
<b>1993</b>	4.21	196300	186	196486	226.1628	77.2	683869.8	633144.4	40.3
<b>1994</b>	2.79	260100	2924	263024	295.0332	142.8	899863.2	648,813	53.2
<b>1995</b>	2.35	337300	4651	341951	385.1418	122.1	1933212	7168666	82.8
<b>1996</b>	2.1	398100	5133	403233	458.7775	167.7	2702719	617320	165.1
<b>1997</b>	0.81	500300	10510	510810	584.375	193.1	2801973	595931.9	257.7
<b>1998</b>	2.88	587100	6331	593431	694.6151	203.6	2708431	633077	330.6
<b>1999</b>	2.07	916776	11275	928050	1070.02	78.9	3194015	2577374	261.2
<b>2000</b>	2.7	1359753	12423	1372176	1568.839	81	4582127	3097384	250.3
<b>2001</b>	4.82	20225543	25610	2048153	2247.04	79.95	4725086	3176291	379.7
<b>2002</b>	2.63	2241596	24533	2266129	2766.88	80.48	6912381	3932855	601.1
<b>2003</b>	2	24799913	30657	2510649	3047.856	81	8487032	4478329	701.9
<b>2004</b>	2.58	3064169	3032	3067201	3753.278	80.74	11411067	4890270	979.0
<b>2005</b>	0.75	35605499	4016	35609515	4515.118	81.32	14572239	2695072	1,808.5
<b>2006</b>	0.59	5780328	3748	5784076	7172.932	81.94	18564595	451461.7	2,066.8
<b>2007</b>	5.92	8676520	79779	8756299	10981.69	81.87	20657318	431079.8	3,275.0
<b>2008</b>	4.29	12478800	76066	12554866	15919.56	82.28	24296329	493180.2	7,492.0
<b>2009</b>	-64.92	11839617	343469	12183086	17522.86	82.57	24794239	590441.1	10,150.2
<b>2010</b>	3.91	14721949	391804	15113754	17331.56	82.86	5.42E+11	689845.3	5,296.4
<b>2011</b>	-0.04	15278400	146400	15424800	19396.63	154.7	5.67E+11	605489.2	6,493.3
<b>2012</b>	2.64	17489800	160500	1.77E+08	20447.4	155.2	6.08E+10	853065.9	7,470.7
<b>2013</b>	2.15	20127700	304400	2.04E+08	23098.8	155.7	6.53E+10	714321.3	7,456.6

Sources: (I) Central Bank of Nigeria Statistical Bulletin – Various Years

(ii) Nigerian Stock Exchange Fact Book – Various Years

(iii) NDIC Annual Report – Various Years

(iv) Computations By the Researcher

(v) Central Bank of Nigeria. Banking Supervision Annual Report- Various Years

KEY:- ROA: Return on Assets; ROE: Return on Equity; NIM: Net Interest Margin;

STO: Short- Term Obligations for the DMBs; LTO: Long –Term Obligations for the DMBs; TO: Total Obligations for the DMBs; SIZE: Firm Size in time; EXR: Exchange rate; INT: Interest rate; INF: Inflationary rate; EXD: External Debt; EQUITY: Equity Capital for the DMBs

## Test of Hypothesis Two

$H_0$ : There is no significant relationship between Long-Term Obligations and profitability of Nigerian Deposit Money Banks

$H_1$ : There is significant relationship between Long-Term Obligations and profitability of Nigerian Deposit Money Banks

### 4.2.1 Pearson Correlations

#### 4.2b Correlations Matrix for Hypothesis 2

	ROE	STO	LTD	TD	SIZE	EXR	GDP	EQUITY	EXD
ROE	1.000000	-0.001132	0.347681	-0.103138	0.044750	-0.220678	0.468003	-0.082846	0.014486
STO	-0.001132	1.000000	0.373322	0.428757	0.500506	-0.166831	0.232758	0.452024	0.040465
LTD	0.347681	0.373322	1.000000	0.485232	0.834355	0.018304	0.567731	0.822290	-0.318990
TD	-0.103138	0.428757	0.485232	1.000000	0.662169	0.307440	0.068610	0.556673	-0.191332
SIZE	0.044750	0.500506	0.834355	0.662169	1.000000	0.075449	0.531083	0.952642	-0.374511
EXR	-0.220678	-0.166831	0.018304	0.307440	0.075449	1.000000	0.112406	0.038146	-0.296500
GDP	0.468003	0.232758	0.567731	0.068610	0.531083	0.112406	1.000000	0.395316	-0.217759
EQUITY	-0.082846	0.452024	0.822290	0.556673	0.952642	0.038146	0.395316	1.000000	-0.388035
EXD	0.014486	0.040465	-0.318990	-0.191332	-0.374511	-0.296500	-0.217759	-0.388035	1.000000
Probability	0.000000	0.009343	0.002156	0.000000	0.035949	0.000000	0.000000	0.000409	0.008316

Source: Computation by researchers, 2015

A Pearson product-moment correlation coefficient was computed on Table 4.2b to assess the relationship between short-term obligations and profitability Nigeria Deposit Money Banks

Table 4.2b shows that Pearson coefficient of correlation between STO and ROE is -0.001 while  $p=0.01$ . Since,  $p$  is less than 0.05; the Pearson product-moment correlation coefficient is significant at 0.05 level of significance. The negative sign of the Pearson's  $r$  implies that the relationship between short-term obligations and Return on Equity is negative. In other words, short-term obligations explain about 1% variation in ROE.

On the other hand, the Pearson coefficient of correlation between LTO and ROE is 0.347 while  $p=0.002$ . Since,  $p$  is less than 0.05; the Pearson product-moment correlation coefficient was significant at 0.05 level of significance. The positive sign of the Pearson's  $r$  implies that the relationship between long-term obligations and Return on Equity is direct. In other words, Long-term obligations explain about 34% variation in ROE.

In addition, the Pearson coefficient of correlation between TO and ROE is -0.103 while  $p=0.000$ . Since,  $p$  is less than 0.05; the Pearson product-moment correlation coefficient was significant at 0.05 level of significance. The negative sign of the Pearson's  $r$  implies that the relationship between total obligations and Return on Equity is negative. In other words, total obligations explain about 10% variation in ROE.

However, the Pearson coefficient of correlation between SIZE and ROE is 0.044 while  $p=0.036$ . Since,  $p$  is less than 0.05; the Pearson product-moment correlation coefficient was significant at 0.05 level of significance. The positive sign of the Pearson's  $r$  implies that the relationship between Firm size and Return on Equity is positive. In other words, firm size explains about 4.4% variation in ROE.

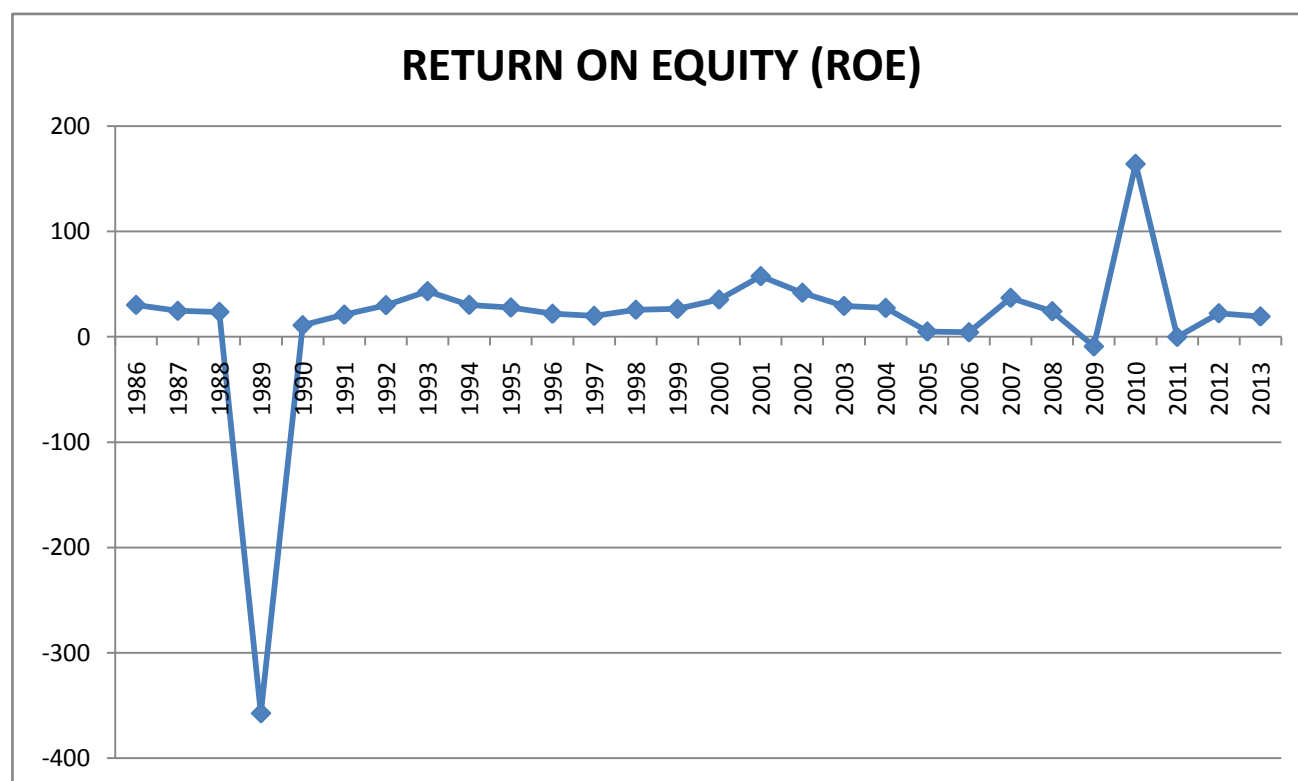
Furthermore, the Pearson coefficient of correlation between EXR and ROE is -0.220 while  $p=0.000$ . Since,  $p$  is less than 0.05; the Pearson product-moment correlation coefficient is significant at 0.05 level of significance. The negative sign of the Pearson's  $r$  implies that the relationship between Exchange Rate and Return on Equity is negative. In other words, Exchange Rate explains about 22% variation in ROE.

Also, the Pearson coefficient of correlation between GDP and ROE is 0.468 while  $p=0.000$ . Since,  $p$  is less than 0.05; the Pearson product-moment correlation coefficient is significant at 0.05 level of significance. The positive sign of the Pearson's  $r$  implies that the relationship between Gross Domestic Product and Return on Equity is positive. In other words, Gross Domestic Product explains about 47% variation in ROE.

The Pearson coefficient of correlation between EXD and ROE is 0.014 while  $p=0.008$ . Since,  $p$  is less than 0.05; the Pearson product-moment correlation coefficient is significant at 0.05 level of significance. The positive sign of the Pearson's  $r$  implies that the relationship between External Debt and Return on Equity is positive. In other words, External Debt explains about 1% variation in ROE.

Finally, the Pearson coefficient of correlation between EQUITY and ROE is -0.082 while  $p=0.000$ . Since,  $p$  is less than 0.005; the Pearson product-moment correlation coefficient was significant at 0.05 level of significance. The negative sign of the Pearson's  $r$  implies that the relationship between Equity and Return on Equity is negative. In other words, Equity explains about 0.8% variation in ROE.

**Fig.4.9 Return on Equity Trends (1986-2013)**



Trend of Return on Equity shows an undulating rise and fall with its highest deep fall in 1989 and a steady rise reaching its first peak in 1993 and a steady fall until 1997 when it began another rise reaching its second highest peak in 2001 and began a steady fall until 2009. ROE reached its highest peak in 2010, before taking a sharp fall 2011 before beginning another rise.

#### ***4.2.2 Determining the fitness of the model***

**Table 4.2c Model Summary for Hypothesis Two**

Dependent Variable: ROE

Method: Least Squares

Date: 08/03/16 Time: 09:59

Sample (adjusted): 1992 2013

Included observations: 22 after adjustments

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	47.78448	20.67794	2.310892	0.0366
STO	-1.85E-07	6.35E-07	-0.291695	0.7748
LTD	0.000294	8.92E-05	3.297289	0.0053
TD	-1.14E-07	2.23E-07	-0.511669	0.6169
SIZE	0.004073	0.004306	0.945739	0.3603
EXR	-0.161220	0.150128	-1.073880	0.3010
GDP	2.10E-11	6.97E-11	0.302002	0.7671
EXD	-1.17E-06	3.22E-06	-0.362478	0.7228
EQUITY	-0.018396	0.008545	-2.152913	0.0492
R-squared	0.674611	Mean dependent var	30.92091	
Adjusted R-squared	0.511917	S.D. dependent var	33.28539	
S.E. of regression	23.25416	Akaike info criterion	9.406133	
Sum squared resid	7570.585	Schwarz criterion	9.802876	
Log likelihood	-95.46746	Hannan-Quinn criter.	9.499594	
F-statistic	4.146490	Durbin-Watson stat	3.191866	
Prob(F-statistic)	0.011361			

### ***The Coefficient of Determination ( $R^2$ )***

The coefficient of determination ( $R^2$ ) from our regression result in Table 4.2c is 0.674. This implies that 67% of the total variation in Return on Equity is explained by the predictors. This shows that the explanatory power of the variables is relatively high, but not sufficient to conclude that the predictors have significant effect on Return on Equity.

### ***The Adjusted $R^2$***

The Adjusted  $R^2$  supports the claim of the  $R^2$  with a value of 0.5119 indicating that 51% of the total variation in the dependent variable – Return on Equity is explained by the independent variables. Thus, this supports the statement that the explanatory power of the variables is high.

### ***Standard Error Test***

It tells us how much the observed values differ from the values on the regression line. The standard errors for the two explanatory variables were all moderate (23.254) which indicates a good fit.

### ***Durbin-Watson statistic***

The value of the Durbin-Watson statistic ranges from 0 to 4. As a general rule of thumb, the residuals are uncorrelated if the Durbin-Watson statistic is approximately 2. A value close to 0 indicates strong positive correlation, while a value of 4 indicates strong negative correlation. From the table above Durbin-Watson statistic is 3.1 which indicates that the residuals are uncorrelated.

### 4.1.3 Statistical significance

The  $F$ -ratio in the table tests whether the overall regression model is a good fit for the data. The table shows that the independent variables were statistically significant to the dependent variable,  $F\ stat = 4.146$ , and  $\text{Prob } (F\text{-stat}) = 0.011$   $p < .05$ . This implies that ROE has significant relationship with predictors.

$$\begin{aligned} ROE = & \beta_{0ii} + \beta_{1ii}STD + \beta_{2ii}LTD + \beta_{3ii}TD + \beta_{4ii}SIZE + \beta_{5ii}EX + \beta_{6ii}GDP \\ & + \beta_{7ii}EXD + \beta_{8ii}EQUITY \\ & + \mu_t \dots \dots \dots 3.3 \end{aligned}$$

Mathematically we have

$$\begin{aligned} ROE = & 47.784 - (1.85 \times 10^7 \times STD) + (0.000 \times LTD) - (2.338 \times TD) \\ & + (0.004 \times SIZE) - (0.161 \times EXR) + (2.105 \times 10^{10} \times GDP) \\ & - (1.17 \times 10^{06} \times EXD) - (0.0183 \times EQUITY) \end{aligned}$$

### 4.2.4 Estimated Model Coefficients

#### Coefficients

The coefficients show how much the dependent variable ROA varies with the independent variable when all other independent variables are held constant.

