EFFECT OF FINANCIAL PERFORMANCE ON CAPITAL STRUCTURE OF NON-FINANCIAL FIRMS IN THE NIGERIAN STOCK EXCHANGE

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DECLARATION

This thesis is my original work and has not been presented for a degree in any other University.

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DEDICATION

To the entire

ADAGBAJA LORI IFA FAMILY

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ABBREVIATIONS

ADF	Augmented Dickey and Fullar
ASEAN	Association of Southeast Asian Nations
ATS	Automatic Trading System
AR1	First Order Auto Regression
AR2	Second Order Auto Regression
CS	Capital Structure
DEA	Data Envelopment Analysis
DER	Debt to Equity Ratio
EBIT	Earnings Before Interest and Tax
EPS	Earnings per Share
FEM	Fixed effect Model
FGN	Federal Government of Nigeria
GMM	General Moment Method
LTD	Long Term Debt
MBV	Market to Book Value of Equity
NSE	Nigerian Stock Exchange
OLS	Ordinary Least Squares
REM	Random effect Model
ROA	Return on Assets
ROCE	Return on Capital Employed
SAP	Structural Adjustment Programme
STD	Short term Debt
TDR	Total Debt Ratio
VIF	Variance Inflation Factor

DEFINITIONS OF KEY TERMS

Capital Structure: Capital structure refers to the sources of financing, particularly the proportions of debt (leverage/gearing) and equity that a business firm employs to fund its assets, operations and future growth (Jensen & Meckling, 1979).

Earnings per Share: this is earnings that the company has achieved in a fiscal period for an ordinary share and often is used to evaluate the profitability and risk associated with earning and judgments about stock prices. (Goya, 2013; Savathaasan & Rathika, 2013)

Financial Performance: Financial Performance is used to measure firm's overall financial health over a given period of time and can also be used to compare similar firms across the same industry or to compare industries or sectors in aggregation (Cho & Pucik, 2005; Venkatraman & Ramanujam, 1986).

Firm Size: Firm size has been defined as the amount and variety of production capacity and ability a firm possesses or the amount and variety of services a firm can provide concurrently to the customers (Mule, Mukras, & Nzioka, 2015).

Market to Book Value of Equity: market to book value ratio is a valuation ratio that is used by investment advisors, fund managers and investors to compare a company's market value to its book value. (Marangu and Jagongo 2014).

Return on Assets: return on assets measures the overall effectiveness of management in generating profits with its available assets. The higher the firm's ROA the better (Ibrahim & AbdulSamad, 2011).

Return on Capital Employed: A measurement of financial performance of a company's operating division that is not responsible for its financing and income taxes (McClure, 2017).

Total debt ratio: The total debt ratio is a financial ratio which is expressed as percentage of a company's assets that are provided in comparison to debt. It is calculated by dividing total debt to total assets (Nasimi, 2016).

ABSTRACT

The main objective of this thesis was to examine the effect of financial performance on capital structure of non-financial firms on the Nigerian Stock Exchange (NSE). This was guided by assessing the effect of earnings per share, market to book value of equity, return on assets and return on capital employed on capital structure choice while size was included as the moderating variable. The causal research design was adopted. Panel data involving the 186 listed companies on the NSE as at December 2015 for a period of 16 years (1999 to 2015) was extracted from the annual reports and financial statements of the firms, Central Bank of Nigeria statistical bulletins, NSE fact books and bulletins. Due to the nature of business of some organisations and incomplete data a total of 87 samples were included in the study. Both descriptive which involve tables, graphs, virtual plots and inferential statistics with the application of the general method of moments (GMM) were used to interpret and estimate the capital structure regression equation. The effects of all the explanatory variables are statistically significant at all levels of capital structure measure except for return on capital employed (ROCE), total debt ratio (TDR) and debt to equity ratio (DER) whose conclusions are statistically insignificant. Based on the significance of these results it was concluded that both the efficiency risk and franchise value hypotheses of the reverse causality hypothesis are observable in the capital structure choice of the non-financial firms in the NSE. However, the dominance of the efficiency risk hypothesis cannot be overlooked. In view of this, the study therefore recommend that managers should strive more towards financial performance to be able explore more the best option available in capital combination be able to achieve the wealth maximization goal of the shareholders while those saddled with the responsibility of enabling a conductive atmosphere for financing and investment in the country should not just sit and create regulations but to see that it is effectively implemented so as to make an upward impact on government revenue. It is further recommended that researchers in the field of corporate finance and the entire academia in this area should strive to explore the suggested reverse causality from capital structure and firms' financial performance.

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

Since the seminal work of Modigliani and Miller (1958, 1963) on the relevance and irrelevance of capital structure, researchers in corporate financial theory have always been interested in the causal effect of capital structure on financial performance and value of the firm. The classical thinking from the theories propounded since then was premised on causal relationship that capital structure choice determines or affect performance thereby impact on the value of the firm (Kraus & Litzenberger, 1973; Meckling & Jensen, 1976; Myer & Majluf,1984). As a departure from the classical thinking Berger and Bonaccorsi di Patti (2002), suggested the possibility of a reverse causal relationship as reflected in the reverse causality hypothesis. For an instant, debt holders like any other investors always get attracted to profitable and financially sound firms. The theory predicts performance as a factor in explaining the use of debt, which indicates that productive and money-making firms will use more debt (Margaritis & Psillaki, 2010). The reverse of this proposition is that efficient firms may use less debt to minimize their exposure to financial risk (He & Matvos, 2012). That is, the more profitable and liquid the firm is, the lower the leverage usage (Berger & Bonaccorsi di Patti, 2006; Cheng & Tzeng, 2011; Margaritis & Psillak, 2007).

In the recent past, some authors have been investigating the nexus between financial performance and capital structure. Fosu (2013), incorporated the reverse causation between performance and capital structure in econometric modelling and to the best of the author's knowledge, only a few studies stand out as they directly test this theoretical relationship (Margaritis & Psillaki, 2010, 2007; Berger & Bonaccorsi di Patti, 2006). Berger and Bonaccorsi di Patti (2006) tested the efficiency-risk and franchise value hypotheses on the U.S banking industry. On the other hand, Margaritis and Psillaki (2007, 2010) tested the same hypotheses on firms in New Zealand and France respectively. Berger and Bonaccorsi di Patti found that, in the U.S banking

industry, none of these hypotheses dominated themselves, implying, efficiency presents only an infinitesimal effect on leverage. This is consistent with findings from New Zealand firms which also revealed that both the efficiency-risk and franchise value hypotheses operate (Margaritis & Psillaki, 2007).

Financial performance can be described as the extent to which financial goal of a firm is being or has been accomplished. It is the process of measuring the results of an organisation's policies and operations in monetary terms. It measures the overall financial health of a firm over a given period of time. According to Chakravarthy (1986) it is a way to satisfy investors and can be represented by profitability, growth and market value (Cho & Pucik, 2005; Venkatraman & Ramanujam, 1986). These three aspects complement each other. Profitability measures a firm's past ability to generate returns (Glick et al., 2005). Growth demonstrates a firm's past ability to increase its size (Whetten, 1987). Increasing size, even at the same profitability level, will increase its absolute profit and cash generation. The larger size also can bring economies of scale and market power, leading to enhanced future profitability.

Market value represents the external assessment and expectation of firms' future performance. Therefore, the outcome of a good financial performance by a firm does not only affect the sources of financing, growth and survival, but also has a powerful influence on the larger economy because of its utmost importance to both the shareholders (in form of returns on their investment), managers of firms (in form of compensation), creditors (firms' ability to repay) and government (tax purposes). A dwindling financial performance may seriously affect access to both internal and external financing as well as growth and survival of the firm. Subsequently a reasonable level of financial performance is a critical decision area for any company which is not only important because of the need to maximize returns to numerous organizational constituencies, but also because of the impact such decisions may have on a company's ability to deal with its competitive environment (Santos & Brito, 2012).

Capital structure refers to the sources of financing, particularly the proportions of debt and equity that a business firm employs to fund its assets, operations and future growth (Jensen & Meckling, 1979). It is the proportion of financial resources attributed to the firm through different sources, which may include internal and external financers (Abor, 2008). It includes, publicly issued securities, private placements trade debt, bank debt, leasing contracts, pension liabilities, tax liabilities, unpaid compensation to employees and management, performance guarantees, contingent liabilities and other product warrantees (Mireku, Mensa & Ogoe, 2014). Corporate leverage decisions are, as several theories suggest, thus among the paramount decisions made by firm management. The connotation, capital structure, capitalization, financial structure, leverage ratio and capital employed, are the same, that is, how much is invested and the numerous sources at which the invested funds were gotten by a company to establish, maintain its numerous activities and finance its assets.

Theoretically, the importance of financial performance derives from the fact that it is strongly related to the ability of firms to fulfill the needs of various stakeholders while the research on the relationship between financial performance and capital structure is gathering momentum Berger & Bonaccorsi di Patti (2002, 2006); Margaritis and Psillaki (2010), Otieno and Ngwenya (2015), Yinusa, Somoye, Alimi and Ilo (2016), whereas, the relationship between capital structure and financial performance has been a topical issue and one of the most interesting issues in the corporate finance literature since late 1950s studies of Lintner (1956), Hirshleifer (1958) and Modigliani and Miller (1958). However, Modigliani and Miller (1958, 1963) seminar work on the irrelevance of capital structure on firm value and later supported by Miller (1977) indeed spark off the debate on capital structure (Al-Taani, 2013; Ogebe, Ogebe & Alewi, 2013). This has led to the emergence and development of new theories on the issue of capital structure and firm performance. Additional capital structure theories, such as the static trade-off theory and the pecking order theory have emerged over the years.