The coefficient, for STO is equal to  $-3.020 \times 10^7$ . This means that for each one-year increase in STO, there is a decrease in ROE by 3.020.

In addition, coefficient, for LTD is equal to 0.000. This means that for each one-year increase in LTD, ROE does not show any significant change.

Furthermore, coefficient, for TD is equal to  $3.338 \times 10^7$ . This implies that for each one-year increase in TD, there is  $2.338 \times 10^7$  increases in ROE.

Also, coefficient, for SIZE is equal to -0.005. This means that for each one-year increase in SIZE, there is a decrease in ROE of -0.005.

However, the coefficient, for EX is equal to -0.290. This means that for each one-year increase in EX, there is a decrease in ROE by 0.290.

Moreover, the coefficient, for GDP is equal to  $1.375 \times 10^{10}$ . This means that for each one-year increase in GDP, there is a crease in ROE by  $1.375 \times 10^{10}$ .

Also, the coefficient, for EXD is equal to  $-1.17 \times 10^6$ . This means that for each one-year increase in EXD, there is a decrease in ROE by  $1.17 \times 10^6$ .

Finally the coefficient, for EQUITY is equal to -0.018. This means that for each one-year increase in EXD, there is a decrease in ROE by 0.018.

#### ***4.1.6 Statistical significance of the independent variables***

This tests whether the unstandardized (or standardized) coefficients are equal to 0 (zero) in the population. If  $p < .05$ , we can conclude that the coefficients are statistically significantly different to 0 (zero). The  $t$ -value and corresponding  $p$ -value are located in the "t" and "Sig." columns, respectively, as highlighted in table.

From the "Sig." column that STO (0.688), TD (0.0228) EXR (0.108) and EXD (0.722) EQUITY (0.056) independent variable coefficients are statistically insignificantly not different from 0 (zero).

While LTO (0.039), SIZE (0.020), and GDP (0.019) independent variable coefficients are statistically significantly different from 0 (zero).

#### ***In Summary***

The Pearson coefficient of correlation as well as multiple regression analysis were carried out to predict relationship and extent of association between Short Term Obligations, Long Term Obligations, Total Obligations, Firm Size, Exchange Rate, Gross Domestic Product, And External Debts, Equity and profitability of Nigerian Deposit Money Banks using Return on Equity (ROE) as Dependent variable.

Result from Pearson coefficient of correlation shows that the extent of associations between Return on Equity and Short Term Obligations (1%), Total debts (10%), SIZE (4%) Exchange Rate (22%), EQUITY (8%) and External Debts (1%) are quite low while Retune on Assets and Long Term Obligation (48%), GDP (46%) has significantly improved association.

Multiple regression shows that ROA has significant relationship LTO, SIZE, and GDP while ROE shows insignificant relationship with STO, TO, EXR, and EXD.

In conclusion, since the prob (F-statistic) = 0.011 < 0.05, we therefore reject the null hypothesis and therefore conclude that there is significant positive relationship between Long-Term Obligations and profitability of Nigerian Deposit Money Banks.

### 4.3 Data Presentation and Analysis of Research Hypothesis 3

The secondary data used for data presentation and analysis of hypothesis three of this study are presented in tables 4.3a, 4.3b and 4.3c.

Table 4.3a. Data on financial structure and profitability for Hypothesis three

YEAR	ROA	STO	LTD	TD	SIZE	EXR	GDP	EXD	EQUITY
1986	1.56	38300		38300	39.6788	313.3	69146.99	41452.4	5.1
1987	1.59	48400		48300	49.8284	120.2	105222.8	100789.1	6.5
1988	1.79	56100		56,100	58.0272	120.5	139085.3	133956.3	7.7
1989	1.54	62200		62200	64.874	107.6	216797.5	240393.7	9.1
1990	2.16	79200		79200	82.9578	100	267550	298614.4	11.9
1991	1.96	113200		113200	117.5119	85	312139.7	328453.8	18.3
1992	3.14	132600	172	132772	159.1908	70.5	532613.8	544264.1	29.1
1993	4.21	196300	186	196486	226.1628	77.2	683869.8	633144.4	40.3
1994	2.79	260100	2924	263024	295.0332	142.8	899863.2	648,813	53.2
1995	2.35	337300	4651	341951	385.1418	122.1	1933212	7168666	82.8
1996	2.1	398100	5133	403233	458.7775	167.7	2702719	617320	165.1
1997	0.81	500300	10510	510810	584.375	193.1	2801973	595931.9	257.7
1998	2.88	587100	6331	593431	694.6151	203.6	2708431	633077	330.6
1999	2.07	916776	11275	928050	1070.02	78.9	3194015	2577374	261.2
2000	2.7	1359753	12423	1372176	1568.839	81	4582127	3097384	250.3
2001	4.82	20225543	25610	2048153	2247.04	79.95	4725086	3176291	379.7
2002	2.63	2241596	24533	2266129	2766.88	80.48	6912381	3932855	601.1
2003	2	24799913	30657	2510649	3047.856	81	8487032	4478329	701.9
2004	2.58	3064169	3032	3067201	3753.278	80.74	11411067	4890270	979.0
2005	0.75	35605499	4016	35609515	4515.118	81.32	14572239	2695072	1,808.5
2006	0.59	5780328	3748	5784076	7172.932	81.94	18564595	451461.7	2,066.8

<b>2007</b>	5.92	8676520	79779	8756299	10981.69	81.87	20657318	431079.8	3,275.0
<b>2008</b>	4.29	12478800	76066	12554866	15919.56	82.28	24296329	493180.2	7,492.0
<b>2009</b>	-64.92	11839617	343469	12183086	17522.86	82.57	24794239	590441.1	10,150.2
<b>2010</b>	3.91	14721949	391804	15113754	17331.56	82.86	5.42E+11	689845.3	5,296.4
<b>2011</b>	-0.04	15278400	146400	15424800	19396.63	154.7	5.67E+11	605489.2	6,493.3
<b>2012</b>	2.64	17489800	160500	1.77E+08	20447.4	155.2	6.08E+10	853065.9	7,470.7
<b>2013</b>	2.15	20127700	304400	2.04E+08	23098.8	155.7	6.53E+10	714321.3	7,456.6

Sources: (I) Central Bank of Nigeria Statistical Bulletin – Various Years

(ii) Nigerian Stock Exchange Fact Book – Various Years

(iii) NDIC Annual Report – Various Years

(iv) Computations By the Researcher

(v) Central Bank of Nigeria. Banking Supervision Annual Report- Various Years

KEY:- ROA: Return on Assets; ROE: Return on Equity; NIM: Net Interest Margin;

STO: Short- Term Obligations for the DMBs; LTO: Long –Term Obligations for the DMBs;

TO: Total Obligations for the DMBs; SIZE: Firm Size in time; EXR: Exchange rate;

INT: Interest rate; INF: Inflationary rate; EXD: External Debt; EQUITY: Equity Capital for the DMBs

### Test of Hypothesis Three

H<sub>0</sub>: There is no significant relationship between Total Obligations and profitability of Nigerian Deposit Money Banks

H<sub>1</sub>: There is significant relationship between Total Obligations and profitability of Nigerian Deposit Money Banks

#### 4.3.1 Pearson Correlations for hypothesis three

#### 4.3b Correlations Matrix for Hypothesis Three

	NIM	STO	LTD	TD	SIZE	EXR	GDP	EQUITY	EXD
NIM	1.000000	0.334432	0.324123	0.052543	0.306936	-0.433967	-0.102224	0.364909	0.201373
STO	0.334432	1.000000	0.373322	0.428757	0.500506	-0.166831	0.232758	0.452024	0.040465
LTD	0.324123	0.373322	1.000000	0.485232	0.834355	0.018304	0.567731	0.822290	-0.318990
TD	0.052543	0.428757	0.485232	1.000000	0.662169	0.307440	0.068610	0.556673	-0.191332
SIZE	0.306936	0.500506	0.834355	0.662169	1.000000	0.075449	0.531083	0.952642	-0.374511
EXR	-0.433967	-0.166831	0.018304	0.307440	0.075449	1.000000	0.112406	0.038146	-0.296500
GDP	-0.102224	0.232758	0.567731	0.068610	0.531083	0.112406	1.000000	0.395316	-0.217759
EQUITY	0.364909	0.452024	0.822290	0.556673	0.952642	0.038146	0.395316	1.000000	-0.388035
EXD	0.201373	0.040465	-0.318990	-0.191332	-0.374511	-0.296500	-0.217759	-0.388035	1.000000
Probability	0.065312	0.009343	0.002156	0.000000	0.035949	0.000000	0.000000	0.000409	0.008316

Source: Computation by researchers, 2015

A Pearson product-moment correlation coefficient was computed on Table 4.3b to assess the relationship between the Net Interest Margin of banks and macro-economic variables.

Table 4.3b shows that the Pearson coefficient of correlation between NIM and STO is 0.334 while  $p=0.009$ . Since,  $p$  is less than 0.05; the Pearson product-moment correlation coefficient is significant at 0.05 level of significance. The positive sign of the Pearson's  $r$  implies that the relationship between Net Interest Margin and short-term obligations is positive. In other words, short-term obligations explain about 33% variation in NIM positively.

On the other hand Pearson coefficient of correlation between NIM and LTO is 0.324 while  $p=0.02$ . Since,  $p$  is less than 0.05; the Pearson product-moment correlation coefficient was significant at 0.05 level of significance. The positive sign of the Pearson's  $r$  implies that the relationship between Net Interest Margin and Long-term obligations is positive. In other words, Long-term obligations explain about 32.4% variation in NIM.

However, Pearson coefficient of correlation between NIM and TO is 0.053 while  $p=0.0000$ . Since,  $p$  is less than 0.05; the Pearson product-moment correlation coefficient was significant at 0.05 level of significance. The positive sign of the Pearson's  $r$  implies that the relationship between Net Interest Margin and total bank debts is positive. In other words, total bank debts explain about 5.3% variation in NIM.

Furthermore, Pearson coefficient of correlation between NIM and SIZE is 0.307 while  $p=0.036$ . Since,  $p$  is less than 0.05; the Pearson product-moment correlation coefficient is significant at 0.05 level of significance. The positive sign of the Pearson's  $r$  implies that the relationship between Net Interest Margin and firm size in time is positive. In other words, firm size explains about 30.7% variation in Net Interest Margin.

Moreover, Pearson coefficient of correlation between NIM and EXR is -0.434 while  $p=0.000$ . Since,  $p$  is less than 0.05, the Pearson product-moment correlation coefficient is significant at 0.05 level of significance. The negative sign of the Pearson's  $r$  implies that the relationship between Net Interest Margin and exchange rate is negative. In other words, EXR explains about 43% variation in NIM negatively.

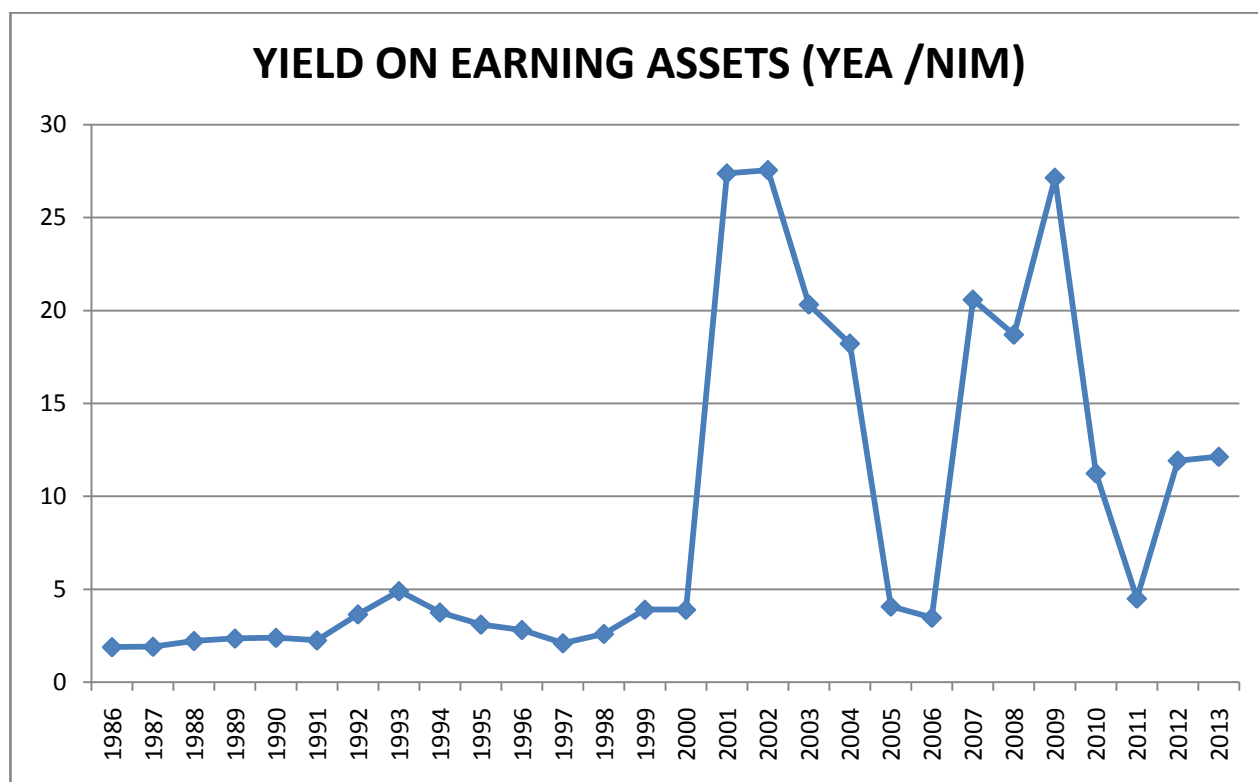
Also, Pearson coefficient of correlation between NIM and GDP is -0.102 while  $p=0.000$ . Since,  $p$  is less than 0.05; the Pearson product-moment correlation coefficient was significant at 0.05 level of significance. The negative sign of the Pearson's  $r$  implies that

the relationship between Net Interest Margin and economic growth is negative. In other words, gross domestic product explains about 10% variation in GDP as well as negatively affected banks Net Interest Margin.

The Pearson coefficient of correlation between NIM and EXD is 0.201 while  $p=0.008$ . Since,  $p$  is less than 0.05; the Pearson product-moment correlation coefficient is significant at 0.05 level of significance. The positive sign of the Pearson's  $r$  implies that the relationship between Net Interest Margin and external debts is positive. In other words, external debts explain about 20% variation in NIM.

Finally, Pearson coefficient of correlation between NIM and EQUITY is 0.364 while  $p=0.000$ . Since,  $p$  is less than 0.05; the Pearson product-moment correlation coefficient is significant at 0.05 level of significance. The positive sign of the Pearson's  $r$  implies that the relationship between Net Interest Margin and Equity is positive. In other words, equity explains about 36% variation in NIM.

**Fig. 4.9 Net interest Margin (NIM) Trends (1986-2013)**



Yield on Earning showed a steady rise reaching its first peak in 1993 before beginning a downward movement reaching its lowest peak ever in 1997, beginning a steady rise until

getting to 2000 when it took a sharp very high rise and maintaining it for two years before taking a downward steep fall until 2006 when it took another upward sharp rise and a slight fall in 2008, then a second highest rise in 2009 before having a free fall until 2011 when it began its upward movement .