According to Kraus and Litzenberger (1973), the static trade-off theories assume that firm's trade-off the benefits and costs of debt and equity financing and find an optimal

capital structure after accounting for market imperfection such as taxes, bankruptcy costs and agency costs. As elucidated by Jensen and Meckling (1976), the optimal capital structure of organizations involves the trade-off between the bankruptcy costs and agency costs, the effects of corporate and personal taxes, etc. This theory assumed that capital structure moves towards an optimum leverage which is determined by balancing the corporate tax savings merit of debt and the costs of financial distress. This idea has been developed in many papers, including, DeAngelo and Masulis (1980) and Bradley et al., (1984). However, it has been questioned by many others, including Miller (1977), who argues that the Static Tradeoff model implies that firms should be highly geared than they really are, as the tax savings of debt seem large while the costs of financial distress seem minor.

In contrast, Myers and Majluf (1984) favour the pecking order theory, which suggests that firms should follow a financing hierarchy to minimize information asymmetry between parties. So, the pecking order theory predicts that firms prefer to finance themselves internally before opting for debt or equity. It states that only when all internal finances have been depleted, firms will opt for debt and as last resort will turn to equity. Thus, firms that are profitable and therefore generate high cash flow are expected to use less debt capital than those who do not generate high cash flow. This theory, therefore, supports the fact that firms prefer debt rather than equity (Fama and French, 2002; Karadeniz et. al, 2009; Rajan and Zingales, 1995; Wald, 1999).

Furthermore, the agency cost theory is premised on the idea that the interest of the company's managers and its shareholders are not perfectly aligned. It explains the relationship of principal, shareholders of the firm, with the agent, management of the firm, in the decision-making process regarding the firm's capital structure. Jensen and Meckling (1976) indicate that in the decisions about a firm's capital structure, the level of leverage affects the agency conflicts between shareholders and managers. After five decades of studies and research, economists have still not reached an agreement on how and to what extent the capital structure of firms' impact their performance. Interestingly, many studies have discovered that a firm's capital structure and its link to performance, is highly dependent upon context-related issues, such as the company's

industry, strategy, growth or country (Berger & Bonaccorsi di Patti, 2006; Degryse, Goeij, & Kappert, 2010; Lindblom, Sandahl, & Sjogren, 2011; O'Brien, 2003). Many studies had also pointed out, in opposition to the Miller and Modigliani propositions, that capital structure is an active choice or strategy undertaken by a company and that the choice is dynamic, not fixed over time (O'Brien, 2003).

In addition, Berger and Bonaccorsi di Patti (2006) and Margaritis and Psillaki (2010) consider two additional hypotheses (efficiency risk and franchise value) as reflected in the reverse causality theory explaining how firm efficiency, influences the choice of capital structure. The efficiency risk hypothesis predicts a positive relation between efficiency and leverage, as more efficient firms choose lower equity ratios due to a lower expected cost of bankruptcy and financial distress (Berger & Bonaccorsi di Patti, 2006; Yeh, 2010). In contrast, the franchise-value hypothesis predicts a negative effect of efficiency on leverage. The rationale for that is that the economic rents coming from higher efficiency are safer from the threat of liquidation if the debt-to-equity ratio is lower (Demsetz, 1973; Berger & Bonaccorsi di Patti, 2006).

Decades after independence, the Nigerian financial system was repressed, as evidenced by ceilings on interest rates and credit expansion, selective credit policies, high reserve requirements, and restriction on entry into the banking industry (Ogujiuba & Obiechina, 2011). This situation subdued the functioning of the financial system and especially, constrained its ability to muster savings and facilitate productive investment (Sylvanus & Abayomi, 2001). However, in 1986 the Federal Government of Nigeria (FGN) embraced the Structural Adjustment Programme (SAP) with the aim of rectifying the prevailing macroeconomic and structural imbalances in the economy, to restructure and diversify the productive base, lessen the dominance of unproductive investment and to achieve fiscal and balance of payment viability. As anticipated, the capital market was a major aspect of the programme when it was introduced. The programme which includes liberalization of the capital market is one of its conditionalities led to various reforms especially between the late 1980s and early 1990s with the major reforms being the enthronement of market forces as the major price determinants in the market rather than the Securities and Exchange Commission

which is the apex regulatory body in the market, the full or partial privatization and commercialization of about 111 public owned enterprises which the NSE plays key role in the offer for sale of their shares (Anyanwu, 1993; Oyefusi &Mogbolu, 2003) and establishment of the Second-Tier Securities Market in 1986.

Abdul (2015) posited that in other to decide the debt-equity combination of financing, the capital market is important and plays a prominent role because companies that seek for long-term funding to finance their business activities will approach the capital market. The relationship between capital structure decisions and the Nigerian capital market lies on how often companies place offers on NSE and on the number of equities listed and traded on NSE. The Nigerian corporate sector is characterized by many firms operating in a largely diversified, competitive and deregulated environment. This is because of financial liberalization that was brought about by the introduction of SAP. SAP influenced many changes in the operating environment of firms and thus gives more flexibility to firms in determining their capital structure and made the basis for the determination to become more expanded and deepened both at the money and capital markets.

Studies on the effect of Capital structure on financial performance is not a new phenomenon to Nigeria corporate finance researcher, many researchers have tried to deal with the signs of their relationship, the causal effect while others have examined determinants and tested the existing theories (Abata & Migiro, 2016; Akintoye, 2008, 2009; Muritala, 2014; Oladeji, Ikpefan & Olokoyo, 2015; Onaolapo & Kajola, 2010). Regardless of the context, their findings have been different, mix and inconclusive. The existing literature attributed the cause to the differences in methodological approach, choice of variables employed in analysis, duration of the study and the choice of data applied. Another major defect is that virtually all these studies were carried out using a unidirectional approach that only capital structure choice influences the financial performance of a firm without any recourse to assessing the possibility of a reverse causal relationship between performance and capital structure (Yinusa, et al., 2016).

Nonetheless, the literature and empirical findings of the last decades have at least demonstrated that capital structure has more importance than in the simple Modigliani and Miller model and because of the inconsistency in the theories, methodologies and inconclusive results that has pervaded the field it is of utmost importance to provide additional empirical result that can help validate or disprove these theories and findings.

1.2 Statement of the Problem

The corporate financing decision incorporates the capital structure decision a firm makes on the choice of debt to equity mix use to finance its operation with the intention to maximize the shareholder's return (Babalola, 2016). In Nigeria, the role of capital structure in determining the value of the firm cannot be underestimated, however, the deteriorating corporate liquidity, declining bank credit, outrageous increases in interest rate has had an adverse effect on the capital structure of Nigerian firm listed on the NSE in recent past. Many firms have collapsed due to various reasons among which finance is most prominent while the emphases of the capital structure research have always been on its effect on financial performance and value of the firm thus establishing a unidirectional relationship approach.

There is an on-going debate in the capital structure literature about the effect of financial performance on the capital structure which is theoretically based on the reverse causality hypothesis (Berger & Bonaccorsi di Patti, 2002). Berger and Bonaccorsi di Patti (2006) and Margaritis and Psillaki (2010) both study the effect of leverage on firm efficiency while considering the reverse causality between efficiency and the firm capital structure. The two studies differ in the empirical approach. Berger and Bonaccorsi di Patti (2006) run a two-stage least squares regression, whereas Margaritis and Psillaki (2010), estimate the two parts of the circular relation separately by OLS and use lagged values of the endogenous regressors to achieve exogeneity. Both studies find a positive relationship between leverage and efficiency. This relationship was further evident in ASEAN countries (Rizal Adhari & Viverita, (2016), Pakistan (Fazle, Tahir, Ahmad & Mohammed, 2016).

In Nigeria, capital structure and the impact on performance have been investigated for many years, but researchers have found different results in different contexts (Chandrasekharan, 2012; Modugu, 2013; Oke & Obalade, 2015; Onaolapo, Kajola & Nwidobie, 2015). For instance, a recent study by Abata and Migiro (2016), found an insignificantly negative correlation between financial leverage and ROA on one hand and a significantly negative relationship between debt/equity mix and ROE on the other hand. However, this study failed to consider the possibility of a reverse causal relationship between capital structure and performance of Nigerian firms.

Therefore, all attempts of these previous studies are focused on a unidirectional relationship except the study carried out by Yinusa, et al. (2016), which seeks to establish a bidirectional relationship between capital structure and firm performance. As a departure from proxy efficiency as the performance measure, their study employed return on equity and found support for the franchise value hypothesis. Invariably the study failed to consider other financial performance variables to properly assess the reverse causality situation in Nigeria in the light of the two underline hypotheses the efficiency risk hypothesis and franchise value hypothesis thus, creating avenue for new research in different context for achieving a more complete understanding of the effect of financial performance and capital structure choice in Nigeria. Therefore, it is against this backdrop that this research work was conducted to address the research gap to know if there is a possibility of a reverse causality in financial performance and capital structure of the firms listed in NSE in the face of the two competing hypotheses.

1.3 General Objectives of the Study

The general objective of this study is to ascertain the effect of financial performance on capital structure of firms listed on the Nigeria Stock Exchange.

1.3.1 Specific Objectives

The specific objectives are:

1. To assess the effect of earnings per share on the capital structure of firms listed in Nigeria Stock Exchange.

2. To investigate the effect of market to book value of equity on the capital structure of firms listed in Nigeria Stock Exchange.