#### 4.3c Determining the fitness for Hypothesis three

**Table 4.3c Model Summary for Hypothesis Three**

Dependent Variable: NIM

Method: Least Squares

Date: 08/09/16 Time: 15:13

Sample: 1992 2013

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	6.220674	7.142790	0.870903	0.3985
STO	1.58E-07	2.07E-07	0.767479	0.4555
LTO	2.80E-05	2.60E-05	1.079110	0.2988
TO	-8.78E-08	5.20E-08	-1.689427	0.1133
SIZE	0.000822	0.000511	1.609694	0.1298
EXR	-0.031396	0.047267	-0.664233	0.5173
GDP	-3.45E-11	1.45E-11	-2.378186	0.0322
EQUITY	-0.002965	0.002741	-1.081514	0.2991
EXD	1.48E-06	1.02E-06	1.442318	0.1712
R-squared	0.554560	Mean dependent var	10.81455	
Adjusted R-squared	0.331840	S.D. dependent var	9.166989	
S.E. of regression	7.493195	Akaike info criterion	7.141155	
Sum squared resid	786.0716	Schwarz criterion	7.537898	
Log likelihood	-70.55271	Hannan-Quinn criter.	7.234616	
F-statistic	2.489941	Durbin-Watson stat	1.524614	
Prob(F-statistic)	0.069333			

#### ***The Coefficient of Determination ( $R^2$ )***

The coefficient of determination ( $R^2$ ) from our regression result in Table 4.3c is 0.555. This implies that the predictors in Net interest Margin explain 56% of the total variation. This shows that the explanatory power of the variables is relatively high,

however not sufficient to conclude that the predictors has a significant effect on Net Interest Margin.

### ***The Adjusted $R^2$***

The Adjusted  $R^2$  supports the claim of the  $R^2$  with a value of 0.332 indicating that 35.2% of the total variation in the dependent variable – Net Interest Margin is explained by the independent variables (EXD, TD, GDP, EXR, STO, LTO, FIRM SIZE, EQUITY). Thus, this supports the statement that the explanatory power of the variables is not sufficient.

### ***Standard Error Test***

It tells us how much the observed values differ from the values on the regression line. The standard errors for the two explanatory variables were all low (7.49). The low values of the standard errors in the result show that some level of confidence can be placed on the estimates.

### ***Durbin-Watson statistic***

The value of the Durbin-Watson statistic ranges from 0 to 4. As a general rule of thumb, the residuals are uncorrelated is the Durbin-Watson statistic is approximately 2. A value close to zero (0) indicates strong positive correlation, while a value of 4 indicates strong negative correlation.

From Table 4.3c Durbin-Watson statistic is 1.52 which is approximately 2 which indicates that the residuals are uncorrelated

### ***4.1.3 Statistical significance***

The  $F$ -ratio in the **ANOVA** table tests whether the overall regression model is a good fit for the data. The table shows that the independent variables statistically insignificantly

predict the dependent variable,  $F(7, 14) = 2.490, p < .0005$ . This implies that the regression model is a poor fit of the data.

$$\begin{aligned} NIM = & \beta_{0iii} + \beta_{1iii}STD + \beta_{2iii}LTD + \beta_{3iii}TD + \beta_{4iii}SIZE + \beta_{5iii}EXR + \beta_{6ii}GDP \\ & + \beta_{7ii}EXD + \beta_{8iii}EQUITY \\ & + \mu_t \dots\dots\dots 3.3 \end{aligned}$$

Mathematically we have

$$\begin{aligned} ROE = & 1.585 + (1.585x STD + (2.805 x LTD) - (8.782 x TD) + (0.001 x SIZE) \\ & - (0.031 x EX) - (3.448 x GDP) + (1.478 x EXD) \\ & - (0.002 x EQUITY) \end{aligned}$$

#### 4.3.5 Unstandardized Coefficients

Unstandardized coefficients show how much the dependent variable NIM varies with the independent variable when all other independent variables are held constant.

The unstandardized coefficient,  $B_{1iii}$ , for STO is equal to  $1.585 \times 10^7$ . This means that for each one-year increase in STO, there is an increase in NIM by  $1.585 \times 10^7$ .

In addition, unstandardized coefficient,  $B_{2iii}$ , for LTD is equal to  $2.801 \times 10^7$ . This means that for each one-year increase in LTD, NIM does not show any significant change.

Furthermore, unstandardized coefficient,  $B_{3iii}$ , for TD is equal to  $-8.782 \times 10^8$ . This implies that for each one-year increase in TD, there is  $2.338 \times 10^7$  increases in Net Interest Margin.

Also, unstandardized coefficient,  $B_{4iii}$ , for SIZE is equal to 0.001. This means that for each one-year increase in SIZE, there is an increase in NIM by 0.001.

However, the unstandardized coefficient,  $B_{5iii}$ , for EX is equal to -0.031. This means that for each one-year increase in EX, there is a decrease in NIM by 3.1.

Moreover, the unstandardized coefficient,  $B_{6iii}$ , for GDP is equal to  $-3.448 \times 10^{11}$ . This means that for each one-year increase in GDP, there is a decrease in NIM by  $3.448 \times 10^{10}$ .

In addition, the unstandardized coefficient,  $B_{7iii}$ , for EXD is equal to  $1.478 \times 10^6$ . This means that for each one-year increase in EXD, there is a decrease in NIM by  $1.478 \times 10^6$ .

Finally, the unstandardized coefficient,  $B_{8iii}$ , for EQUITY is equal to -0.0029. This means that for each one-year increase in EQUITY, there is a decrease in NIM by 0.0029

#### ***4.3.6 Statistical significance of the independent variables***

This tests whether the unstandardized (or standardized) coefficients are equal to 0 (zero) in the population. If  $p < .05$ , we can conclude that the coefficients are statistically significantly different to 0 (zero). The  $t$ -value and corresponding  $p$ -value are located in the "t" and "Sig." columns, respectively, as highlighted in table.

From the "**Prob.**" column we have that STO (0.456), LTO (0.299), TD (0.113), SIZE (0.130), EXR (0.517), EXD (0.171) and EQUITY (0.2291) independent variable coefficients are statistically insignificantly not different from 0 (zero).

While GDP (0.032) independent variable coefficient is statistically significantly different from 0 (zero).

#### ***In Summary***

The Pearson coefficient of correlation as well as multiple regression analysis were carried out to predict relationship and extent of association between Short Term Obligations, Long Term Obligations, Total Obligations, Firm Size, Exchange Rate, Gross Domestic Product, And External Debts, Equity and profitability of Nigerian Deposit Money Banks using Net Interest Margin (NIM) as Dependent variable.

Result from Pearson coefficient of correlation shows that the extent of associations between Net Interest Margin and Short Term Obligations (33%), Long Term Obligations (32%), and Firm Size (31%) Equity (36%) is high while the associations between Net Interest Margin and Total Obligations (5%), Gross Domestic Product (10%) and External Debts (19%) are low.

Multiple regression shows that NIM has insignificant relationship with LTO, SIZE, STO, TO, EXR, EQUITY and EXD. While NIM shows significant relationship with GDP.

In conclusion, since the prob (F-statistic) = 0.069 > 0.05, we accept the null hypothesis and therefore conclude that there is no significant positive relationship between Total Obligations and profitability of Nigerian Deposit Money Banks.

#### 4.4 Data Presentation and Analysis of Research Hypothesis 4i

The secondary data used for the purpose of this analysis are here by presented in tables 4.4ai, 4.4bi and 4.4ci:

Table 4.4ai. Data on financial structure and profitability for Hypothesis 4i

YEAR	ROA	INF	INT	EXD	EXR	GDP
1986	1.56	5.4	4.6	41452.4	313.3	69146.99
1987	1.59	10.2	-2.6	100789.1	120.2	105222.8
1988	1.79	38.3	-25.6	133956.3	120.5	139085.3
1989	1.54	40.9	-22.4	240393.7	107.6	216797.5
1990	2.16	7.5	11	298614.4	100	267550
1991	1.96	13	1.2	328453.8	85	312139.7
1992	3.14	44.5	-2.7	544264.1	70.5	532613.8
1993	4.21	57.2	-31.2	633144.4	77.2	683869.8
1994	2.79	57	-43.5	648,813	142.8	899863.2
1995	2.35	72.8	-59.3	7168666	122.1	1933212
1996	2.1	29.3	-15.8	617320	167.7	2702719
1997	0.81	8.5	5	595931.9	193.1	2801973
1998	2.88	10	4.3	633077	203.6	2708431
1999	2.07	6.6	11.4	2577374	78.9	3194015
2000	2.7	6.9	6.6	3097384	81	4582127
2001	4.82	18.9	-4.6	3176291	79.95	4725086
2002	2.63	12.9	3.3	3932855	80.48	6912381
2003	2	14	4.4	4478329	81	8487032
2004	2.58	15	4.2	4890270	80.74	11411067
2005	0.75	17.8	0.05	2695072	81.32	14572239
2006	0.59	8.2	8.69	451461.7	81.94	18564595

2007	5.92	5.4	11.54	431079.8	81.87	20657318
2008	4.29	11.6	14.39	493180.2	82.28	24296329
2009	-64.92	12.4	17.24	590441.1	82.57	24794239
2010	3.91	13.2	2.0.09	689845.3	82.86	5.42E+11
2011	-0.04	10.8	5.9	605489.2	154.7	5.67E+11
2012	2.64	12.2	6.9	853065.9	155.2	6.08E+10
2013	2.15	8.5	10.2	714321.3	155.7	6.53E+10

Sources: (I) Central Bank of Nigeria Statistical Bulletin – Various Years

(ii) Nigerian Stock Exchange Fact Book – Various Years

(iii) NDIC Annual Report – Various Years

(iv) Computations By the Researcher

(v) Central Bank of Nigeria. Banking Supervision Annual Report- Various Years

#### **Test of Hypothesis 4**

$H_0$ : There is no significant relationship between macroeconomic variables (Inflation, Exchange Rate, Gross Domestic Product, External Debts and Interest Rates) and Profitability of Nigerian Deposit Banks.

$H_0$ : There is significant relationship between macroeconomic variables (Inflation, Exchange Rate, Gross Domestic Product, External Debts and Interest Rates) and Profitability of Nigerian Deposit Banks.

Analysis of this research hypothesis 4 will be carried out in three major steps using:-

- i. Return on Assets (ROA),
- ii. Return on Equity (ROE), and
- iii. Net interest Margin (NIM).

#### 4.4.1i Pearson Correlations for hypothesis four Using ROA

**Table 4.4bi Correlations Matrix for Hypothesis Four Using ROA**

	<b>ROA</b>	<b>INF</b>	<b>EXR</b>	<b>GDP</b>	<b>EXD</b>	<b>INT</b>
<b>ROA</b>	1.000000	0.101082	0.096122	0.009507	0.107232	-0.219148
<b>INF</b>	0.101082	1.000000	-0.117531	-0.129558	0.229797	-0.933865
<b>EXR</b>	0.096122	-0.117531	1.000000	0.163651	-0.304684	-0.041847
<b>GDP</b>	0.009507	-0.129558	0.163651	1.000000	-0.116872	0.121482
<b>EXD</b>	0.107232	0.229797	-0.304684	-0.116872	1.000000	-0.267190
<b>INT</b>	-0.219148	-0.933865	-0.041847	0.121482	-0.267190	1.000000
<b>Prob.</b>	0.000000	0.001780	0.000000	0.000000	0.000313	0.000373

Source: Computation by researchers, 2015

A Pearson product-moment correlation coefficient was computed in Table 4.4bi to assess impact of the economic variables INF, EXR, GDP, EXD, INT on the profitability (ROA) Nigeria Deposit Money Banks

From Table 4.4bi, the Pearson coefficient of correlation between ROA and INF is 0.1010 while  $p=0.001$ . Since,  $p$  is less than 0.05, the Pearson product-moment correlation coefficient was significant at 0.05 level of significance. The positive sign of the Pearson's  $r$  indicates that that the relationship between Inflation and Return on Assets is positive. In other words, inflation explain about 10% variation in ROA as well as positively affected banks Return on Assets.

On the other hand The Pearson coefficient of correlation between ROA and EXR is 0.0961 while  $p=0.000$ . Since,  $p$  is less than 0.05, the Pearson product-moment correlation coefficient was significant at 0.05 level of significance. The positive sign of the Pearson's  $r$  indicates that that the relationship between Exchange rate and Return on Assets is positive. In other words, Exchange rate explain about 10% variation in ROA as well as positively affected banks Return on Assets.

However, The Pearson coefficient of correlation between ROA and GDP is 0.009 while  $p=0.000$ . Since,  $p$  is less than 0.05, the Pearson product-moment correlation coefficient

was significant at 0.05 level of significance. The positive sign of the Pearson's  $r$  indicates that the relationship between GDP and Return on Assets is positive. In other words, Gross Domestic Product explain about 1% variation in ROA as well as positively affected banks Return on Assets.

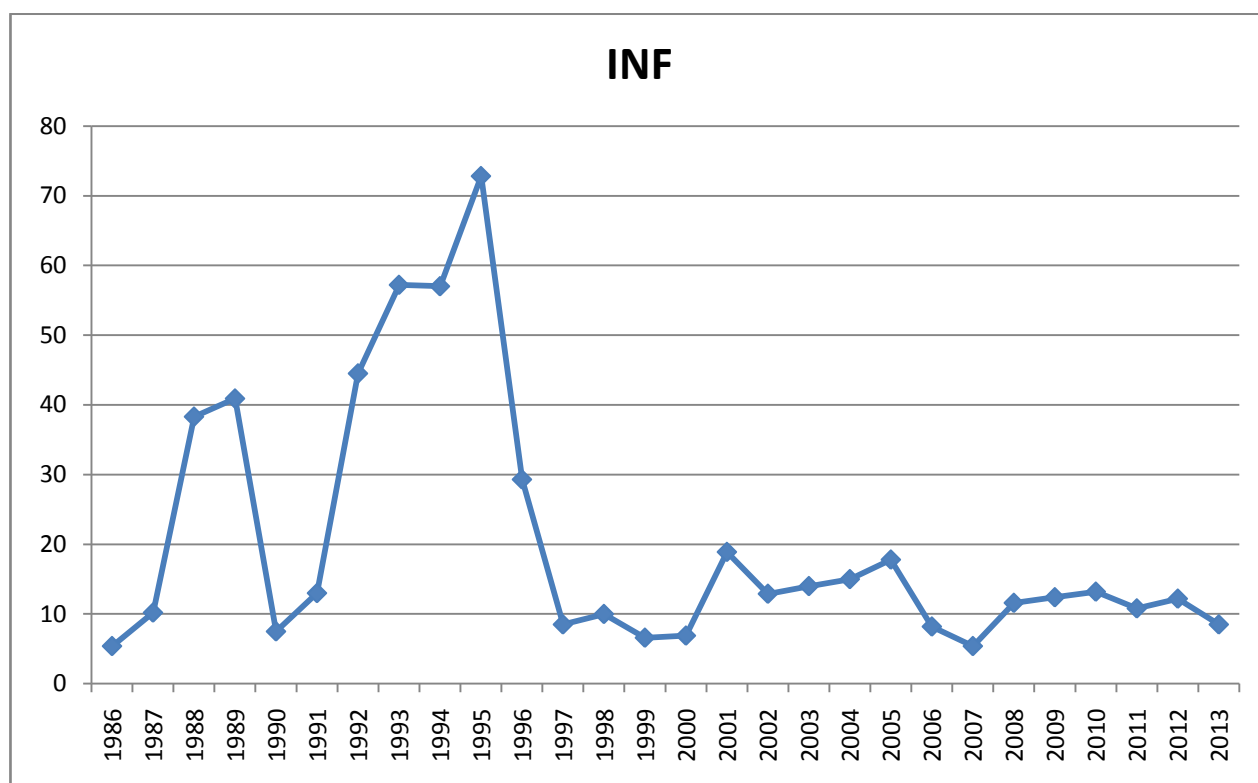
Furthermore, The Pearson coefficient of correlation between ROA and EXD is 0.107 while  $p=0.000$ . Since,  $p$  is less than 0.05, the Pearson product-moment correlation coefficient was significant at 0.05 level of significance. The positive sign of the Pearson's  $r$  indicates that the relationship between EXD and Return on Assets is positive. In other words, External Debts explain about 11% variation in ROA as well as positively affected banks Return on Assets.