3. To examine the effect of return on Assets on the capital structure of firms listed in Nigeria Stock Exchange.

4. To examine the effect of return on capital employed on the capital structure of firms listed in Nigeria Stock Exchange

5. To ascertain the moderating effect of firm size on the relationship between financial performance and capital structure of firms listed in Nigeria Stock Exchange.

1.4 Research Hypotheses

To achieve the research objectives, the following hypotheses were tested.

$H_{01:}$ Earnings per Share has no significant effect on the Capital structure of firms in NSE

H_{02}. Market to Book value of equity has no significant effect on the Capital structure of firms in NSE

H_{03}. Return on Assets has no significant effect on the Capital structure of firms in NSE

H_{04}: Return on Capital Employed has no significant effect on the Capital structure of firms in NSE

H_{05}: Firm size has no significant moderating effect on the relationship between Financial performance and capital structure of firms in NSE

1.5 Significance of the Study

To the academic field: The concepts of the capital structure may not have been new, however, not much work has been carried out of the possibility of firm performance dictating the choice of capital to be employed by managers especially in the Nigerian context. The research will serve as an eye-opener to past, present and future researchers whose scope is only limited to the unidirectional relationship between capital structure and firm performance without any recourse to the possibility of a reverse causality. It will further help in enlarging the scope in modelling financing concepts beyond the common ordinary least squares (OLS) of Pooled OLS, the Fixed Effect Model (FEM) and the Random Effect Model (REM)

To Managers: The findings from this study will further help management of various organisations to be able to assess all possible options in their quest for an appropriate capital composition of their organisations in relation to the objective of wealth maximization. Precisely, it has further demonstrated the importance of generating steady and sustainable financial performance as key objective that firms managements should take serious in increasing the value of the firm thereby translating to the maximization of the shareholders wealth as a guide to achieving the best combination of different sources of finance.

To the Policy Makers: It could also benefit policy makers who are expected to provide an enabling financial and legal environment for the successful running of organizations in developing strategies to make the organisations survive more in the face of other competing problems with this the government will be able to attract more revenue through increase taxation due to increase in profit generation capacity of the non-financial firms on the Nigerian Stock Exchange which will increase the tax base of the government and further reduce over reliance on oil revenue in Nigeria.

1.6 Scope of the Study

With the advent of a stable democratic governance in Nigeria since 1999, the developments witnessed in the NSE cannot be underestimated. The depths of activities

have expanded while the number of issues has increased over time. For instant, the capitalization in the sector as at December 1987 was 8.2bn while it stood at 300bn in 1999. It then closes at 2112.5bn, 7030.8bn and 11.49tn in December 2004, 2009 and 2014 respectively (NSE Factsheet, 2015; CBN, 2016). Therefore, this analysis was focused on the non-financial firms listed on the Nigerian stock exchange for a period of sixteen (16) years from 1999-2015 out of the companies that have ever been listed on the Nigerian Stock Exchange.

1.7 Limitations of the Study

Being one of the least research areas in the field of corporate finance the study was plagued by a few challenges. Especially in the areas of related literature, there was the dearth of literature on the effect of firms' financial performance and its resultant effect on capital structure not only in Nigerian context but in most economies of the world. In addition, some industries were left out in the analysis because of the nature of their business source, and application of fund, some were excluded because of the incompleteness of the required data during the period of study while others who were not listed before 1999 were equally excused. Above all, conceptualizing this idea which was an attempt to deviate from the usual research paradigm of capital structure and firm performance posed some challenges which were overcome by extensive search of literature while the limitation experienced in modelling was faced by analyzing different techniques like the FEM and REM for which none was fitting due to the possibility of being bias since the years involved in the analysis was small. Eventually the researcher was able to identify the General Method of Moments (GMM) which was used in the analysis.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

Investors and potential investors will be obliged to invest their hard-earned savings in a company that promised to make a return that will change their wealth position at a point in time. However, as sound as this objective is, it will be illusive if the hard-earned resources are not combined for optimum utilization. The essence of capital structure decision is to ensure the right combination of financing resources that will yield maximum return without necessarily hampering the interest of stakeholders. This chapter takes a review of relevant and related literature to the study. The main issues discussed include the theoretical foundation of capital structure decision and firm performance, the conceptual framework adopted for this study and the empirical evidence as detected in literature.

2.2 Theoretical Review

The Modigliani and Miller (1958), in their known capital structure irrelevance theory, claims that in an efficient market which has no tax, no transaction cost, no information asymmetry, the value of a firm is unaffected by how that firm is financed. MM theory predicts that there is no relationship between a firm’s capital structure and its performance. The MM theory makes the core stone of the modern corporate finance.

After the original paper in 1958, Modigliani and Miller (1963) state that considering the effect of corporate tax and tax deduction, the firm's value will increase when the firm takes on more debt and this increasing amount will be the value of tax shield. This means that firms will benefit from taking more leverage. However, the Modigliani-Miller theorem will lose its explaining power when the market is not efficient. The inefficient market concept is closer to reality, which has taken taxes, information asymmetry, transaction costs, bankruptcy costs, agency conflicts and other "imperfect" elements into considerations. Since then, the following literature is premised on the

various extensions of the Modigliani-Miller theory. Usually, one of the "imperfect" elements mentioned above is chosen, and the researcher will test how the introduction of this imperfect elements will affect the MM theory which is based on an efficient market features. And then a lot of departures from irrelevance theory are found and the modern capital structure theory is developing in the meantime.

When considering the corporate income tax, there is a tax shield benefit, so according to Modigliani and Miller (1963), the firms should use as many debts as possible. But more debt than necessary in a firm's capital structure is found in reality and it is obvious that excessive debt will introduce risk to firms. Then the concept of bankruptcy cost is introduced as an offset effect to the benefit of using debt as the tax shield. Kraus and Litzenberger (1973) considered a balance between the benefit of tax shield and the risk added from bankruptcy cost, so there will be an optimal capital structure, any departure from the optimal capital structure cannot maximize the value of the firm. This is the trade-off theory.

Myers (1984) identifies the pecking order theory. Because of information asymmetry, managers will first use internal funds, then debt, then equity as their source of finance when making financing decisions. Jensen and Meckling (1976) identify agency cost. The agency cost theory suggests that because of the separation of control and ownership, the agency of a firm will not always work on the behalf of the shareholders. When the firm raises debts, there will also be conflicts between shareholders and bondholders. The conflicts between shareholders and managers, as well as the conflicts between shareholders and bondholders, will all raise the cost of the firms' operation, investing and financing activities.

2.2.1 Trade-off Theory

Kraus and Litzenberger (1973) propounded the trade-off theory which reflects a balance between the dead-weight costs of bankruptcy and the tax saving benefits of debt. This theory is often set up as a competitor theory to the pecking order theory of capital structure. The trade-off theory which clearly dominates the literature on capital

structure claims that a firm's optimal financing mix is determined by balancing the losses and gains of debt (Myers, 1977). This stream of literature predicts a unique capital structure for every firm where the marginal benefit equals the marginal cost of debt and changes in debt "should be dictated by the difference between current level and optimal debt level" (DeAngelo & Masulis, 1980).

Modigliani and Miller (1963) showed that the benefit of debt is primarily the tax-shield effect that arises due to the deductibility of interest payments. Basically, Myers (1977) combined this model with the bankruptcy cost framework of Kraus and Litzenberger (1973) and Scott (1976). Hence, in the classic, so-called static trade-off theory the costs of debt are mainly associated with direct and indirect costs of bankruptcy. These include legal and administrative costs and more subtle costs resulting from the loss of reputation among customers and the loss of trust among staff and suppliers' due to uncertainties (Bradley et al., 1984; Myers, 1984). However, the consensus view is that "bankruptcy costs alone are too small to offset the value of tax shields" (Ju et al., 2005) and additional factors must be included in a more general cost-benefit analysis of debt (Miller, 1977). For that reason, the agency costs framework of Jensen and Meckling (1976) that is known as a principal-agent problem is also considered in the trade-off model.

According to Jensen and Meckling (1976), agency costs arise due to the "separation of ownership and control" in situations in which agents make decisions affecting the welfare of the principals. The finance providers (principals) try to incentivise the managers (agents) to act in their best interest. The agency costs are the direct and indirect costs resulting from this attempt as well as the failure to make the agents act this way (Arnold, 2008). However, Frank and Goyal (2008) argue that the impact of the various agency conflicts on capital structure has not been completely clarified. Bradley et al. (1984) contend that these costs which could include "costs of renegotiating the firm's debt contracts and the opportunity costs of non-optimal production/investment decisions" become economically significant especially when the firm is having difficulties to meet the obligations to creditors. Therefore, the

broader term "costs of financial distress" is often used to refer to both bankruptcy and the various agency costs of debt (Myers, 2001).

This illustrates that the trade-off theory is based on the original theory of capital structure by Modigliani and Miller (1958) because the perfect market assumptions are loosened by including taxes, bankruptcy and agency costs (Ozkan, 2001). In contrast to the M&M framework, this stream of literature justifies moderate gearing levels. Furthermore, it plausibly substantiates the existence of an optimal or target capital structure that firms gradually try to achieve and maintain to be able to increase shareholder wealth (Brounen et al., 2005; Myers, 1984). According to this model, a value-maximizing firm facing a low probability of going bankrupt should use debt to full capacity. Thus, one key prediction of the trade-off model is the positive correlation between profitability and gearing. Hovakimian et al. (2004) argue that high profitability suggests that the firm can yield higher tax savings coupled with a lower possibility of bankruptcy.