Furthermore, The Pearson coefficient of correlation between ROA and EXD is 0.107 while  $p=0.000$ . Since,  $p$  is less than 0.05, the Pearson product-moment correlation coefficient was significant at 0.05 level of significance. The positive sign of the Pearson's  $r$  indicates that the relationship between EXD and Return on Assets is positive. In other words, External Debts explain about 11% variation in ROA as well as positively affected banks Return on Assets.

Finally, The Pearson coefficient of correlation between ROA and INT is -0.219 while  $p=0.000$ . Since,  $p$  is less than 0.05, the Pearson product-moment correlation coefficient was significant at 0.05 level of significance. The negative sign of the Pearson's  $r$  indicates that the relationship between Interest Rates and Return on Assets is inverse. In other words, INT explain about 22% variation in ROA as well as adversely affected banks Return on Assets.

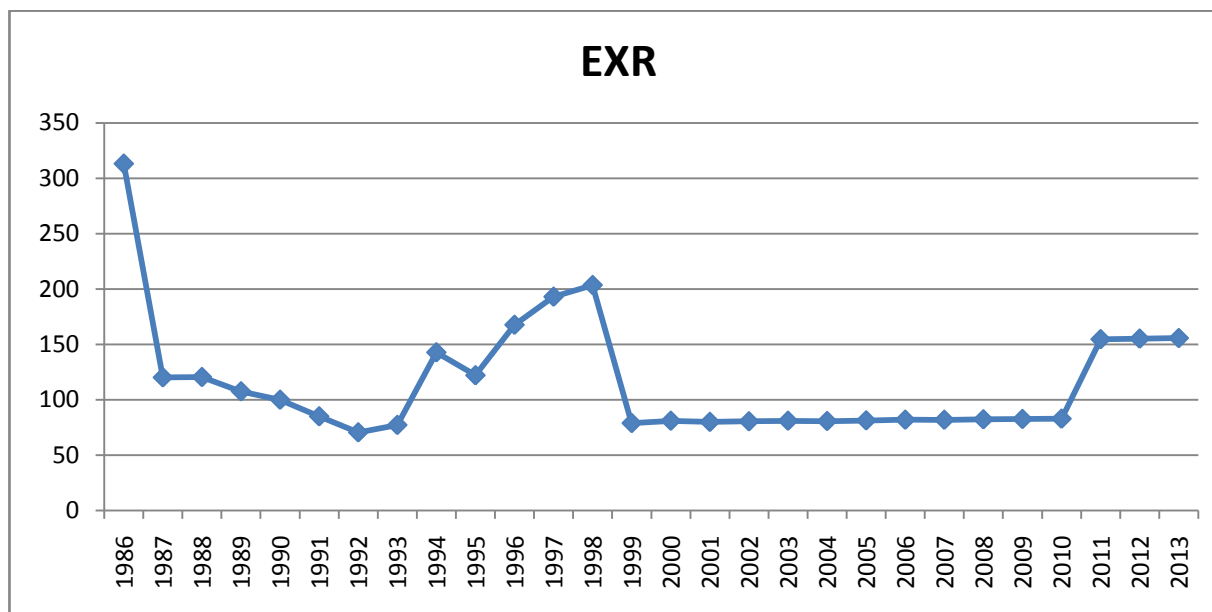
## Trend on financial structure and macroeconomic variables

**Fig. 4.11 Trend on Inflation Rates (1986-2013)**



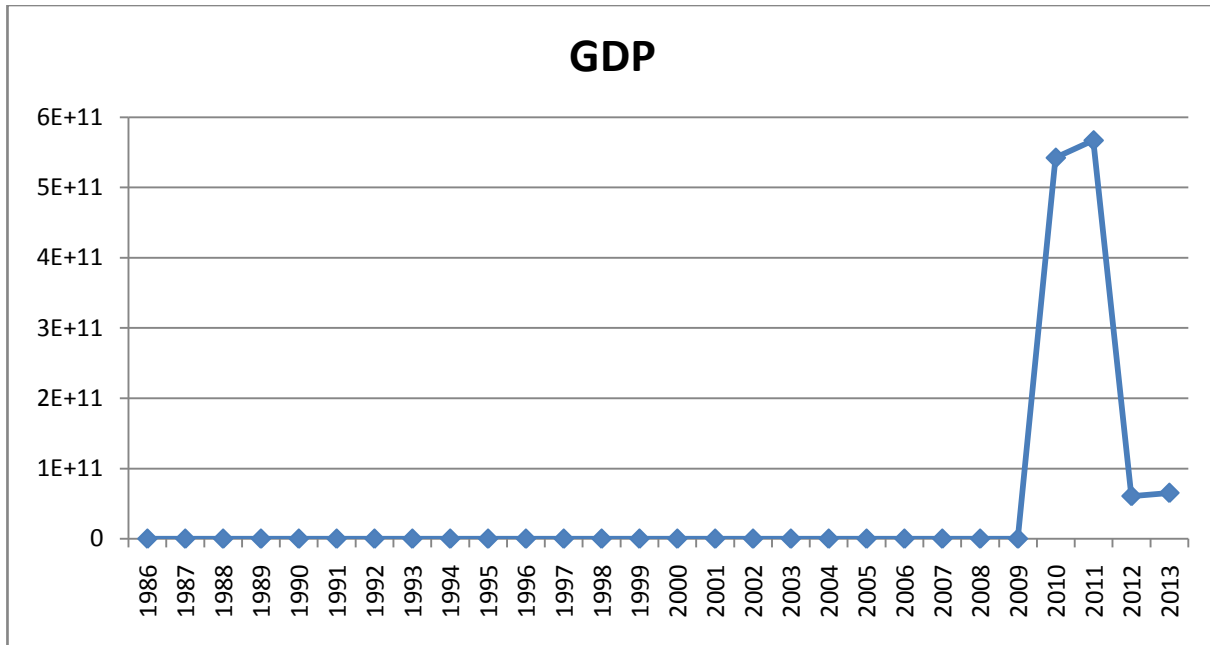
The trend on inflation shows that inflation has been on the rise reaching its first peak in 1989 then, having a sharp fall in 1990 before having a steep rise getting to its highest peak in 1995 before taking a dip in 1997 from 2007 to 2013 has shown an undulating rise and fall till 2013.

**Fig. 4.12. Exchange Rates (EXR) Trends (1986-2013)**



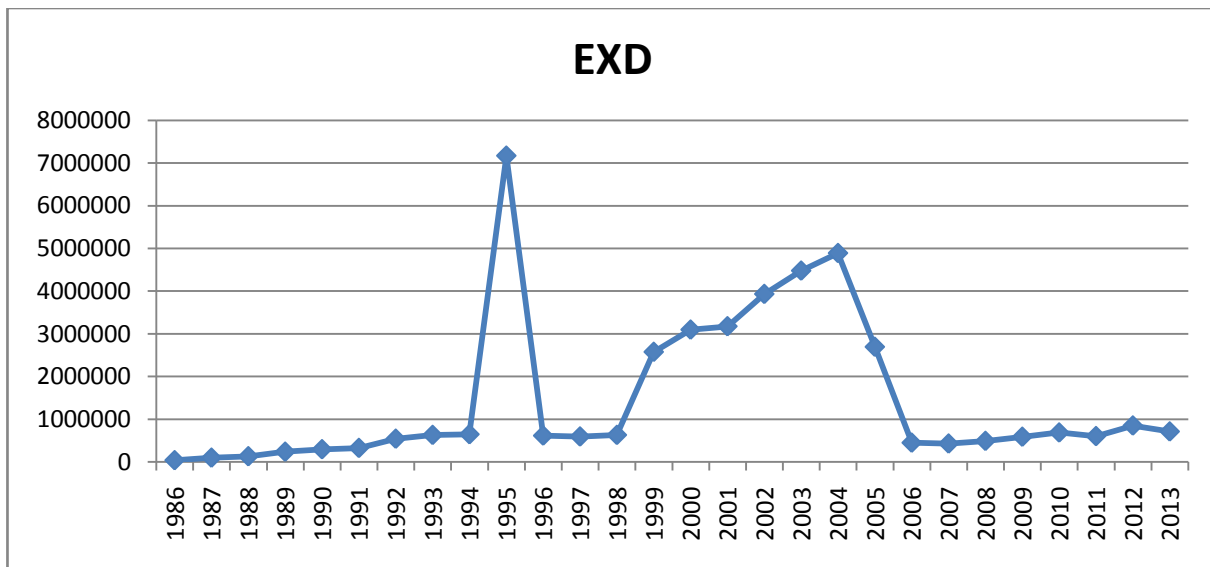
Exchange rate began with a high rise and a sharp fall 1987 reaching its lowest fall in 1992 before rising to its second peak in 1998 and a sharp fall in 1999 maintaining a steady movement until 2010 before taking a sharp rise in 2011 maintaining steady movement till 2013.

**Fig. 4.13 Gross Domestic Product (GDP) Trends (1986-2013)**



Trend on GDP shows a steady linear movement until 2009 when it took a high rise in 2010 and reaching its highest height in 2011 and a sharp fall in 2012 before beginning a rise in 2013.

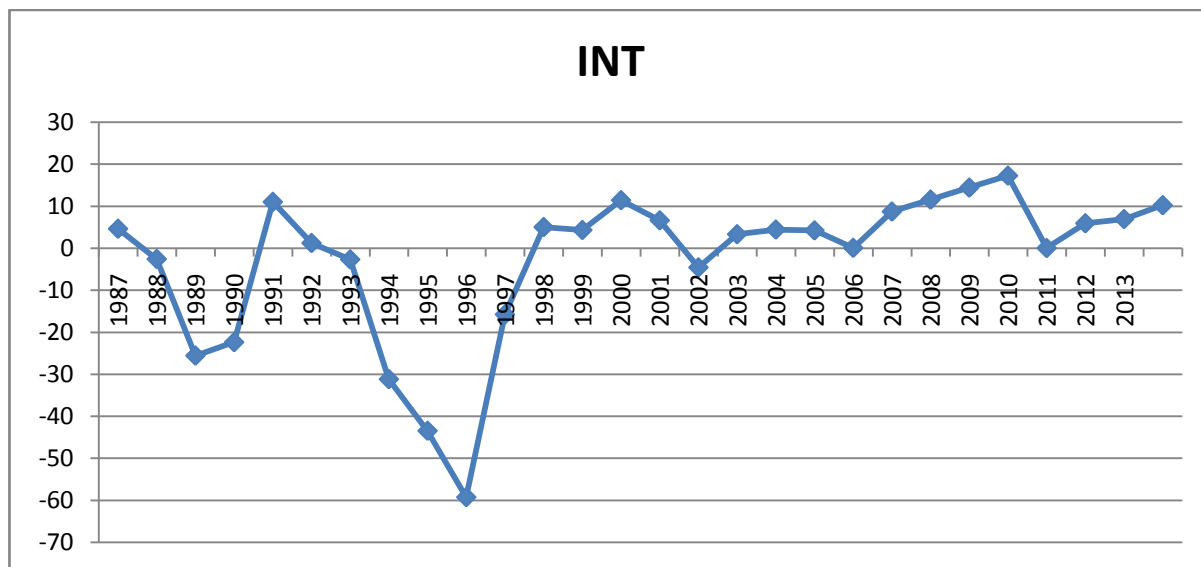
**Fig. 4.14 External Debts (EXD) Trends (1986-2013)**



Trend on external debts shows that external debts has a steady linear rise until it got to 2004 when it had a sharp rise reaching its first highest peak then a fall 1996 maintaining a steady rise until 1998 when it took another rise before maintaining a rise reaching its

second peak in 2004 before falling 2006 and began another linear rise in 2007 till it got to 2012.

**Fig. 4.15 Interest rate (INT) Trends (1987-2013)**



Trend on interest rate shows a steep movement having its low fall in 1989 and rising in 1991 before having another fall in 1996 and a sharp rise 1998 then maintaining an undulating movement of rise and falls till 2013

#### ***4.4.2i Determining the fitness of the model***

**Table 4.4ci Model Summary for Hypothesis 4i**

Dependent Variable: ROA

Method: Least Squares

Date: 08/31/15 Time: 08:10

Sample: 1986 2013

Included observations: 27

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	11.21481	14.19932	0.789814	0.4385
INF	-0.602459	0.455705	-1.322036	0.2004
EXR	-0.010981	0.058729	-0.186970	0.8535
GDP	3.85E-12	2.47E-11	0.156021	0.8775
EXD	1.51E-07	1.63E-06	0.092877	0.9269
INT	-0.718391	0.465856	-1.542090	0.1380
R-squared	0.135198	Mean dependent var	-0.108889	
Adjusted R-squared	-0.070708	S.D. dependent var	13.01762	
S.E. of regression	13.46998	Akaike info criterion	8.231934	
Sum squared resid	3810.248	Schwarz criterion	8.519898	
Log likelihood	-105.1311	Hannan-Quinn criter.	8.317561	
F-statistic	0.656601	Durbin-Watson stat	1.419133	
Prob(F-statistic)	0.659982			

Source: Computation by researchers, 2015

***The Coefficient of Determination ( $R^2$ )***

The coefficient of determination ( $R^2$ ) from our regression result is 0.135. This implies that 14% of the total variation in Return on Assets is explained by the predictors. This implies that the explanatory power of the variables is relatively low, and not sufficient to conclude that the predictors have a significant effect on Bank Profitability.

***The Adjusted  $R^2$*** 

The Adjusted  $R^2$  supports the claim of the  $R^2$  with a value of -0.070 indicating that 7% of the total variation in the dependent variable – Return on Assets is explained by the independent variables. Thus, this supports the statement that the explanatory power of the variables is not sufficient.

### ***Standard Error Test***

It tells us how much the observed values differ from the values on the regression line. The standard errors for the two explanatory variables were relatively low (13.46.) which implies that the model has a very good fit.

### ***Durbin-Watson statistic***

The value of the Durbin-Watson statistic ranges from 0 to 4. As a general rule of thumb, the residuals are uncorrelated is the Durbin-Watson statistic is approximately 2. A value close to 0 indicates strong positive correlation, while a value of 4 indicates strong negative correlation. From the table above Durbin-Watson statistic is 1.43 which that the residuals has strong positive correlation.

### ***4.4.3i Statistical significance***

The *F*-ratio in the table tests whether the overall regression model is a good fit for the data. The table shows that the independent variables statistically do not significantly predict the dependent variable, *F stat* = 0.656, and Prob (*F-stat*) = 0.659,  $p > .0005$ . This implies that bank profitability (ROA) has no significant relationship with predictors.

$$ROA = \beta_{0iv} + \beta_{1iv}INF + \beta_{2iv}EXR + \beta_{3iv}GDP + \beta_{4iv}EXD + \beta_{5iv}INT + \mu_t..3.5$$

Mathematically, the model gives

$$ROA = 11.214 - (0.602 \times INF) - (0.010 \times EXR) + (0.00 \times GDP) + (0.00 \times EXD) \\ - (0.718 \times INT + \mu_t$$

### ***4.4.4i Estimated Model Coefficients***

#### ***Coefficients***

Coefficients show how much the dependent variable ROA varies with the independent variables when all other independent variables are held constant.