Different variations of trade-off models can be found in the literature taking even more factors into account. For example, Auerbach (1985) created and tested an adjusted trade-off model and arrived at the conclusion that risky and fast-growing firms should borrow less. But none of these theoretical and empirical further developments has managed to fully replace the traditional version. So, most researchers still refer to the original assumptions described above when testing the trade-off theory.

While some researchers' findings try to expand the literature, others reproduce tests with minor adjustments on different samples. Hence, there have been more developed and specific models of firm behaviour with more complex predictions and implications to be found in the body of literature. However, this theory is of significant importance to this study because the efficiency risk hypothesis has been adjudged to be an off shot of the trade-off theory (Ayiku, 2015; Berger& Bonaccorsi di Patti, 2006; Fazle, et al, 2016).

2.2.2 Pecking Order Theory

The pecking order theory has become a widely-used model to analyse and explain firms' financing behaviour. In contrast to the trade-off theory, the pecking order theory challenges the existence of a well-defined optimal gearing ratio (Myers, 1984). Instead, firms seem to follow a hierarchical order of financing practices which can be traced back to Donaldson (1961) who was the first to observe that "management strongly favoured internal generation as a source of new funds". Based on this finding, Myers and Majluf (1984) developed the theory suggesting that firms will not seek external finance at capital markets until the reserve of retained earnings is exhausted. Then, "the debt market is called on first, and only as a last resort will companies raise equity finance" (Arnold, 2008).

In contrast to the trade-off theory, research in this aspect considers interest tax shields and the potential threat of bankruptcy to be only of secondary importance. In fact, gearing ratios are adjusted when there is a need for external funds which results from the imbalance between internal cash flow, net of dividends, and real investment opportunities (Shyam-Sunder & Myers, 1999). In other words, only firms whose investment needs exceeded internally generated funds would borrow more debt. Myers (2001) concludes that "each firm's debt ratio, therefore, reflects its cumulative requirement for external financing" and that profitable companies with limited growth opportunities would always use their cash surplus to reduce debt rather than repurchasing shares.

There is an agreement in the literature about the key implications of the pecking order theory: due to the preference for internal funds, it predicts lower debt levels than the trade-off theory (Shyam-Sunder & Myers, 1999). Furthermore, Myers and Majluf (1984) state that the theory justifies why firms tend to create financial slack to finance future projects. Several motivations for pecking order behaviour can be found in the literature. Initially, the principal-agent problems associated with the separation of ownership and control served as an explanation why firms try to avoid capital markets (Myers, 2001). Baumol (1965) argued that firms with no or relatively infrequent use

of stock can "proceed to make its decisions confident in its immunity from punishment from the impersonal mechanism of the stock exchange".

Other literature highlights the signalling effects of capital structure choices to outside investors (Ross, 1977). Some scholars go further by saying that debt issues can signal confidence to the capital market that the firm is, in fact, an excellent firm and that the management is not afraid to borrow money (Frydenberg, 2004). Myers and Majluf (1984), extended this approach by taking asymmetric information between managers and investors and its effects on investment and financing decisions into account. However, it is important to mention Akerlof's (1970) adverse selection argument that explains why prices of used cars drop significantly compared to new cars. The seller of a used car will usually have more information about the true performance of the car than the prospective buyer. The buyers require a discount to compensate for the possibility that they might purchase an "Akerlof lemon", i.e. a car that appears to be in good condition but has a major flaw that is not visible from the outside.

Analogically, Myers and Majluf (1984) claim that managers have access to inside information and are able to make better statements regarding the true value, the riskiness and future prospects of the firm than less informed outside investors who are unable to accurately value the securities issued. Hence, it is likely that the market misprices a firm's shares since investors are unable to accurately value the securities issued (Harris & Raviv, 1991; Myers & Majluf, 1984; Myers, 2001). Therefore, equity investors demand an increased level of return for the informational disadvantage which represents an additional risk. That means that for firms who are unable to convince rational investors of their true quality and future performance, equity finance has an "adverse selection premium" making it more expensive (Akerlof, 1970; Myers & Majluf, 1984).

Stewart (1990) who contends that any equity issue raises doubts because "investors suspect that management is attempting to shore up the firm's financial resources for rough times ahead by selling over-valued shares". This is in line with the adverse selection problem that states that firms will only issue new equity when the stock is

overpriced. Allotting overpriced shares would transfer value from new investors to existing shareholders (Myers, 2001). This argument drives down share prices which can lead to an underinvestment problem so severe that potentially profitable projects have to be rejected (Myers & Majluf, 1984). This demonstrates how the signalling effects and the consequences of the informational disadvantage taken together influence equity investors to require a "risk premium". It makes equity finance more expensive and therefore less attractive for companies as a financing instrument.

Harris and Raviv (1991) argue that within the original pecking order framework, capital structure decisions are designed to avoid inefficiencies that are caused by the information asymmetry, particularly the mispricing of shares. The logical conclusion is that from a firm's point of view, internal finance is most preferred because sending a signal is avoided. Furthermore, debt dominates equity because it leads to less severe value impacts and minimizes chances of any misinterpretation (Neus & Walter, 2008). In other words, if external financing is inevitable, firms would rather issue securities that are less affected by asymmetric information, such as riskless debt. However, this explanation has been criticized because it does not take into account the mentioned principal-agent conflict. In the signalling model, managers are assumed to act in the shareholder's best interest and to not take advantage of their superior information to serve their own interests (Neus & Walter, 2008). Whereas the pecking order model by Myers & Majluf (1984) recommends that managers should have high discretionary power over free cash flows, Jensen and Meckling (1976) advise the opposite.

The idea that managers tend to hold cash excessively to avoid the scrutiny of external investors is part of behavioural finance theory, in which agents behave irrationally (Elsas & Florysiak, 2008). To reduce the related agency costs, shareholders have an interest to reduce the managers' access to internal funds, thereby inducing them to raise external finance (Grossman & Hart, 1982; Jensen, 1986). This argument is based on the model's assumption that the efficiency of the capital markets would inevitably lead to the best allocation of funds to profitable projects (Neus & Walter, 2008). Furthermore, Grossman and Hart (1982) and Jensen (1986) imply that debt is a more

effective mean to discipline managers and to reduce agency costs than equity because the implicit obligation to pay interests is more binding than a pledge to pay dividends.

The literature suggests additional factors but Myers (1984) contends that they are not significant enough to serve as single explanations. According to Myers (1984) firms tend to take the "path of least resistance" when internal funds are available because the process of obtaining external financing is more complex and time-consuming. Communicating with outside investors and convincing them to invest with the help of prospectus and advertisement is expensive. If external financing is inevitable, debt is next in the pecking order because "the degree of questioning and publicity associated with a bank loan or bond issue is usually significantly less than that associated with a share issue" (Arnold, 2008). Hence, funds with low transaction costs, such as administrative costs, are preferred.

In summary, the theory predicts that more profitable firms that generate high cash flows are expected to use less debt capital than those who generate lower cash flows. The pecking order theory argues that businesses adhere to a hierarchy of financing sources and prefer internal financing when available. However, when external financing is required, firms prefer debt over equity. Equity entails the issuance of additional shares of a company, which generally brings a higher level of external ownership into the company. Hence, the form of debt that a firm chooses can act as a signal for its need of external finance.

Thus, firms that are profitable and therefore generate high cash flows are expected to use less debt compared to those who do not generate high cash flows. This theory, therefore, suggests that firms prefer debt to equity. (Muritala, 2012). All the previously mentioned mechanisms suggest that the pecking order theory claims a negative relationship between capital structure and firm performance since more profitable firms opt to use internal financing over debt. This theory is of relevance because it shows the preference of the internal sources of funding which is in relation to the aim of the franchise value hypothesis that needs to be related to Nigeria situation.

2.2.3 Theories of Reverse Causality

It has been argued in capital structure and firm performance literature that there exists a bi-directional causal relationship between leverage and firm performance (Demsetz & Villalonga, 2001; Harvey, Lins & Roper, 2004; Rajan & Zingales, 1995). On one hand, the amount of leverage employed by a firm determines how well it would perform. On the other hand, the performance of the firm can determine the proportion of leverage that the firm would employ in financing its operations. In simple terminology, the degree of a firm's efficiency may place it in a better position to replace equity with debt. This leads to the efficiency-risk and franchise value hypotheses of the reverse causation of performance from capital structure introduced by Berger and Bonaccorsi di Patti (2002).

According to these two hypotheses, firm performance can affect its capital structure in two ways, and the two effects are opposite to each other. Berger and Bonaccorsi di Patti (2002) does not actually solve the reverse causality problem, however, they propounded the reverse causality hypothesis to demonstrate how firm performance can affect the firm capital structure. The reverse causality hypothesis was explained through two competing hypotheses, the efficiency risk hypothesis and franchise value hypothesis.

The efficiency-risk hypothesis postulates that more efficient firms choose lower equity ratios than other firms, all else equal because higher efficiency reduces the expected costs of bankruptcy and financial distress (Berger & Bonaccorsi di Patti 2006; Fazle et al 2016). The efficiency-risk hypothesis claims that higher profitability often reduces the bankruptcy cost of a firm. Because when a firm is performing well, the firm will usually have a high expected return. A high expected return can be seen as a substitute for equity because they can both be used for deduction of potential portfolio risk of the firm. So according to the positive relationship between performance and expected return, and the substitute relationship between expected return and equity, a firm with better performance will tend to use less equity in its capital structure. This

hypothesis suggests a positive relationship between a firm's leverage and its performance.

However, the franchise-value hypothesis is an inverse of the efficiency risk in that it focuses on the income effect of the economic rents generated by profit efficiency on the choice of leverage. Under this hypothesis, more efficient firms choose higher equity capital ratios as postulated, to protect the economic rents or franchise value associated with high efficiency from the possibility of liquidation (Yinusa et al, 2016). Higher profit efficiency may create economic rents if the efficiency is expected to continue in the future, and shareholders may choose to hold extra equity capital to protect these rents, which would be lost in the event of liquidation, even if the liquidation involves no overt bankruptcy or distress costs. According to Berger and Bonaccorsi di Patti (2006), the franchise-value hypothesis is a joint hypothesis that profit efficiency is a source of rents, and that firm holds additional equity capital to prevent the loss of these rents in the event of liquidation. These two hypotheses discussed to serve as the theoretical basis to test the reverse causality from performance to capital structure in this study.

2.3 Conceptual Framework

The conceptual framework is developed to provide clear links between dependent and independent variables as they relate to each other in this research. As earlier said, the aim of this research is to test for reverse causality between firm financial performance and capital structure, in view of this and clarity of concept the relationship between the independent and the dependent variables is depicted in figure 2.1:

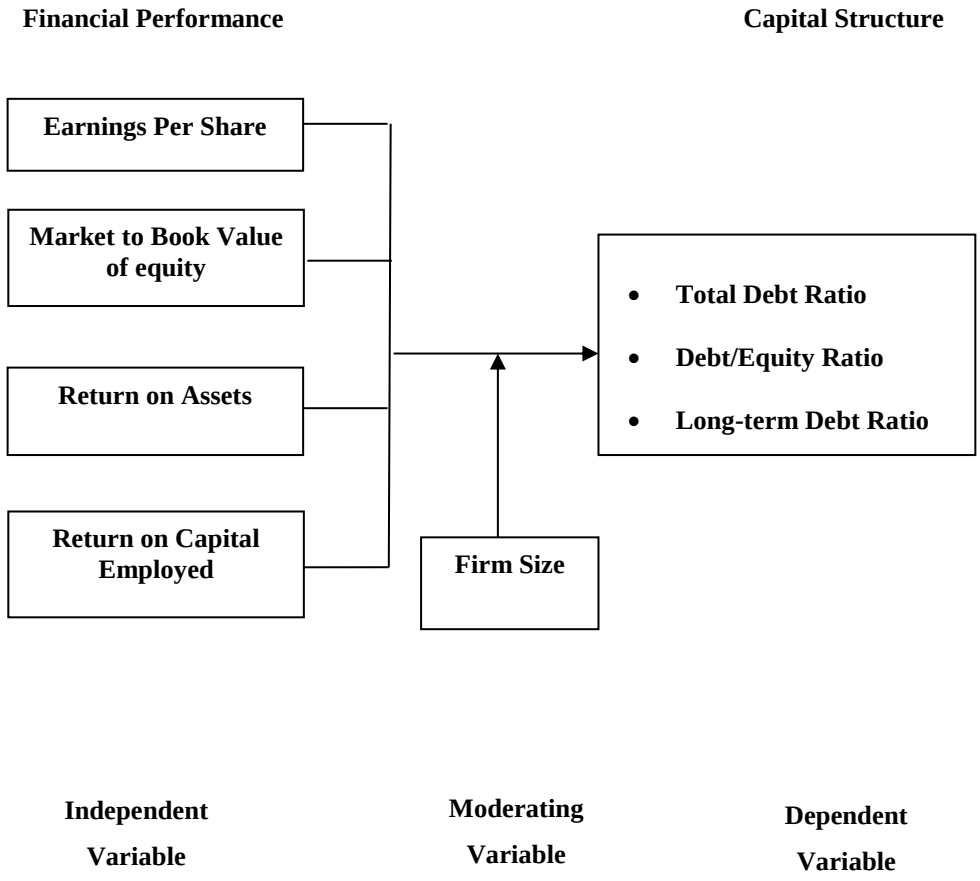

Figure 2.1: Conceptual framework

2.4 Empirical Review

In line with the general objective of the study financial performance is the independent while the capital structure is the dependent variables. This is for the purpose of establishing a bi-directional relationship between capital structure and financial performance as recently observed by (Berger & Bonaccorsi di Patti, 2006; Margariti & Psillak 2007, Otieno & Ngwenya, 2015; Yinusa et al 2016), a departure from the norm of uni-directional relationship that has pervaded the capital structure and financial performance literature for more than five decades. Their findings have always been based on the signs of the relationship without any recourse to empirically testing for the possibility of a reverse causal relationship between them (Abata & Migoro, 2016; Adesina, Nwidobe & Adesina, 2015; Karus & Litzenberger, 1973; Jensen & Meckling, 1986; Meyers & Najluf, 1984).

2.4.1 Earnings per Share and Capital Structure

Milad et al. (2013) describes earnings per share (EPS), as one of the most important financial statistics that is noteworthy for investors and financial analysts is which shows earnings that the company has achieved in a fiscal period for an ordinary share and often is used to evaluate the profitability and risk associated with earning and judgments about stock prices. EPS can be defined as the ratio of net income to number of equities in a firm (Goya, 2013; Mujahid & Akhtar, 2014; Savathaasan & Rathika, 2013) and has been consistently applied as a proxy of performance in various studies, for instant, Mujahid and Akhtar (2014) used the overall textile sector EPS along other ratios as accounting measures to evaluate the impact of capital structure on the financial performance of firms and shareholders' wealth in Pakistan. They conducted regression analysis on a sample of 155 textile firms for the years 2006 to 2011. Their results show that capital structure positively impacts firm financial performance and shareholder wealth.

Mahfuzah and Yadav (2012) investigated the relationship between capital structure and firm performance. They used panel data procedure for a sample of 237

Malaysian listed companies on the Bursa Malaysia Stock exchange during 1995-2011. Four performance measures (including return on equity, return on asset, Tobin's Q and earning per share) were used as dependent variable. The five capital structure measures (including long-term debt, short-term debt, total debt ratios and growth) were used as independent variables while the size was included as a control variable. The results indicated that a firm's performance has a negative relationship with short-term debt (STD), long-term debt (LTD), total debt (TD). Moreover, they found positive relationships between the growth and performance for all the studied sectors. Tobin's Q reports demonstrated a significantly positive relationship between short-term debt (STD) and long-term debt (LTD). It was also concluded that total debt (TD) has a significant negative relationship with the performance of the firm.

Abdulkadir and Sayilir (2015) while examining the relationship between capital structure and firm performance in Borsa Istanbul investigated 130 manufacturing listed firms for the period between 2008-2013. Using panel data analysis, short-term debt to total asset (STDTA) and long-term debt to total asset (LTDTA) are proxies of financial leverage (independent variables) while Return on equity (ROE), return on asset (ROA), earnings per share (EPS) and Tobin's Q ratio were used as proxies of firm performance (dependent variables). Sales growth rate and firm size were used as control variables in the study. Their findings reveal that STDA has a significant negative relationship with ROA, EPS and Tobin's Q ratio. Besides, they find that LTDTA has a significant negative relationship with ROE, EPS and Tobin's Q ratio, while it is positively and significantly correlated with ROA

Sivathaasan and Rathika (2013) studied the impact of capital structure on earnings per share (EPS) in selected financial institutions listed on Colombo Stock Exchange in Sri Lanka during 2006 to 2010. The study employs the distinctive methodologies of correlation and regression model to test the operational hypotheses. The results revealed that Equity and debt ratio have a negative association with EPS, whereas leverage ratio has a positive association according to correlation analysis (r = -.244, -

.326 and .389 respectively). In addition, capital structure ratios have an impact which is approximately (R^2) 22.6 % on EPS at 0.05 significant levels.

Another effort by Kalpana (2014) to study the impact of leverage on profitability i.e. Earnings per share of selected steel companies traded in BSE shows that that there is a negative correlation between degree of operating leverage and Earning per share, degree of financial leverage and Earning per share, and degree of combined leverage and Earning per share. It is concluded that the use of debt and fixed cost expenses would reduce the profitability of the firms

Anafo, Amponteng and Yin (2015) in determining the impact of capital structure or leverage on profitability employed data collected from 17 listed banks on Ghana stock exchange from 2007 to 2013 using descriptive statistics and multiple regression models. Their result revealed that financial leverage measured by short-term debt to total assets (STDTA) had a significant positive relationship with profitability measured by return on assets (ROA), return on equity (ROE) and earnings per share (EPS). Long-Term Debt to Total Asset (LTDTA) also had a significant positive relationship with ROA and ROE but however, had a negative and insignificant relationship with EPS. Asset growth rate had a negative and insignificant relationship with profitability measured by ROA, ROE and EPS. Firm size also showed a positive and significant relation with all the profitability measures such as ROA, ROE and EPS.

2.4.2 Market to Book Value and Capital Structure

According to Marangu and Jagongo (2014), market to book value ratio is a valuation ratio that is used by investment advisors, fund managers and investors to compare a company’s market value (market capitalization) to its book value (shareholders' equity). The market to book value ratio is expressed as a multiple (how many times a company's share is trading per share compared to the company's book value per share) is an indication of how much shareholders are paying for the net assets of a company.