The coefficient, for INF is equal to -0.602. This means that for each one-year increase in Inflation, there is a reduction in bank profitability (ROA) by 0.602.

In addition, coefficient, for EXR is equal to -0.010. This means that for each one-year increase in Exchange Rate, ROE reduces by 0.010.

Also, coefficient, for GDP is equal to  $3.85 \times 10^{12}$ . This implies that for each one-year increase in GDP, there is an increase in Return on Assets by  $3.85 \times 10^{12}$ .

However, coefficient, for EXD is equal to  $1.51 \times 10^{12}$ . This implies that for each one-year increase in external debts, there is an increase in Return on Assets by  $3.85 \times 10^{12}$ .

Finally, coefficient, for INT is equal to -0.718. This implies that for each one-year increase in INT, there is a corresponding reduction in Return on Assets by 0.718.

#### **4.4.5i Statistical significance of the independent variables**

This tests whether the unstandardized (or standardized) coefficients are equal to 0 (zero) in the population. If  $p < .05$ , we can conclude that the coefficients are statistically significantly different to 0 (zero). The  $t$ -value and corresponding  $p$ -value are located in the "t" and "Sig." columns, respectively, as highlighted in table above

From the "**Prob**" column we have that the independent variables INF (0.200), EXR (0.853), GDP (0.877), EXD (0.926), and INT (0.138) are all statistically insignificant at 0.05 level of significance.

#### ***In Summary***

The Pearson coefficient of correlation, as well as multiple regression analysis were carried out to predict the relationship and extent of association between macroeconomic

variables (Inflation, Exchange Rate, Gross Domestic Product, External Debts and Interest Rate) and Profitability of Nigerian Deposit Banks. Return on Assets was used as a proxy for profitability of deposit money banks while independent variables were Inflation, Exchange Rate, Gross Domestic Product, External Debts and Interest Rates.

Result from Pearson coefficient of correlation shows that INF has 10% association, EXR has 10% association, GDP has also 10% association EXD has 11% while INT has -22% association with profitability of deposit money banks.

Multiple regressions shows that INF reduces profitability of banks by 0.602, EXR also reduces profitability 0.0109, GDP increases profitability by  $3.85 \times 10^{12}$ , EXD increases the profitability of banks by  $1.51 \times 10^7$ , and finally INT reduces profitability of banks by 0.718

In conclusion, since the prob (F-statistic) = 0.659 > 0.05, we therefore accept the null hypothesis and conclude that there is no significant relationship between macroeconomic variables (Inflation, Exchange Rate, Gross Domestic Product, External Debts and Interest Rates) and Profitability of Nigerian Deposit Banks (ROA).

#### **4.4ii Data Presentation and Analysis of Research Hypothesis 4ii**

The secondary data used for the purpose of this data presentation and analysis are presented in tables 4.4bii, 4.4bii and 4.4cii.

Table 4.4ii. Data on financial structure and profitability for Hypothesis 4ii

YEAR	ROE	ROA	INF	INT	EXD	EXR	GDP
1986	30.12	1.56	5.4	4.6	41452.4	313.3	69146.99
1987	24.44	1.59	10.2	-2.6	100789.1	120.2	105222.8
1988	23.47	1.79	38.3	-25.6	133956.3	120.5	139085.3
1989	-357.5	1.54	40.9	-22.4	240393.7	107.6	216797.5
1990	10.83	2.16	7.5	11	298614.4	100	267550
1991	20.87	1.96	13	1.2	328453.8	85	312139.7
1992	29.86	3.14	44.5	-2.7	544264.1	70.5	532613.8
1993	43.18	4.21	57.2	-31.2	633144.4	77.2	683869.8
1994	30.15	2.79	57	-43.5	648,813	142.8	899863.2

1995	27.65	2.35	72.8	-59.3	7168666	122.1	1933212
1996	21.7	2.1	29.3	-15.8	617320	167.7	2702719
1997	19.7	0.81	8.5	5	595931.9	193.1	2801973
1998	25.5	2.88	10	4.3	633077	203.6	2708431
1999	26.3	2.07	6.6	11.4	2577374	78.9	3194015
2000	35.2	2.7	6.9	6.6	3097384	81	4582127
2001	57.41	4.82	18.9	-4.6	3176291	79.95	4725086
2002	41.63	2.63	12.9	3.3	3932855	80.48	6912381
2003	29.11	2	14	4.4	4478329	81	8487032
2004	27.23	2.58	15	4.2	4890270	80.74	11411067
2005	4.81	0.75	17.8	0.05	2695072	81.32	14572239
2006	4.12	0.59	8.2	8.69	451461.7	81.94	18564595
2007	36.83	5.92	5.4	11.54	431079.8	81.87	20657318
2008	24.11	4.29	11.6	14.39	493180.2	82.28	24296329
2009	-9.28	-64.92	12.4	17.24	590441.1	82.57	24794239
2010	163.98	3.91	13.2	2.0.09	689845.3	82.86	5.42E+11
2011	-0.28	-0.04	10.8	5.9	605489.2	154.7	5.67E+11
2012	22.2	2.64	12.2	6.9	853065.9	155.2	6.08E+10
2013	19.15	2.15	8.5	10.2	714321.3	155.7	6.53E+10

Sources: (I) Central Bank of Nigeria Statistical Bulletin – Various Years

(ii) Nigerian Stock Exchange Fact Book – Various Years

(iii) NDIC Annual Report – Various Years

(iv) Computations By the Researcher

(v) Central Bank of Nigeria. Banking Supervision Annual Report- Various Years

#### **Test of Hypothesis 4ii**

$H_0$ : There is no significant relationship between macroeconomic variables (Inflation, Exchange Rate, Gross Domestic Product, External Debts and Legal Interest Ceilings) and Profitability of Nigerian Deposit Banks.

$H_0$ : There is significant relationship between macroeconomic variables (Inflation, Exchange Rate, Gross Domestic Product, External Debts and Interest Rates) and Profitability of Nigerian Deposit Banks.

#### **4.4.1ii Pearson Correlations for hypothesis four (ROE)**

**Table 4.4bii Correlations Matrix**

	ROE	INF	INT	EXD	EXR	GDP
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ROE	1.000000	0.253852	-0.300246	0.304281	-0.214145	-0.383848
INF	0.253852	1.000000	-0.938277	0.250873	-0.023274	-0.146836
LIT	-0.300246	-0.938277	1.000000	-0.351658	-0.128806	0.120130
EXD	0.304281	0.250873	-0.351658	1.000000	-0.312887	-0.183559
SIZE	-0.493264	-0.428089	0.483797	-0.372885	0.122227	0.474985
EXR	-0.214145	-0.023274	-0.128806	-0.312887	1.000000	0.279756
GDP	-0.383848	-0.146836	0.120130	-0.183559	0.279756	1.000000
Probability	0.000000	0.004115	0.000496	0.026199	0.166172	0.000000

Source: Computation by researchers, 2015

A Pearson product-moment correlation coefficient was computed to assess impact of the economic variables INF, EXR, GDP, EXD, INT on the profitability (ROE) Nigeria Deposit Money Banks

The Pearson coefficient of correlation between ROE and INF is 0.253 while  $p=0.004$ . Since,  $p$  is less than 0.05, the Pearson product-moment correlation coefficient was significant at 0.05 level of significance. The positive sign of the Pearson's  $r$  indicates that that the relationship between Inflation and Return on Equity is positive. In other words, inflation explains about 12% variation in ROE as well as positively affected banks Return on Equity.

In addition, the Pearson coefficient of correlation between ROE and INT is -0.300 while  $p=0.000$ . Since,  $p$  is less than 0.05, the Pearson product-moment correlation coefficient was significant at 0.05 level of significance. The negative sign of the Pearson's  $r$  indicates that that the relationship between Legal Interest ceiling and Return on Equity is inverse. In other words, INT explain about 30% variation in ROE as well as adversely affected banks Return on Equity.

Furthermore, The Pearson coefficient of correlation between ROE and EXD is 0.304 while  $p=0.026$ . Since,  $p$  is less than 0.05, the Pearson product-moment correlation coefficient was significant at 0.05 level of significance. The positive sign of the Pearson's  $r$  indicates that that the relationship between EXD and Return on Equity is

positive. In other words, External Debts explain about 30% variation in ROE as well as positively affected banks Return on Equity.

On the other hand The Pearson coefficient of correlation between ROE and EXR is -0.214 while  $p=0.166$ . Since,  $p$  is greater than 0.05, the Pearson product-moment correlation coefficient was insignificant at 0.05 level of significance. The negative sign of the Pearson's  $r$  indicates that that the relationship between Exchange rate and Return on Assets is inverse. In other words, Exchange rate explains about 21% variation in ROE as well as negatively affected banks Return on Assets.

However, The Pearson coefficient of correlation between ROE and GDP is -0.388 while  $p=0.000$ . Since,  $p$  is less than 0.05, the Pearson product-moment correlation coefficient was significant at 0.05 level of significance. The negative sign of the Pearson's  $r$  indicates that that the relationship between GDP and Return on Equity is negative. In other words, Gross Domestic Product explains about 38% variation in ROE as well as negatively affected banks Return on Assets.

#### ***4.4.2ii Determining the fitness of the model***

**Table 4.4cii Model Summary for Hypothesis 4ii**

Dependent Variable: ROE

Method: Least Squares

Date: 09/08/15 Time: 17:20

Sample: 1992 2013

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	44.85299	23.85677	1.880095	0.0811
INF	-0.388068	0.634754	-0.611367	0.5508
INT	-0.495522	0.694126	-0.713879	0.4870
EXD	-3.60E-08	2.34E-06	-0.015369	0.9880
SIZE	-0.000558	0.000577	-0.967212	0.3499
EXR	-0.078296	0.106475	-0.735348	0.4743
GDP	-2.27E-11	3.23E-11	-0.704074	0.4929
R-squared	0.322392	Mean dependent var		24.58476
Adjusted R-squared	0.031989	S.D. dependent var		15.35978

S.E. of regression	15.11211	Akaike info criterion	8.530072
Sum squared resid	3197.264	Schwarz criterion	8.878246
Log likelihood	-82.56576	Hannan-Quinn criter.	8.605635
F-statistic	1.110153	Durbin-Watson stat	1.345994
Prob(F-statistic)	0.404502		

Source: Computation by researchers, 2015

### ***The Coefficient of Determination ( $R^2$ )***

The coefficient of determination ( $R^2$ ) from our regression result is 0.322. This implies that 32% of the total variation in Return on Equity is explained by the predictors. This implies that the explanatory power of the variables is relatively high, however not enough to conclude that the predictors have a significant effect on Bank Profitability.

### ***The Adjusted $R^2$***

The Adjusted  $R^2$  supports the claim of the  $R^2$  with a value of 0.031 indicating that 3% of the total variation in the dependent variable – Return on Equity is explained by the independent variables. Thus, this supports the statement that the explanatory power of the variables is high.

### ***Standard Error Test***

It tells us how much the observed values differ from the values on the regression line. The standard errors for the two explanatory variables were relatively low (15.46.) which implies that the model has a very good fit.

### ***Durbin-Watson statistic***

The value of the Durbin-Watson statistic ranges from 0 to 4. As a general rule of thumb, the residuals are uncorrelated is the Durbin-Watson statistic is approximately 2. A value close to 0 indicates strong positive correlation, while a value of 4 indicates strong negative correlation. From the table above Durbin-Watson statistic is 1.3 which that the residuals has strong positive correlation.

### **4.4.3ii Statistical significance**

The  $F$ -ratio in the table tests whether the overall regression model is a good fit for the data. The table shows that the independent variables statistically do not significantly predict the dependent variable,  $F\ stat = 1.110$ , and  $\text{Prob} (F\text{-stat}) = 0.404$ ,  $p > .0005$ . This implies that bank profitability (ROE) has no significant relationship with predictors.

#### Model 4ii

$$ROE = \beta_{0iv} + \beta_{1iv}INF + \beta_{2iv}INT + \beta_{3iv}EXD + \beta_{4iv}SIZE + \beta_{5iii}EXR + \beta_{6iv}GDP + \beta_{7iv}EXD\mu_t \dots \dots \dots 3.6$$

Mathematically, the model gives

$$ROE = 44.852 - (0.388 \times INF) - (0.495 \times INT) - (3.60 \times 10^8 \times EXD) - (0.07 \times EXR) - (2.27 \times 10^{11} \times INT + \mu_t$$

#### 4.4.4ii Estimated Model Coefficients

##### Coefficients

Coefficients show how much the dependent variable ROE varies with the independent variables when all other independent variables are held constant.

The coefficient, for INF is equal to -0.388. This means that for each one-year increase in Inflation, there is a reduction in bank profitability (ROE) by 0.388.

However, coefficient, for LINT is equal to -0.495. This implies that for each one-year increase in LINT, there is a corresponding reduction in Return on Equity by 0.495.

More so, coefficient, for EXD is equal to  $-3.60 \times 10^8$ . This implies that for each one-year increase in external debts, there is an increase in Return on Equity by  $3.60 \times 10^8$ .

In addition, coefficient, for EXR is equal to -0.078. This means that for each one-year increase in Exchange Rate, ROE reduces by 0.078.

Finally, coefficient, for GDP is equal to  $-2.27 \times 10^{11}$ . This implies that for each one-year increase in GDP, there is an increase in Return on Equity by  $2.27 \times 10^{11}$ .

#### **4.4.5ii Statistical significance of the independent variables**

This tests whether the unstandardized (or standardized) coefficients are equal to 0 (zero) in the population. If  $p < .05$ , we can conclude that the coefficients are statistically significantly different to 0 (zero). The  $t$ -value and corresponding  $p$ -value are located in the "t" and "Sig." columns, respectively, as highlighted in table above

From the "**Prob**" column we have that the independent variables INF (0.550), EXR (0.474), GDP (0.492), EXD (0.988), and INT (0.487) are all statistically insignificant at 0.05 level of significance.

#### ***In Summary***

The Pearson coefficient of correlation, as well as multiple regression analysis were carried out to predict the relationship and extent of association between macroeconomic variables (Inflation, Exchange Rate, Gross Domestic Product, External Debts and Interest Rates) and Profitability of Nigerian Deposit Banks. Return on Equity was used as a proxy for profitability of deposit money banks while independent variables were Inflation, Exchange Rate, Gross Domestic Product, External Debts and Interest Rates.

Result from Pearson coefficient of correlation shows that INF has 25% association, EXR has 21% association, GDP has also 38% association EXD has 30% while INT has -30% association with profitability of deposit money banks.

Multiple regressions shows that the independent variables INF, INT, EXD, EXR, and GDP has all negative relationship with Return on Equity. And has not improved on the return on equity of the DMBs in Nigeria

Since the prob (F-statistic) = 0.404  $>$  0.05, we therefore accept the null hypothesis and conclude that there is no significant relationship between macroeconomic variables (Inflation, Exchange Rate, Gross Domestic Product, External Debts and Interest Rates) and Profitability of Nigerian Deposit Banks(ROE).

#### 4.4iii Data Presentation and Analysis of Research Hypothesis 4iii

The secondary data used for the purpose of this study are here by presented in tables 4.4iii, 4.4biii and 4.4ciii.