The market-to-book ratio is used as a proxy for investment opportunities. Firms with high market-to-book ratios tend to grow quickly. This variable often appears in

underinvestment as emphasized by Myers (1977) and Stulz (1990): highly leveraged firms tend to pass up promising projects. Thus, firms with high market-to-book ratios tend to lower leverage. The market timing hypothesis also indicates a negative sign because firms with high market-to-book ratios have an incentive to take advantage of high/low equity prices to issue/repurchase equities. On the other hand, the default probability theory by Merton (1974) implies a positive sign since a higher market-to-book ratio shows a higher expected growth rate of firm value.

The market-to-book ratio has been one of the major sources from which the costly external financing theory draws inspiration to interpret capital structure decisions. According to this theory, firms with higher market-to-book ratios are more likely to issue equity because a higher market-to-book ratio signals a lower cost of external equity financing (Bayless & Chaplinsky, 1996; Choe, Masulis, & Nanda, 1993; Korajczyk & Levy, 2003; Myers & Mujluf, 1984). This view of market-to-book ratio has been the main basis for a formal argument of the market timing hypothesis (Baker & Wurgler (2002). Welch (2004) shows that the driving force of leverage ratios is the market valuation of equity. Firms do not put countermeasures into effect to offset changes in these leverage ratios that stem from variations in market valuations. In fact, when resorting to external financing, firms with more favourable equity market valuations are more likely to issue equity, thus further deviating away from their original leverage ratios. This evidence is consistent with the notion that firms care more about external financing costs than their target leverage ratios.

That negative relation between the market-to-book ratio and leverage ratio is one of the most widely documented empirical regularities in the capital structure literature. Smith and Watts (1992), Barclay, Smith, and Watts (1995), Rajan and Zingales (1996), Jung, Kim, and Stulz (1996), Lang, Ofek, and Stulz (1996), Hovakimian, Opler, and Titman (2001), Baker and Wurgler (2002), Hovakimian (2004), Hovakimian, Hovakimian, and Tehranian (2004), Kayhan and Titman (2004) and Chen and Zhao (2005). Erickson and Whited (1992), however, argue that the market-to-book ratio is a poor measure of growth opportunities.

For instance, in a study carried out by Chen and Zhao (2004) trying to understand the roles of the market-to-book ratio and profitability in corporate financing decisions in which they focused on scenarios where two theories (costly external financing theory and trade-off theory) have drastically different or even opposite predictions about these variables. In each case, they find strong evidence in support of the costly external financing theory but inconsistent with the trade-off theory. They conclude that firms with higher market-to-book ratios are more likely to issue equity not because they intend to downwardly adjust their target leverage ratios, but because they face lower external financing costs. Similarly, firms with higher profitability are more likely to issue debt, not because they intend to move toward their target leverage ratios, but because they face lower debt financing costs.

According to Barclay, Smith, and Watts (1995) stock prices should reflect intangible assets such as growth opportunities, but corporate balance sheets do not reflect them. It is logical that the larger a company's growth options relative to its assets in place the higher on average will be its market value in relation to its book value. They accordingly used a company's market-to-book equity ratio as their proxy for its investment opportunity set. They opined that companies with high market-to-book ratios had significantly lower leverage than companies with low market-to-book ratios. They also discovered that drugs and medical industries have the highest market-to-book ratio and lowest leverage ratios. Conversely, railroad equipment and lumber industries have the lowest market-to-book ratios and the highest leverage ratios.

Hovakimian, Opler, and Titman (2001) suggested that stock prices play a significant role in determining a firm's leverage. The probability of equity issue for firms with huge stock price increases is more and firms with stock price decline retire debt. This observation is consistent with the idea that stock price increases are generally associated with improved growth opportunities, which would lower a firm's optimal debt ratio. Bhaduri (2002) presented evidence suggests that the optimal capital structure can be influenced by growth. Antoniou, Guney and Paudyal (2002) investigated the determinants of leverage ratio for companies located in France, Germany and England. The results suggest that the leverage ratio is inversely related

to market-to-book equity ratio. Kayhan and Titman (2003) found that financial deficits (the amount of capital raised externally) do not have an effect on changes in debt ratios for firms with a high market to book ratios. Hovakimian, Hovakimian, and Tehranian (2004) found result consistent with the hypothesis that high market-to-book firms have good growth opportunities and, therefore, have low target debt ratio.

On the contrary with most of the literature, Chen and Zhao (2006) argued that most related studies take this negative relation as given and debate about its economic interpretation. They believe firms with higher market-to-book ratios face lower debt financing costs and borrow more and emphasise that the relationship between the market-to-book ratio and leverage ratio is not monotonic but positive for most firms and that the previously documented negative relation is driven by a subset of firms with high market-to-book ratios. Antoniou, et al. (2008) found that the leverage declines with an increase in growth opportunities. According to Frank and Goyal (2009), market-to-book equity ratio has a negative relationship with the market leverage of firm but this result is not reliable for book leverage. Bayrakdaroglu, Ege, and Yazici (2013) despite their expectations discovered that the Turkish companies with high growth opportunities may have high debt ratios.

2.4.3 Return on Assets (ROA) and Capital Structure

ROA measures the overall effectiveness of management in generating profits with its available assets. The higher the firm's ROA the better. The profitability measure by ROA is the most comprehensive measure of the performance management by employing three variables: total revenues, total cost and the assets, if the company has a good ROA it will generate a satisfactory ROE (Walsh, 2006). Moreover, determining the numerator of its equation is considered the subject of disagreement among scholars. The simplest way to determine ROA is to take net income reported for a period and divide that by total assets according to Gitman and Zutter (2012), Ehrhardt and Brigham (2011), and Ross et al. (2011). In contrast, some analysts take EBIT and divide over total assets such as Lindow (2013), Glantz (2003), Ross et al. (2003) as a gross ROA and Friedlob and Schleifer (2003) while this study applied the earlier stand.

There is extant literature on capital structure and ROA but their conclusions are mixed. While some researchers concluded its positive (Aburub, 2012; Anderson, 2005; Mujahid, 2014), some authors (Ebaid, 2009; Fosberg & Ghosh, 2006; Huang & Song 2006; Khan, 2016; Mramor & Crnigoj, 2009) have revealed a negative relationship. For an instant, Nirajini and Priya (2013), in a study, on the Capital structure and financial performance during 2006 to 2010 carried out on listed trading companies in Sri Lanka employing data extracted from the annual reports of sample companies which were analysed using correlation and multiple regression analysis. Their results revealed a positive relationship between capital structure and financial performance. And also, conclude that capital structure has significant impact on financial performance of the firm as proxy by debt asset ratio, debt-equity ratio and long-term debt correlated with gross profit margin(GPM), net profit margin(NPM), Return on Capital Employed(ROCE), Return on Asset (ROA) and Return on Equity (ROE) at significant level of 0.05 and 0.1.

In a study carried out on the effect of capital structure on firm performance, Assad (2016) while exploring the effect of capital structure on firm profitability, he empirically investigated a sample of 30 firms selected from FTSE-100 index of the London Stock Exchange between years 2005 to 2014. The study applied multiple regression analysis methods to explore the impact of capital structure on firm performance. The results revealed that Interest Coverage has a positive significant impact on ROA, ROE and ROIC where DE has a positive significant impact on ROE but a negative significant impact on ROA and ROIC. In the same vein, Lawal, Edwin, Kiyanjui and Adisa (2014), examines the effect of capital structure on firm's performance (ROA and ROE) in Nigeria manufacturing companies from 2003 to 2012. The descriptive and regression research techniques were employed in their analyses for 10 manufacturing companies and their finding revealed that capital structure is negatively related to firm's performance.

2.4.4 Return on Capital Employed (ROCE) and Capital Structure

A study by Priya and Nirajini (2013) to examine the effect of capital structure on the performance of listed companies in Sri Lanka from 2006 to 2011 showed that capital structure had a significant effect on the financial performance of the firms. Using regression analysis at 5% and 1% significance levels, the study revealed that long-term debt, debt/equity ratio was strongly associated with the profitability measures. The profitability measures were gross profit margin, return on assets, return on equity and return on capital employed.

In addition, (Singh, 2013) analysed how far capital structure affects the profitability of corporate firms in India. The study tried to establish the hypothesized relationship as to how far the capital structure affects the business revenue of firms and what the interrelationship is between capital structure and Profitability. This study is carried out after categorizing the selected firms into three categories based on two attributes, viz. business revenue and asset size. The study proved that there has been a strong one-to-one relationship between Capital Structure variables and Profitability variables, Return on Assets (ROA) and Return on Capital Employed (ROCE). The Capital Structure found to have a significant influence on Profitability, an increase in the use of debt fund in Capital Structure tend to minimize the net profit of the Manufacturing firms listed in Bombay Stock Exchange in India.

Efobi, and Uremadu (2009)**.** Determining the capital structure of a company is a very critical factor to consider while projecting corporate performance in any business environment. This decision becomes even more difficult in a country like Nigeria, where the business and economic environment is highly unstable. This leaves the firms in a dilemma about what capital structure to adopt in financing their operations: Furthermore, the choice made by the company on what capital structure to adopt in financing their operations has a serious impact on the performance of the firm. This study used regression analysis to determine the effect of capital structure on corporate profitability for 10 selected manufacturing firms for the period studied 2002-2005. We found out that the ratio of long-term debt to total asset (debt financing) and the ratio

of equity to total liability of the firm (equity financing) had negative impact on the return on capital employed (ROE), while the ratio of short-term debt to total liability had insignificant effect on return on capital employed (ROE). Based on these findings, they made some recommendations, which advised that the firm management should ensure that they manage the composition of their capital structure well, most especially as it relates to long-term debts and equities as well as to the corporate reserves of the firm.