Table 4.4iii. Data on financial structure and profitability for Hypothesis 4iii

YEAR	NIM	ROE	ROA	INF	INT	EXD	EXR	GDP
1986	1.89	30.12	1.56	5.4	4.6	41452.4	313.3	69146.99
1987	1.91	24.44	1.59	10.2	-2.6	100789.1	120.2	105222.8
1988	2.22	23.47	1.79	38.3	-25.6	133956.3	120.5	139085.3
1989	2.35	-357.5	1.54	40.9	-22.4	240393.7	107.6	216797.5
1990	2.39	10.83	2.16	7.5	11	298614.4	100	267550
1991	2.25	20.87	1.96	13	1.2	328453.8	85	312139.7
1992	3.65	29.86	3.14	44.5	-2.7	544264.1	70.5	532613.8
1993	4.9	43.18	4.21	57.2	-31.2	633144.4	77.2	683869.8
1994	3.75	30.15	2.79	57	-43.5	648,813	142.8	899863.2
1995	3.1	27.65	2.35	72.8	-59.3	7168666	122.1	1933212
1996	2.81	21.7	2.1	29.3	-15.8	617320	167.7	2702719
1997	2.1	19.7	0.81	8.5	5	595931.9	193.1	2801973
1998	2.6	25.5	2.88	10	4.3	633077	203.6	2708431
1999	3.9	26.3	2.07	6.6	11.4	2577374	78.9	3194015
2000	3.9	35.2	2.7	6.9	6.6	3097384	81	4582127
2001	27.37	57.41	4.82	18.9	-4.6	3176291	79.95	4725086
2002	27.55	41.63	2.63	12.9	3.3	3932855	80.48	6912381
2003	20.32	29.11	2	14	4.4	4478329	81	8487032
2004	18.22	27.23	2.58	15	4.2	4890270	80.74	11411067
2005	4.07	4.81	0.75	17.8	0.05	2695072	81.32	14572239
2006	3.47	4.12	0.59	8.2	8.69	451461.7	81.94	18564595
2007	20.58	36.83	5.92	5.4	11.54	431079.8	81.87	20657318
2008	18.7	24.11	4.29	11.6	14.39	493180.2	82.28	24296329
2009	27.14	-9.28	-64.92	12.4	17.24	590441.1	82.57	24794239
2010	11.24	163.98	3.91	13.2	2.0.09	689845.3	82.86	5.42E+11
2011	4.5	-0.28	-0.04	10.8	5.9	605489.2	154.7	5.67E+11
2012	11.92	22.2	2.64	12.2	6.9	853065.9	155.2	6.08E+10
2013	12.13	19.15	2.15	8.5	10.2	714321.3	155.7	6.53E+10

Sources: (I) Central Bank of Nigeria Statistical Bulletin – Various Years

(ii) Nigerian Stock Exchange Fact Book – Various Years

(iii) NDIC Annual Report – Various Years

(iv) Computations By the Researcher

(v) Central Bank of Nigeria. Banking Supervision Annual Report- Various Years

### **Test of Hypothesis 4iii**

H<sub>0</sub>: There is no significant relationship between macroeconomic variables (Inflation, Exchange Rate, Gross Domestic Product, External Debts and Net Interest Margin of Nigerian Deposit Banks.

H<sub>0</sub>: There is significant relationship between macroeconomic variables (Inflation, Exchange Rate, Gross Domestic Product, External Debts and Net Interest Margin of Nigerian Deposit Banks.

#### **4.4.1iii Pearson Correlations for hypothesis four (NIM)**

**Table 4.4biii Correlations for Hypothesis 4iii**

	NIM	INF	INT	EXD	EXR	GDP
NIM	1.000000	-0.326485	0.370833	0.194619	-0.436853	-0.146725
INF	-0.326485	1.000000	-0.938277	0.250873	-0.023274	-0.146836
LIT	0.370833	-0.938277	1.000000	-0.351658	-0.128806	0.120130
EXD	0.194619	0.250873	-0.351658	1.000000	-0.312887	-0.183559
SIZE	0.317446	-0.428089	0.483797	-0.372885	0.122227	0.474985
EXR	-0.436853	-0.023274	-0.128806	-0.312887	1.000000	0.279756
GDP	-0.146725	-0.146836	0.120130	-0.183559	0.279756	1.000000
Probability	0.239828	0.004115	0.000496	0.026199	0.166172	0.000000

Source: Computation by researchers, 2015

A Pearson product-moment correlation coefficient was computed to assess impact of the economic variables INF, EXR, GDP, EXD, INT on the profitability (NIM) Nigeria Deposit Money Banks

The Pearson coefficient of correlation between NIM and INF is -0.326 while  $p=0.004$ . Since,  $p$  is less than 0.05, the Pearson product-moment correlation coefficient was significant at 0.05 level of significance. The negative sign of the Pearson's  $r$  indicates that the relationship between Inflation and Net Interest Margin is negative. In other words, inflation explains about 32% variation in NIM as well as negatively affected banks Net Interest Margin.

In addition, the Pearson coefficient of correlation between NIM and INT is -0.300 while  $p=0.000$ . Since,  $p$  is less than 0.05, the Pearson product-moment correlation coefficient was significant at 0.05 level of significance. The negative sign of the Pearson's  $r$  indicates that the relationship between Interest Rates and Net Interest Margin is inverse. In other words, INT explain about 30% variation in NIM as well as adversely affected banks Net Interest Margin .

Furthermore, The Pearson coefficient of correlation between NIM and EXD is 0.194 while  $p=0.026$ . Since,  $p$  is less than 0.05, the Pearson product-moment correlation coefficient was significant at 0.05 level of significance. The positive sign of the Pearson's  $r$  indicates that the relationship between EXD and Net Interest Margin is positive. In other words, External Debts explain about 30% variation in NIM as well as positively affected banks Net Interest Margin.

On the other hand The Pearson coefficient of correlation between NIM and EXR is -0.436 while  $p=0.166$ . Since,  $p$  is greater than 0.05, the Pearson product-moment correlation coefficient was insignificant at 0.05 level of significance. The negative sign of the Pearson's  $r$  indicates that the relationship between Exchange rate and Return on Assets is inverse. In other words, Exchange rate explains about 43% variation in NIM as well as negatively affected banks Net Interest Margin.

However, The Pearson coefficient of correlation between NIM and GDP is -0.146 while  $p=0.000$ . Since,  $p$  is less than 0.05, the Pearson product-moment correlation coefficient was significant at 0.05 level of significance. The negative sign of the Pearson's  $r$

indicates that that the relationship between GDP and Net Interest Margin is negative. In other words, Gross Domestic Product explains about 14% variation in NIM as well as negatively affected banks Net Interest Margin.

#### ***4.4.2iii Determining the fitness of the Hypothesis 4iii***

**Table 4.4cii Model Summary for Hypothesis 4iii**

Dependent Variable: NIM

Method: Least Squares

Date: 09/08/15 Time: 17:22

Sample: 1992 2013

Included observations: 21

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	15.30180	12.84835	1.190954	0.2535
INF	-0.105475	0.341855	-0.308536	0.7622
INT	0.007874	0.373830	0.021062	0.9835
EXD	1.39E-06	1.26E-06	1.099876	0.2899
SIZE	0.000584	0.000310	1.881679	0.0808
EXR	-0.072274	0.057344	-1.260374	0.2281
GDP	-2.03E-11	1.74E-11	-1.166232	0.2630
R-squared	0.474438	Mean dependent var		10.79429
Adjusted R-squared	0.249197	S.D. dependent var		9.392864
S.E. of regression	8.138811	Akaike info criterion		7.292367
Sum squared resid	927.3635	Schwarz criterion		7.640541
Log likelihood	-69.56985	Hannan-Quinn criter.		7.367930
F-statistic	2.106358	Durbin-Watson stat		1.561682
Prob(F-statistic)	0.117663			

Source: Computation by researchers, 2015

#### ***The Coefficient of Determination ( $R^2$ )***

The coefficient of determination ( $R^2$ ) from our regression result is 0.474. This implies that 47% of the total variation in Net Interest Margin is explained by the predictors.

This implies that the explanatory power of the variables is relatively high, however not enough to conclude that the predictors have a significant effect on Bank Profitability.

### ***The Adjusted R<sup>2</sup>***

The Adjusted R<sup>2</sup> supports the claim of the R<sup>2</sup> with a value of 0.249 indicating that 25% of the total variation in the dependent variable – Net Interest Margin is explained by the independent variables. Thus, this supports the statement that the explanatory power of the variables is high.

### ***Standard Error Test***

It tells us how much the observed values differ from the values on the regression line. The standard errors for the two explanatory variables were relatively low (8.13.) which implies that the model has a very good fit.

### ***Durbin-Watson statistic***

The value of the Durbin-Watson statistic ranges from 0 to 4. As a general rule of thumb, the residuals are uncorrelated is the Durbin-Watson statistic is approximately 2. A value close to 0 indicates strong positive correlation, while a value of 4 indicates strong negative correlation. From the table above Durbin-Watson statistic is 1.5 which that the residuals has strong positive correlation.

### **4.4.3iii Statistical significance**

The *F*-ratio in the table tests whether the overall regression model is a good fit for the data. The table shows that the independent variables statistically do not significantly predict the dependent variable, *F stat* = 2.106 and Prob (*F-stat*) = 0.117, *p* > .0005. This implies that bank profitability (NIM) has no significant relationship with predictors.

### **Model 4iii**

$$NIM = \beta_{0iv} + \beta_{1iv}INF + \beta_{2iv}INT + \beta_{3iv}EXD + \beta_{4iv}SIZE + \beta_{5iii}EXR + \beta_{6iv}GDP + \beta_{7iv}EXD\mu_t \dots \dots \dots 3.6$$

Mathematically, the model gives

$$NIM = 15.301 - (105 \times INF) + (0.007 \times INT) + (1.39 \times 10^6 \times EXD) \\ - (0.072 \times EXR) - (2.03 \times 10^{11} \times GDP) + \mu_t$$

#### **4.4.4iii Estimated Model Coefficients**

##### ***Coefficients***

Coefficients show how much the dependent variable NIM varies with the independent variables when all other independent variables are held constant.

The coefficient, for INF is equal to -0.105. This means that for each one-year increase in Inflation, there is a reduction in bank profitability (NIM) by 0.105.

However, coefficient, for INT is equal to 0.007. This implies that for each one-year increase in LINT, there is a corresponding increase in Net interest Margin by 0.007.

More so, coefficient, for EXD is equal to  $1.39 \times 10^6$ . This implies that for each one-year increase in external debts, there is an increase in Net interest Margin by  $1.39 \times 10^6$ .

In addition, coefficient, for EXR is equal to -0.072. This means that for each one-year increase in Exchange Rate, NIM reduces by 0.072.

Finally, coefficient, for GDP is equal to  $-2.03 \times 10^{11}$ . This implies that for each one-year increase in GDP, there is an increase in Net interest Margin by  $-2.03 \times 10^{11}$ .

#### **4.4.5ii Statistical significance of the independent variables**

This tests whether the unstandardized (or standardized) coefficients are equal to 0 (zero) in the population. If  $p < .05$ , we can conclude that the coefficients are statistically significantly different to 0 (zero). The  $t$ -value and corresponding  $p$ -value are located in the "t" and "Sig." columns, respectively, as highlighted in table above

From the "**Prob**" column we have that the independent variables INF (0.550), EXR (0.474), GDP (0.492), EXD (0.988), and INT (0.487) are all statistically insignificant at 0.05 level of significance.

## ***Summary***

The Pearson coefficient of correlation, as well as multiple regression analysis were carried out to predict the relationship and extent of association between macroeconomic variables (Inflation, Exchange Rate, Gross Domestic Product, External Debts and Interest Rates) and Profitability of Nigerian Deposit Banks. Net Interest Margin was used as a proxy for profitability of deposit money banks while independent variables were Inflation, Exchange Rate, Gross Domestic Product, External Debts and Interest Rates.

Result from Pearson coefficient of correlation shows that INF 32% association, INT 37% association, EXR 43% association, are high while that of EXD 19% and GDP - 15% association is low with Net Interest Margin.

Multiple regressions shows that the independent variables INF, INT, EXD, EXR, and GDP has all insignificant relationship with Return on Equity and has not improved on the return on equity of banks.

Since the prob (F-statistic) of  $0.117 > 0.05$ , we therefore accept the null hypothesis and conclude that there is no significant relationship between macroeconomic variables (Inflation, Exchange Rate, Gross Domestic Product, External Debts and Interest Rates) and Profitability of Nigerian Deposit Banks(NIM).

### **4.5 Data Presentation and Analysis of Research Hypothesis 5**

The secondary data used for the purpose of this study are here by presented in tables below:

**Table 4.5.1 Data for Research Hypothesis 5**

<b>YEAR</b>	<b>Equity Capital</b>	<b>ROA</b>	<b>ROE</b>	<b>NIM</b>
1986	5.1	1.56	30.12	1.89
1987	6.5	1.59	24.44	1.91
1988	7.7	1.79	23.47	2.22
1989	9.1	1.54	-357.5	2.35
1990	11.9	2.16	10.83	2.39
1991	18.3	1.96	20.87	2.25

1992	29.1	3.14	29.86	3.65
1993	40.3	4.21	43.18	4.9
1994	53.2	2.79	30.15	3.75
1995	82.8	2.35	27.65	3.1
1996	165.1	2.1	21.7	2.81
1997	257.7	0.81	19.7	2.1
1998	330.6	2.88	25.5	2.6
1999	261.2	2.07	26.3	3.9
2000	250.3	2.7	35.2	3.9
2001	379.7	4.82	57.41	27.37
2002	601.1	2.63	41.63	27.55
2003	701.9	2	29.11	20.32
2004	979.0	2.58	27.23	18.22
2005	1,808.5	0.75	4.81	4.07
2006	2,066.8	0.59	4.12	3.47
2007	3,275.0	5.92	36.83	20.58
2008	7,492.0	4.29	24.11	18.7
2009	10,150.2	-64.92	-9.28	27.14
2010	5,296.4	3.91	163.98	11.24
2011	6,493.3	-0.04	-0.28	4.5
2012	7,470.7	2.64	22.2	11.92
2013	7,456.6	2.15	19.15	12.13

Sources: (I) Central Bank of Nigeria Statistical Bulletin – Various Years

(ii) Nigerian Stock Exchange Fact Book – Various Years

(iii) NDIC Annual Report – Various Years

(iv) Computations By the Researcher

(v) Central Bank of Nigeria. Banking Supervision Annual Report- Various Years

## Test of Hypothesis 5

$H_0$ : There is no significant relationship between equity capital and Profitability of Nigerian Deposit Banks.

$H_1$ : There is significant relationship between equity capital and Profitability of Nigerian Deposit Banks.

### 4.5.1 Pearson Correlations for hypothesis 5

**Table 4.5.2 Pearson Correlations for hypothesis 5**

	EQUITY	ROA	ROE	NIM
EQUITY	1.000000	-0.263966	0.275510	0.574225
ROA	-0.263966	1.000000	0.092500	-0.347560
ROE	0.275510	0.092500	1.000000	0.189577
NIM	0.574225	-0.347560	0.189577	1.000000
Probability	0.388862	0.000000	0.000000	0.065312

Source: Computation by researchers, 2015

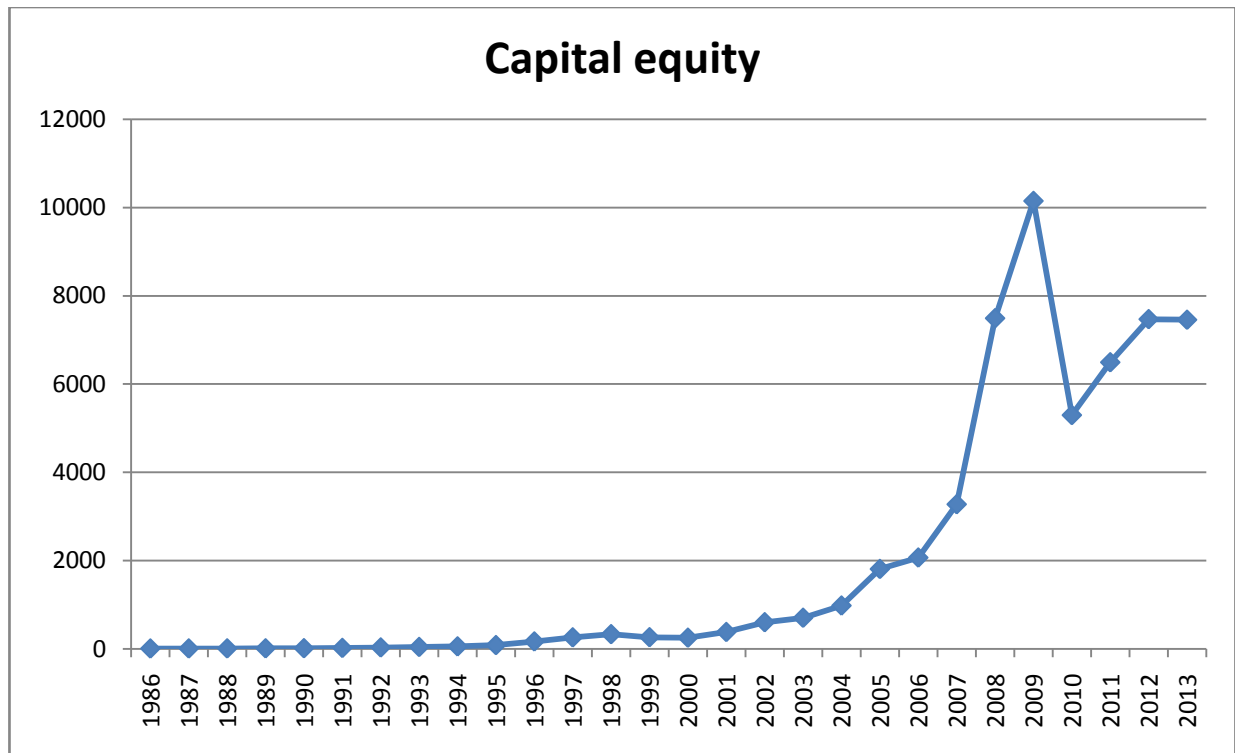
A Pearson product-moment correlation coefficient was computed to assess impact of Equity Capital on the profitability (ROA, ROE and NIM) Nigeria Deposit Money Banks

The Pearson coefficient of correlation between ROA and Equity Capital is -0.26396 while  $p=0.00$ . Since,  $p$  is less than 0.05, the Pearson product-moment correlation coefficient was significant at 0.05 level of significance. The negative sign of the Pearson's  $r$  indicates that that the relationship between Equity Capital and Return on Assets is negative. By implication, Equity Capital explains about 26% variation in ROA as well as negatively affected banks Return on Assets.

On the other hand The Pearson coefficient of correlation between ROE and Equity Capital is 0.2755 while  $p=0.000$ . Since,  $p$  is less than 0.05, the Pearson product-moment correlation coefficient was significant at 0.05 level of significance. The positive sign of the Pearson's  $r$  indicates that that the relationship between Equity Capital and Return on Assets is positive. In other words, Equity Capital explain about 27% variation in ROE as well as positively affected banks Return on Equity.

In addition, The Pearson coefficient of correlation between NIM and Equity Capital is 0.574 while  $p=0.065$ . Since,  $p$  is greater than 0.05, the Pearson product-moment correlation coefficient was insignificant at 0.05 level of significance. The positive sign of the Pearson's  $r$  indicates that that the relationship between Equity Capital and Net interest Margin is positive. In other words, Equity Capital explains about 57% variation in NIM as well as positively affected banks Net Interest Margin.

#### **4.1.7 Trend on Equity Capital (1987-2013)**



The trend on Equity Capital shows that Equity Capital has insignificant growth from 1986 to 1995 while it shows a step rise from 1996 reaching its peak 2009 before taking a sharp drop in 2010 and begins another steady rise in 2011 reaching its second peak in 2012.

#### ***4.5.2 Determining the fitness of the model***

- i. Analysis of the fitness of the model will be carried out in three major steps using Return on Assets,
- ii. Return on Equity, and
- iii. Net interest Margin

#### **4.5.2i Model Summary for Hypothesis 5i (ROA)**

**Table 4.5.3i Model Summary for Hypothesis 5i (ROA)**

Dependent Variable: ROA

Method: Least Squares

Date: 11/30/15 Time: 20:22  
Sample: 1986 2013  
Included observations: 28

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	7.739852	6.011528	1.287502	0.2093
EQUITY	-1.361460	0.975633	-1.395464	0.1747
R-squared	0.069678	Mean dependent var	0.034643	
Adjusted R-squared	0.033897	S.D. dependent var	12.79683	
S.E. of regression	12.57808	Akaike info criterion	7.970537	
Sum squared resid	4113.410	Schwarz criterion	8.065695	
Log likelihood	-109.5875	Hannan-Quinn criter.	7.999628	
F-statistic	1.947320	Durbin-Watson stat	2.293832	
Prob(F-statistic)	0.174681			

Source: Computation by researchers, 2015

### ***The Coefficient of Determination ( $R^2$ )***

The coefficient of determination ( $R^2$ ) from our regression result is 0.069. This implies that 6% of the total variation in Return on Assets is explained by the predictors. This implies that the explanatory power of the variables is relatively low, and not sufficient to conclude that the Equity Capital have a significant effect on Bank Profitability.

### ***The Adjusted $R^2$***

The Adjusted  $R^2$  supports the claim of the  $R^2$  with a value of 0.033 indicating that 3% of the total variation in the dependent variable – Return on Assets is explained by the independent variable. Thus, this supports the statement that the explanatory power of the variables is not sufficient.

### ***Standard Error Test***

It tells us how much the observed values differ from the values on the regression line. The standard errors for the two explanatory variables were relatively low (12.57.) which implies that the model has a very good fit.

### ***Durbin-Watson statistic***

The value of the Durbin-Watson statistic ranges from 0 to 4. As a general rule of thumb, the residuals are uncorrelated is the Durbin-Watson statistic is approximately 2. A value close to 0 indicates strong positive correlation, while a value of 4 indicates strong negative correlation. From the table above Durbin-Watson statistic is 2 which indicate that the residuals has no serial correlation.

### **4.5.3i Statistical Significance**

The *F*-ratio in the table tests whether the overall regression model is a good fit for the data. The table shows that the independent variables statistically do not significantly predict the dependent variable, *F stat* = 1.947, and Prob (*F-stat*) = 0.174, *p* > .0005. This implies that bank profitability (ROA) has no significant relationship with Equity Capital.

$$ROA = \beta_{0v} + \beta_{1v}EQUITY + \mu_t \dots \dots \dots (3.8)$$

Mathematically, the model gives

$$ROA = 7.7398 - (1.361 \times EQUITY) + \mu_t$$

### **4.5.4i Estimated Model Coefficients**

#### ***Coefficients***

Coefficients show how much the dependent variable ROA varies with the independent variables when all other independent variables are held constant.

The coefficient, for Equity Capital is equal to -1.361. This means that for each one-year increase in Equity Capital, there is a reduction in bank profitability (ROA) by 1.361.

#### 4.5.5i Statistical significance of the independent variables

This tests whether the unstandardized (or standardized) coefficients are equal to 0 (zero) in the population. If  $p < .05$ , we can conclude that the coefficients are statistically significantly different to 0 (zero). The  $t$ -value and corresponding  $p$ -value are located in the "t" and "Sig." columns, respectively, as highlighted in table above

From the "**Prob**" column we have that the independent variables EQUITY (0.174), are all statistically insignificant at 0.05 level of significance.

#### 4.5.2ii Model Summary for Hypothesis 5ii (ROE)

**Table 4.5.3ii Model Summary for Hypothesis 5ii (ROE)**

Dependent Variable: ROE

Method: Least Squares

Date: 11/30/15 Time: 20:31

Sample: 1986 2013

Included observations: 28

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-34.13184	36.93529	-0.924098	0.3639
EQUITY	8.760094	5.994362	1.461389	0.1559
R-squared	0.075906	Mean dependent var		15.44607
Adjusted R-squared	0.040364	S.D. dependent var		78.88921
S.E. of regression	77.28069	Akaike info criterion		11.60151
Sum squared resid	155279.9	Schwarz criterion		11.69667
Log likelihood	-160.4212	Hannan-Quinn criter.		11.63060
F-statistic	2.135658	Durbin-Watson stat		2.224410

Prob(F-statistic)	0.155890
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Source: Computation by researchers, 2015

### ***The Coefficient of Determination ( $R^2$ )***

The coefficient of determination ( $R^2$ ) from our regression result is 0.075. This implies that 7% of the total variation in Return on Equity is explained by the predictors. This implies that the explanatory power of the variables is relatively low, and not sufficient to conclude that the Equity Capital have a significant effect on Bank Profitability.

### ***The Adjusted $R^2$***

The Adjusted  $R^2$  supports the claim of the  $R^2$  with a value of 0.040 indicating that 4% of the total variation in the dependent variable – Return on Equity is explained by the independent variable. Thus, this supports the statement that the explanatory power of the variables is not sufficient.

### ***Standard Error Test***

It tells us how much the observed values differ from the values on the regression line. The standard errors for the two explanatory variables were relatively high (77.28).

### ***Durbin-Watson statistic***

The value of the Durbin-Watson statistic ranges from 0 to 4. As a general rule of thumb, the residuals are uncorrelated is the Durbin-Watson statistic is approximately 2. A value close to 0 indicates strong positive correlation, while a value of 4 indicates strong negative correlation. From the table above Durbin-Watson statistic is 2.2 which indicate that the residuals has no serial correlation.

### ***4.5.3ii Statistical Significance***

The  $F$ -ratio in the table tests whether the overall regression model is a good fit for the data. The table shows that the independent variables statistically do not significantly predict the dependent variable,  $F\ stat = 2.135$ , and  $\text{Prob } (F\text{-stat}) = 0.1558, p > .0005$ . This implies that bank profitability (ROE) has no significant relationship with Equity Capital.

$$ROE = \beta_{0v} + \beta_{1v}EQUITY + \mu_t \dots \dots \dots (3.9)$$

Mathematically, the model gives

$$ROE = -34.13 + (8.760 \times EQUITY) + \mu_t$$

#### **4.5.4ii Estimated Model Coefficients**

##### ***Coefficients***

Coefficients show how much the dependent variable ROE varies with the independent variables when all other independent variables are held constant.

The coefficient, for Equity Capital is equal to 8.760. This means that for each one-year increase in Equity Capital, there is an increase in bank profitability (ROE) by 8.760.

#### **4.5.5ii Statistical significance of the independent variables**

This tests whether the unstandardized (or standardized) coefficients are equal to 0 (zero) in the population. If  $p < .05$ , we can conclude that the coefficients are statistically significantly different to 0 (zero). The  $t$ -value and corresponding  $p$ -value are located in the "t" and "Sig." columns, respectively, as highlighted in table above

From the "**Prob**" column we have that the independent variables EQUITY (0.155), are all statistically insignificant at 0.05 level of significance.

#### **4.5.2iii Model Summary for Hypothesis 5iii (NIM)**

**Table 4.5.3iii Model Summary for Hypothesis 5iii (NIM)**

Dependent Variable: NIM  
Method: Least Squares  
Date: 11/30/15 Time: 20:35  
Sample: 1986 2013  
Included observations: 28

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-2.637514	3.531064	-0.746946	0.4618
EQUITY	2.049521	0.573069	3.576393	0.0014
R-squared	0.329734	Mean dependent var	8.961786	
Adjusted R-squared	0.303955	S.D. dependent var	8.855567	
S.E. of regression	7.388139	Akaike info criterion	6.906378	
Sum squared resid	1419.200	Schwarz criterion	7.001536	
Log likelihood	-94.68929	Hannan-Quinn criter.	6.935469	
F-statistic	12.79059	Durbin-Watson stat	1.043400	
Prob(F-statistic)	0.001396			

Source: Computation by researchers, 2015

### ***The Coefficient of Determination ( $R^2$ )***

The coefficient of determination ( $R^2$ ) from our regression result is 0.329. This implies that 33% of the total variation in Net Interest Margin is explained by the predictors. This implies that the explanatory power of the variables is relatively high, though not sufficient enough to conclude that the Equity Capital have a significant effect on Bank Profitability (NIM).

### ***The Adjusted $R^2$***

The Adjusted  $R^2$  supports the claim of the  $R^2$  with a value of 0.303 indicating that 30% of the total variation in the dependent variable – Net Interest Margin is explained by the independent variable Equity Capital. Thus, this supports the statement that the explanatory power of the variables is high.

### ***Standard Error Test***

It tells us how much the observed values differ from the values on the regression line. The standard errors for the two explanatory variables were relatively low (7.388) indicating a good fit.

### ***Durbin-Watson statistic***

The value of the Durbin-Watson statistic ranges from 0 to 4. As a general rule of thumb, the residuals are uncorrelated is the Durbin-Watson statistic is approximately 2. A value close to 0 indicates strong positive correlation, while a value of 4 indicates strong negative correlation. From the table above Durbin-Watson statistic is 1.0 which indicate that the residuals has strong positive correlation.

### ***4.5.3iii Statistical Significance***

The  $F$ -ratio in the table tests whether the overall regression model is a good fit for the data. The table shows that the independent variable NIM statistically do significantly predict the dependent variable,  $F\ stat = 12.790$ , and Prob ( $F$ -stat) =0.001,  $p < .0005$ . This implies that bank profitability (NIM) has significant relationship with Equity Capital.

$$NIM = \beta_{0v} + \beta_{1v}EQUITY + \mu_t \dots\dots\dots (3.10)$$

Mathematically, the model gives

$$NIM = -2.637 + (2.049 \times EQUITY) + \mu_t$$

### ***4.5.4ii Estimated Model Coefficients***

### *Coefficients*

Coefficients show how much the dependent variable NIM varies with the independent variable when all other independent variables are held constant.

The coefficient, for Equity Capital is equal to 2.049 This means that for each one-year increase in Equity Capital, there is an increase in bank profitability (NIM) by 2.04.

#### **4.5.5ii Statistical significance of the independent variables**

This tests whether the unstandardized (or standardized) coefficients are equal to 0 (zero) in the population. If  $p < .05$ , we can conclude that the coefficients are statistically significantly different to 0 (zero). The  $t$ -value and corresponding  $p$ -value are located in the "t" and "Sig." columns, respectively, as highlighted in table above

From the "**Prob**" column we have that the independent variables EQUITY (0.001), are all statistically significant at 0.05 level of significance.

### *In Summary*

The Pearson coefficient of correlation, as well as multiple regression analysis were carried out to predict the relationship and extent of association between Equity Capital and Profitability of Nigerian Deposit Banks. Return on Assets Return on Equity and Net Interest Margin were used as a proxy for profitability of deposit money banks while independent variable is Equity Capital.