Based on another study carried out to investigate the impact of capital structure on profitability of 10 listed Sri-Lankan banks over the 8-year period from 2002 to 2009. Niresh (2012) employed debt/equity and debt to total funds ratios as a measure of the capital structure while net profit, return on capital employed, return on equity and net interest margin are proxied as performance measurements. The data gathered from the handbook of listed companies and the annual reports of respective banks were analyzed using regression model. In his findings, total debt was found to be significant in determining net profit and return on capital employed in the banking industry of Sri Lanka.

Mohamed and InunJariya (2015) studied the "Effect of Capital structure on profitability of Food and Beverage sectors in Sri Lanka" by taking 14 companies of the Beverage, Food & Tobacco industry and 24 companies from the Manufacturing industry. They conducted the study to find out the relationship between capital structure and profitability of the listed Beverage, Food and Tobacco industry in Sri Lanka and to recognize the extent of the impact of capital Structure on the profitability of the listed Beverage, Food and Tobacco industry in Sri Lanka. The study revealed that leverage, measured in terms of total debt to asset (TDA) has a negative impact on profitability measured by return on equity (ROE) and return on capital employed (ROCE) and is significant at 0.05 significance level whereas leverage, measured by total debt to equity (TDE) shows a negative relationship but not significant. TDA is also found to have a negative impact on profitability measured by ROCE after controlling for LNS at 0.01 significant levels. It is clear that both the measures of leverage (TDA & TDE) have a negative impact on both the measures of profitability

(ROE & ROCE). The value is less than 0.01 for all the cases. Therefore, it could be concluded that at 1% significance level, leverage/debt capital has a negative impact on the profitability of beverage, food and tobacco sector firms listed on Sri Lanka.

Kumar (2015) studied "Capital Structure and its Impact on Profitability" with the intention to identifying the relationship between capital structure and profitability of SME, finding an optimal capital structure that would be associated with the best performance, finding an optimal capital structure that would be associated with the best performance and finding out the impact of capital structure on profitability. From a data set collected from some secondary sources considered from 2008 to 2013 and it is concluded that the debt/equity composition varies substantially among the SME and there is a significant relationship between Debt to total funds and ROE. There is no relation or there is insignificance between debt to total funds and ROCE.

In finding out the determinants of capital structure and its impact on financial performance, Swain and Das (2017) by means of data generated from listed companies on the Indian stock exchange for a time period of 10 years analysed a total of 50 sampled manufacturing companies using regression model. Capital structure was measured by debt-equity ratio, total debt to total asset, current ratio and long-term debt to total asset ratio while the financial performance was proxied by return on capital employed, return on assets, earnings per shares and return on equity. From their findings, a statistically significant positive relationship was concluded between all the independent and the dependent variables.

2.4.5 Firm Size

A moderation effect is a causal model that postulates ‘‘when’’ or ‘‘for whom’’ an independent variable most strongly (or weakly) causes a dependent variable (Frazier et al., 2004; Kraemer et al., 2002). A moderator modifies the strength or direction (i.e., positive or negative) of a causal relationship. Conceivably the moderation effect is more commonly known as the statistical term ‘‘interaction’’ effect where the strength or direction of an independent variable effect on the dependent variable depends on

the level or the value of the other independent variable. Therefore, the term ‘‘moderation effect’’ has continuously been reserved for models that intend to make causal hypotheses. Specifically, a moderation effect is a special case of an interaction effect, a causal interaction effect, which requires a causal theory and design behind the data. In other words, a moderation effect is certainly an interaction effect, but an interaction effect is not necessarily a moderation effect (Wu & Zumbo, 2008). The study adopted firm size to control for differences in total assets among the studied firms. This decision is informed by prior empirical literature that showed that the firm size has the potential to influence capital structure (Yinusa et al., 2016; Berger & Bonaccorsi di Patti, 2006; Margaritis & Psillaki, 2007).

Nzeoha (2008), opined that the size of a firm plays a significant role in determining the form of relationship the firm enjoys within and outside its operating environment. The larger a firm is, the better the influence it has on its stakeholders. Another thing is the growing influences of conglomerates and multinational corporations in today's global and local economies where they operate portend an indication of what role size plays within the corporate environment. Buttressing the position of size in corporate discourse, Kumar Rajan and Zingales (2001) argue that a fascinating aspect of economic growth is that much of it takes place through the growth in the size of existing organizations.

Size plays an important role in capital structure (Abor & Biekpe, 2006; Abor & Biekpe, 2009; Amidu, 2007; Booth, Aivazian, Demirguc¸-Kunt & Maksimovic, 2001). Its importance as moderating variable has become such a routine to employ in empirical corporate finance studies. There are several theoretical reasons why firm size is related to capital structure, these include, economies of scale in lowering information asymmetry, scale in transaction costs and market access (Krasauskaite, 2011). For an instant, in the presence of non- trivially fixed costs of raising external funds large firms have cheaper access to outside financing per each amount borrowed (Leary & Roberts, 2004). Large firms are more likely to diversify their financing sources. Alternatively, size may be a proxy for the probability of default, for it is sometimes contended that larger firms are more difficult to fail and liquidate, or, once the firm finds itself in

distress, for recovery rate (Duffie, Saita & Wang, 2005; Shumway, 2001). Size may also proxy for the volatility of firm assets, for small firms are more likely to be growing firms in rapidly developing and thus fundamentally unpredictable industries. Another explanation is the extent of the distortion in the degree of information asymmetry between insiders and the capital markets which may be lower for larger firms because they face more examination by ever-suspicious investors (Fama & French, 2002).

In the alternative, smaller firms are more informationally opaque than larger firms and, consequently, the costs to resolve information asymmetry with lenders are higher for small firms than for large enterprises. Financing decisions might also be affected by the transaction costs associated with a specific type of financing. As Titman and Wessels (1988) point out, transaction costs are a function of scale. Hence, relatively high transaction costs may effectively make some financing options unavailable for smaller firms. Hussain and Matlay (2007) assert that small firms strive for external sources of finance only if the internal sources are exhaust. Small firms try to meet financial needs with a pecking order of personal and retained earnings, debt and issuance of new equity. These theoretical reasons suggest that smaller firms should have lower debt levels. The size of a company is assumed to have a positive relationship with leverage. The reason is first and foremost that bigger firms tend to have less volatile cash flows and that they take on more debt to maximize the benefits from a tax shield. Another aspect that stems from the pecking order theory is that bigger firms have greater prospects to attract more analysts to provide information about the company. In turn, this decreases the information asymmetry with the market, which makes it possible for the firm to get access to equity financing without ruin firm value.

A substantial number of authors have suggested a positive relationship between firm size and leverage (Fama & French, 2002; Karadeniz, Kandir & Iskenderoglu, 2011; Gill & Mathur, 2011; Olakunle & Jones, 2014), while other researchers have reported a negative relationship in various contexts (Srivastava, 2014; Yadiv, 2014; Onofrei, Tudose, Anton & Durdureanu, 2015). For instance, Baloch, Ihsan, Kakakhel & Sethi (2015) while investigating the impact of firm size, asset tangibility and retained

earnings on the financial leverage in the auto sector of Pakistan. The data employed were gotten form 22 firms financial statement analysis document issued by the State Bank of Pakistan (SBP). The multiple regression model was used to determine the relationship between the underlying variables. The results indicated that firm size and asset tangibility significantly affect the financial leverage.

Olakunle and Jones (2014), seeks to examine the impact of size on the capital structure choice of listed Nigeria firms in influencing their corporate financing strategy and performance analysis. The research study analysed data gotten from the NSE on 47 listed firms over the period 1997 – 2007 using the OLS regression analysis of natural log of sales (size of the firm), against leverage (total debt to total asset and short-term debt to the total asset). Results show that size of the firm has a positive influence on the leverage ratio of listed Nigeria firms. In like manner, Wahome, Memba and Muturi (2015), conducted a study to determine the influence of firm-specific factors on the capital structure of Kenyan insurance firms between a period of 2003 and 2012 using panel data methodology and two independent variables size and firm risk. The panel regression results indicated that size had a significant influence on capital structure.

Yadav (2014) in studying the determinants of the capital structure and financial leverage of selected Indian companies applied the correlations and multiple regression analysis and found among other measures a negative correlation between firm size and financial leverage as measured through debt to equity ratio, while Srivastava (2014) study was carried out on Indian cement sector with the aid of a linear regression model in estimating the effect of five variables which includes size on leverage and risk of companies but found a negative correlation between firm size and financial leverage whereas asset tangibility was noted to have positive effect on financial leverage. Based on the empirical literature it is obvious that the studies on the effects of firm size on capital structure have generated varied results ranging from those supporting a positive relationship among the variables used in the study to those opposing it.