Result from Pearson coefficient of correlation shows that ROA has 26% negative association, ROE has 27% positive association while NIM has 57% positive association. The regression analysis shows that Equity Capital reduces Return of Assets of banks by 1.361. on the other hand, Equity Capital increases Return on Equity by 8.760 while Equity Capital increases Net interest margin by 2.04.

In conclusion, there are no significant positive relationships between Equity Capital and Return on Assets (0.174); and Return on Equity (0.155) while it shows a significant positive relationship with Net Interest Margin (0.001).

#### **4.5 Discussion of Findings**

The first objective of this study is to determine relationship between short term obligations and the profitability of deposit money banks in Nigeria. The Pearson coefficients of correlation as well as multiple regression analysis were carried out to predict relationship and extent of association between Short Term Obligations, Long Term Obligations, Total Obligations, Equity, Firm Size, Exchange Rate, Gross Domestic Product, and External Debts and profitability of Nigerian Deposit Money Banks using Return on Assets (ROA) as Dependent variable.

Result from Pearson coefficient of correlation shows that the extent of associations between Return on Assets and Short Term Obligations (8%), Total obligations (3%), Exchange Rate (11%), GDP (6%), and External Debts (14%) are quite low while Return on Assets and Long Term Obligations (48%), Size (29%) has significantly improved association.

Multiple regressions show that ROA has significant relationship with LTO, TO, Equity and GDP while ROA shows insignificant relationship with STO, SIZE, EXR, EXD.

Long term obligations of DMBs, total obligations of DMBs, Equity as well as Gross Domestic Product significantly affect the return on assets of deposit money banks. By implication any improvement in any of the aforementioned will result to a corresponding improvement on Return on assets of deposit money banks. The short term obligations, firm size, exchange rate as well as external debt of deposit money banks also show significant contributions to the improvement on the return on assets of deposit money banks.

The second objective of the study is to investigate the nature of relationship between long-term obligations and the profitability of deposit money banks.

The Pearson coefficients of correlation as well as multiple regression analysis were carried out to predict relationship and extent of association between Short Term Obligations, Long Term Obligations, Total Obligations, Firm Size, Exchange Rate, Gross Domestic Product, And External Debts and profitability of Nigerian Deposit Money Banks using Return on Equity (ROE) as Dependent variable.

Result from Pearson coefficient of correlation shows that the extent of associations between Return on Equity and Short Term Obligations (1%), Total Obligations (10%), SIZE (4%), Equity (8%) and External Debts (1%) are quite low while Return on Equity and Exchange Rate (22%), Long Term Obligation (35%), GDP (46%) has significantly improved association.

Multiple regressions shows that ROE has significant positive relationships with STO, LTO, SIZE, GDP, TO, EXR, and EXD.

Gross domestic product, Long term obligations and firm size and external debts show significant contribution to the banks return on equity. While short-term obligations, total obligations, exchange rate and as well as equity did not show any improvement on return on equity of deposit money banks.

On the first and second objectives, the significant relationship between short-term obligations and long-term obligations with ROE is consistent with the findings of Nikbakht & Peykani, 2009; Abor 2005; Akbarpour & Aghabeygzadeh 2011; Christopher, Schafer & Talavera, 2006; and Mesquita & Lara, 2003. The positive significant relationship between long-term debts with ROA is coherent with the findings of Philips & Sipahioglu, 2004; Akbarpour & Aghabeygzadeh, 2011; Grossman & Hart, 1986), which indicates that higher levels of debt in the firm's capital structure is directly, associated with higher performance levels.

This view tends to favour commercial banks' sources and uses of funds. Demand deposit liabilities are short-term sources of funds to banks and through various short-term channels banks lend short-term funds to rake in huge profits (Luckett, 1984).

The third objective of this study is to investigate the relationship between total obligations and profitability of Nigerian deposit money banks.

The Pearson coefficients of correlation as well as multiple regression analysis were carried out to predict relationship and extent of association between Short Term Obligations, Long Term Obligations, Total Obligations, Equity, Firm Size, Exchange Rate, Gross Domestic Product, and External Debts and profitability of Nigerian Deposit Money Banks using Net Interest Margin (NIM) as dependent variable.

Result from Pearson coefficient of correlation shows that the extent of associations between Net Interest Margin and Short Term Obligations (33%), Long Term Obligations (32%), and Firm Size (31%) are high while the associations between Net Interest Margin and Total Obligations (5%), Gross Domestic Product (10%) and External Debts (20%) are low.

Multiple regressions show that NIM has insignificant relationship with LTO, SIZE, STO, TO, EQUITY, EXR, EXD and GDP.

From this third objective, the non-significant relationship between total obligations NIM is consistent with the findings of Pouraghajan, Malekian, Emamgholipour, Lotfollahpour and Mohammadpour, 2013; Khalif, 2013; Abbasali, Esfandiar, Milad, Vida & Mohammad, 2012; Khan, 2012; and Abor, 2005. Thus, it implies that increase in the short-term and long term obligations of DMBs are associated with increase in profitability due to their inexpensive nature. This implies that, an increase in the debt position is associated with an increase in profitability thus; the higher the debt, the higher the profitability.

The fourth objective of this study is to investigate the relationship between macroeconomic variables (Inflation, Exchange Rate, Gross Domestic Product, External Debts and Interest rates) and Profitability of Nigerian Deposit Banks.

The Pearson coefficients of correlation, as well as multiple regression analysis were carried out to predict the relationship and extent of association between macroeconomic variables (Inflation, Exchange Rate, Gross Domestic Product, External Debts and Interest rates) and Profitability of Nigerian Deposit Banks.

Return on Assets, Return on Equity and Net Interest Margin were used as a proxy for profitability of deposit money banks while independent variables were Inflation, Exchange Rate, Gross Domestic Product, External Debts and Interest rates.

It was discovered that the independent variables (Inflation, Exchange Rate, Gross Domestic Product, External Debts and Interest rates) did show significant relationship with ROA, ROE and NIM.

In other words macro-economic variables represented with Inflation, Exchange Rate, Gross Domestic Product, External Debts and Interest rates has significant influence on the profitability of deposit money banks.

The fifth objective of this study is to investigate the relationship between relationship between Equity Capital and Profitability (ROA, ROE, and NIM) of Nigerian Deposit Money Banks.

The Pearson coefficients of correlation, as well as multiple regression analysis were carried out to predict the relationship and extent of association between Equity Capital and Profitability of Nigerian Deposit Banks.

Return on Assets, Return on Equity and Net Interest Margin were used as a proxy for profitability of deposit money banks while independent variable was Equity Capital.

It was discovered that the independent variable (Equity Capital) did not show significant relationship with ROA, and ROE while it showed significant relationship with NIM.

The non-existence of significant relationship between Equity capital and profitability (ROA and ROE) is consistent with the findings of Drobetz & Fox, 2005; Frank &

Goyal, 2003. In trade-off theory, there exist three main factors, agency costs, tax shields and bankruptcy costs. Due to these three factors more profitable firms use more debt than equity. In Pecking Order Theory, more profitable firms use less debt than equity because firstly, they use retained earnings, then use debt, and at third option, they use equity financing. If investment opportunities abound then after using retained earnings the firms should use debts to exhaust these opportunities, otherwise there would be no need to take debts.

On the other hand, the significant relationship between Equity capital and NIM is in line with the findings of Oliver, Boubacar, Pierre & Martin, 2004; Eriotis, Frangouli & Neokosmides ,2002. Thus considering the level of firm's investment and degree of market power, banking firms that prefer to finance their investment activities using equity capital are more profitable than firms who finance their investment with borrowed capital.

## **CHAPTER FIVE**

### **SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS**

#### **5.1 Summary of Findings**

This research work was conducted to investigate the effects of financial structure on profitability of deposit money banks in Nigeria. Data was gathered from the Central Bank of Nigeria Statistical Bulletin and the National Bureau of Statistical Federal Office of Statistics and journals downloaded from the internet among others. The data range from 1986 – 2013. The data were analyzed using Ordinary Least Square Regression Analysis (OLS) and Person correlations. From the analyses of the data based on the four models developed for the study, it was discovered that;

1. There is significant positive relationship between short-term obligations and profitability of Nigerian Deposit Money Banks.
2. There is significant positive relationship between Long-Term Obligations and profitability of Nigerian Deposit Money Banks
3. There is no significant positive relationship between Total Obligations and profitability of Nigerian Deposit Money Banks
4. There is no significant positive relationship between macroeconomic variables (Inflation, Exchange Rate, Gross Domestic Product, External Debts and Interest Rates) and Profitability of Nigerian Deposit Banks.
5. There is no significant positive relationship between Equity Capital and the profitability (ROE, ROA) of Nigerian deposit money banks.
6. There is significant positive relationship between Equity Capital and the profitability (NIM) of Nigerian deposit money banks.

## 5.2 Conclusion

This research work sets out to contribute to the theory of financial structure in two major ways; the primary objective is to create a specific hypothesis for the effects financial structure has on Deposit money banks (DMBs) profitability in Nigeria, using the data of all the DMBs over the period of 1986-2013. The secondary objective was to create a profit efficiency function that is profound yet simple enough to be employed on a dataset as limited as ours. These objectives have been accomplished successfully, we have shown a clear and robust relationship between financial structure and Deposit money banks profitability as well as created a profit efficiency function that works very well under any condition.

The main hypothesis: “How does financial structure affect profitability of Deposit Money banks using explicitly Nigerian data?” is one which is of especially great use for Nigerian Deposit money banks but its implications could also extend to international data.

According to the theory of *agency cost*, higher levels of debt decrease the agency cost of the separation of ownership and management. This is driven by the increased financial distress caused by the higher debt levels. The added financial distress then forces management to work harder and act in the shareholders best interest. In contrast, at high levels of debt, the financial distress of proportionally increasing debt may outweigh any agency cost benefits received from such debt increases; hence this may have the effect of increasing the overall agency cost inherited by the bank. Reverse causality could be argued with both the *efficiency-risk* and *franchise-value hypotheses*, offering plausible explanations of firm efficiency affecting financial structure choice; these are tested for. Berger and Udell (1994) find support for the agency cost hypothesis; their findings show higher leverage to be associated with higher profit efficiency. Along with the use of the previously described profit efficiency measure, a common accounting

performance measure is used to test for robustness as well as draw comparisons from the comparative measures.

Our findings show a significant and robust quadratic relationship between financial structure and profitability of DMBs in Nigeria. At relatively low levels of leverage an increase in debt leads to increased profit efficiency hence superior bank performance, at relatively high levels of leverage increased debt leads to decreased profit efficiency as well as bank performance. This can most likely be attributed to financial distress outweighing any gains made from managerial performance improving. The implications of this finding are considerable; we have found that a bank can help optimize the performance of management and general profitability of the bank by simply choosing a financial structure which optimizes managerial incentives while keeping financial distress relatively low.

The study provides an empirical conclusion that Nigerian DMBs use 83.36% debt and 16.64% equity hence the financial structure of Nigerian DMBs is hugely skewed towards debt. However, the debt structure of Nigerian DMBs indicates more than 98% short term debt and less than 2% long-term debt. Thus the effects of financial structure on profitability of Nigerian DMBs are such that short term debt positively influences profitability and long term debt negatively affects profitability.

### **5.3 Recommendations**

Based on the foregoing, the following recommendations are made:

1. Deposit money banks should use an optimal financial structure. The banks should employ an appropriate capital structure model that meets the corporate long term survival and growth. An optimal financial structure includes the best mix of debt and equity that maximize shareholders wealth.
2. Deposit money banks should increase the use of long-term obligations in financing their business activities. Result of the study shows that the long-term debts has

greater percentage contribution to profitability than short-term debts. However, it is important to state that in spite of the fact that the value of a business can be enhanced with long term obligations, it gets to a point that it becomes detrimental, hence banks should establish the point at which the weighted average cost of capital is minimal and maintain that gearing ratio so that the bank's value will not be eroded, as the bank's financial structure is optimal at this point *ceteris paribus*. This is because the highly geared banking firms are more prone to lower profitability as a result of an additional leverage incurred.

Increasing proportion of long-term debts compared to equity capital in the financial structure mix of Nigerian DMBs will contribute to increases in profitability. It is here and now recommended that banks' management should adopt policy of increasing proportion of long-term debts in the financial structure of Nigerian DMBs to raise profitability. This is important when we recall that shareholders of organizations frown at increasing equity capital by management due to its dilution effects on returns due to the existing shareholders.

3. When a Deposit money bank has exhausted its shareholders' funding and chooses to finance its expansion of operations by borrowing long, special consideration must be taken to ensure that the assets financed by the borrowed funds bring in a higher return than the interest the bank is required to pay on the debt. If this is not done, the bank will erode the reserves in order to pay the debt as the assets financed will not be making enough returns to cover the debt. The bank must select source of funding carefully to avoid falling into the leverage risk trap.
4. This study revealed that short term debt is profitable to Deposit money banks in Nigeria hence the banks should improve upon the mobilization of savings and deposits which form the bulk of short term debt. The DMBs prefer to 'borrow short and lend short'. The interest rate policy in Nigeria cannot be predicted with greater certainty. Therefore, the DMBs in Nigeria find it difficult to borrow long in order

to finance projects with long-term gestation periods. The monetary authorities adjust the Monetary Policy Rate (MPC), the Cash Reserve Ratio (CRR) and the liquidity ratio (LR) too often. These discourage long-term borrowing and lending in Nigeria.

5. The low return on assets indicates high competition thus it is recommended that banks improve their investment strategies and diversify their current portfolio to remain competitive.
6. The inflationary rate in Nigeria has been on the high side for the past years with prime rate still at about 24%, this leads to high borrowing costs which deter investment activities and hence low borrowing power for banks to increase profit through high net interest margin. It is therefore recommended that government should develop a stable and steady economic environment that will support the ability of the banking firms to strategically forecast inflations, exchange rate and other economic variables toward long-term corporate decisions.
7. Another important observation is the excessive liquidity in the Nigerian money market and economy presently as evidence by the recent financial crisis that strongly affected the capital market. It is believed that new financial structure financial instrument should be welcomed to bridge the gap between the excess liquidity and the scarce investment outlet. Whenever the Monetary policy committee reduces the monetary policy rate and cash reserve ratio at the same period in Nigeria as well as the CBN injecting funds into the money market, the result is excess liquidity in the economy.
8. The conclusion that borrowing does not always improve a firm's performance leads to the recommendation that Deposit money banks should use short-term obligations as much as possible before they undertake to borrow using fixed interest debts, so that they minimize the risks related to borrowing, which include interest on the debt exceeding the return on the assets they are financing. The rule

we are left with is that a rational company will employ as much debt as it can without impairing the safety of the company's future. Therefore we recommend this rule to DMBs and investors in Nigeria.

9. For Controllable factors, such as long-term obligations good standard practices which will enhance the profitability of Deposit money banks is of importance and unethical practices must be avoided. For uncontrollable factors, stable policies that promote sustained growth, controlling or reduction of inflation, favorable Exchange rate and other government policies that are profitability friendly should be encouraged by the regulatory authorities. Government should create an enabling business friendly environment so that businesses can thrive and thus increase bank's performance level. This is evident in the fact that macroeconomic variables positively affect the profitability of Deposit money banks in Nigeria.
10. Finally further studies into effects of financial structure and macroeconomic variables on Deposit money banks in Nigeria would support long term strategic direction of the Deposit money banks.

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