2.5 Critique of Existing Literature Relevant to the Study

Although many theories and factors had been identified in the literature to explaining and establishing the relationship between capital structure and financial performance these studies concentrated on the nature of their signs of the relationship. The decision is because most of the empirical studies are concentrated on a unidirectional relationship thereby ignoring the possibility of reverse causality between financial performance and capital structure (Berger & Bonaccorsi di Patti, 2006)

The inconsistency of methodological approaches and method of data collection is of great concern. For instance, Rizal Adhari and Viverita (2015) and Fazle et al., (2016), collected their data using the Data Envelopment Analysis (DEA) while their analysis was based on a two-stage estimation method, OLS, and quantile regression respectively. Berger and Bonaccorssi di Patti (2002; 2006) used both simultaneous equation model and a two-stage structural equation method to account for reverse causality. While the OLS may be biased if the number of years involved in the analysis is small the dynamism expected to be clear in the equations as postulated by the reverse causality hypothesis was deficient. The GMM as involved in this analysis clearly demonstrated the dynamism in financial performance

Most of the studies reviewed on the possibility of a reverse causality have handled the issue based on the perspective of developed countries especially in United States of America, France and New Zealand (Berger & Bonaccorsi di Patti, 2006; Margaritis & Psillaki, 2007, 2010). Few studies have looked at the African context and emerging markets (Fazle et al., 2016; Otieno & Ngwenya, 2015; Rizal Adhari & Viverita, 2016; Yeh, 2011; Yinusa et al., 2016). However, the Nigerian context remains very scanty which informed a further inquest.

2.6 Research Gap

Many scholars in the world have studied the influence of capital structure on firm financial performance in various contexts with different methodologies and inconsistent findings as reviewed in the literature. However, the few scholars who have

focused in this area in Nigeria situation have approached it solely on unidirectional basis and are mostly interested in the signs of their relationship without any recourse to look at a reverse of the normal approach (Akintoye, 2009; Akinyomi, 2013; Babatunde, 2016; Kajola, 2010; Lawal, et al., 2014; Muritala, 2012; Nyor & Yunusa, 2016; Ubesie, 2016). However, the attempt made by Yinusa et al. (2016) could deal partially with the issue by proxying the return on equity as the only measure of financial performance out of numerous measures which may further strengthened our understanding of the reverse causality relationship between firm financial performance and capital structure choice of non-financial firms in the Nigeria stock exchange. This is the gap this study was carried out to fill.

2.7 Chapter Summary

The chapter has presented the literature review on the various theories and their link to the present one. Different works of literature have been reviewed based on the relationship between capital structure and firm financial performance and vice versa while a conceptual framework for better clarity of purpose was developed from the literature review as well as a critique and study gap explained.

CHAPTER THREE

RESEARCH METHODOLOGY

3.1 Introduction

Research methodology is concerned with what you will do to address the specific objectives and hypotheses/research questions you have developed (Newing, 2011). This involves deciding the research design structure, choosing the specific methods, developing a sampling strategy and describing what analyses that were carried out. This chapter presents the methodology employed in the study. This includes the research design, population of the study, sources of data and instruments of data collection and treatment. It also contains the specified empirical models estimated by the study and provides the techniques of estimating and analyzing the model.

3.2 Research Philosophy

Saunders, Lewis and Thornhill (2009) defines research philosophy as the development of knowledge adopted by the researchers in their research. It is a set of assumptions about what is important to study and be known (ontology and epistemology), what research designs and tools are suitable as well as standards that should be employed to judge the quality of the study (Mkansi & Acheampong, 2012). As such, mixed methods pattern provides basis for the methodology of this study. That is, the study drawn from combined assumptions of positivistic and naturalistic viewpoints of research philosophy. According to Crossan (2003), positivism adopts a clear quantitative approach to investigate events while naturalistic approach explains and explores in-depth phenomena from a qualitative perspective. The preference of this combined approaches is anchored on its key feature of methodological pluralism, which frequently results in superior research, with maxim refers to as sensible effect-oriented (or outcome oriented) rule through thinking, practical experiences or experiments (Johnson & Onwuegbuzie, 2004).

3.3 Research Design

Research design as posited by Trochim (2006), "provides the glue that holds the research project together. It is used to structure the research, to show how all of the major parts of the research project work together to try to address the central research questions." According to Kothari (2014), research design describes the blueprint for collecting, measuring and analyzing the data needed for a study. The causal design approach to research was adopted in this study because it is quantitative in nature as well as pre-planned and structured in design. The suitability of adopting this design is that it explains the cause and effect relationship between variables and help to understand which variable is the cause and which variable is the effect, the nature of the relationship between the causal variables and the effect to be predicted.

This method is further considered appropriate for achieving the research objectives of the study because the data and the study depend grossly on secondary data collected from the annual report and account of firms listed in NSE and investigate the causal relationship between the relevant variables of the study. This approach is useful for this kind of study because it also makes it possible to deduce since the inferences from the test of statistical hypotheses lead to general inferences about the features of the population (Harwell, 2011)

3.4 Population

The population of this study comprises of the entire 186 companies listed (Appendix A) in the NSE as at December 2015 (NSE fact sheet, 2016). According to Neuman (2000), a population can be described as a number of things such as individuals or groups, the researcher wants to investigate. Whereas, Saunders, Lewis and Thornhill (2009) refer to it as an entire group that allows data to be sourced and investigated while Mugenda (2010), sees it as an entire group of individuals, events or objects having common characteristics that conform to a given specification.

3.5 Sampling Frame

Basically, a sampling frame is a complete list of all the members of the population that we wish to study. According to Kruger and Mitchell (2008), a sampling frame is a list of the source material or device from which a sample is drawn. It is a list of all those within a population who can be sampled and may include individuals, households or institutions. Kothari (2014) defines a sampling frame as a list of all the items where a representative sample is drawn for a study. The sampling frame for this study include all the companies listed in NSE as at 31st December 2015 (NSE, fact sheet, 2016).

Table 3.1: Sectoral classification of listed companies in the NSE

Sectors	**Frequency**
Agriculture	5
Conglomerates	6
Construction/Real Estate	9
Consumer goods	27
Financial services	56
Healthcare	11
ICT	9
Industrial Goods	21
Natural resources	5
Oil and Gas	14
Services	23
Total	**186**

Source: Nigerian Stock Exchange (NSE), 2015

3.6 Sample and Sampling Technique

A complete enumeration of items in the population is known as a census inquiry (Kothari, 2014). It can be presumed that in such an inquiry, when all items are covered, no element of chance is left and highest accuracy is obtained but in practice, this may

not be true (Kothari, 2014). According to Neuman (2000), a sample is defined as a set of individuals selected from a population with the aim of representing the population in a research study. Sampling refers to the systematic selection of a limited number of elements out of a theoretically specified population of elements. The sample selection for this study was based on nature of business and data availability. The 87-sampled size was attained from the entire population of 186 listed companies as at 2015 by excluding the listed 56 financial services companies' due to the nature of their assets and liabilities and uses of the fund while other 43 companies with incomplete data set for the years under investigation were equally excused. The outcome of the samples included in the analysis is presented in Table 3.2:

Table 3.2: Sectoral classification of sampled non-financial companies in the NSE

Sectors	**Frequency**
Agriculture	5
Conglomerates	6
Construction/Real Estate	9
Consumer goods	27
Healthcare	11
ICT	9
Industrial Goods	21
Natural resources	5
Oil and Gas	14
Services	23
The actual Working population of the study	**130**
Excluded: Companies without complete data point from 1999 - 2015	43
Actual sample firms for the study	**87**

Source: Author’s compilation 2017

3.7 Instruments of Data Collection

There are basically two sources of data collection; namely, primary and secondary sources of data collection (Olaogun, 2010). For this study, the secondary method of data collection was utilized. According to Kothari (2014), secondary data defined as data that is already available or which have already been collected and analyzed by someone else while Polit and Beck (2003) sees it as the use of data gathered in a previous study to test new hypotheses or explore new relationships. The data, specifically market and accounting data required in this study were obtained from the financial statements of listed companies and Nigerian Stock Exchange Market. This include, published Annual Financial Reports of companies quoted on the Nigerian Stock Exchange, Central Bank of Nigeria Statistical Bulletin, Nigerian Stock Exchange Fact-books, and the Nigerian Stock Market Bulletins.

3.8 Data Collection Procedure

In the words of Burns and Grove (2003), data collection is the precise, systematic gathering of information relevant to the research sub-problems. To achieving the set objectives of this study, only secondary data from the Nigerian stock exchange and the audited financial statements of companies listed on NSE was used. The procedure involves visiting the websites of the individual company selected to download their audited financial statements from which the required figures were extracted and processed for further analysis. The information obtained from the audited financial statement of the quoted companies were compared with the documentation of the security and exchange commission, (Nigeria stock exchange fact books) to ensure accuracy in data collection. Therefore, the study only involved the use of secondary data from sampled quoted company's financial statements covering the period January 1999 to December 2015 (16 years period) in other to fully enrich its fitness in the regression.

3.9 Data Processing and Analysis

Data analysis is the processing of data collected to make meaningful information out of them because as raw data may convey little or no meaning to most people (Saunder, et al., 2009). This study basically employed secondary data which was collected from the sampled companies listed on the Nigerian Stock Exchange market between 1999 and 2015. In this research endeavour, the data collected were analyzed using both descriptive and inferential statistics. The Generalized method of moments (GMM) was used to estimate the specified model. The data so gathered was subjected to hypothesis testing based on models identified in this section and the variables defined in Table 3.3.

To avoid violating the assumptions of the OLS test of the possibility of multicollinearity was addressed using the Variance Inflation Factor (VIF) on the variance of the estimators. This was expressed as $VIF = 1/(1-R^2)$. The decision rule was that a VIF 1 means the absence of correlation among predictors, while a VIF of 4 and above indicate a need for further probe, however, a VIF of 10 and above implies serious multicollinearity presence in the predictors (Gujarati, 2013).

Stern (2011) opined that correlation does not imply causation. Without additional information, regression analysis can only be used to estimate the partial correlations between variables. Brooks (2008) assert that it is likely that, when a variable autoregressive includes many lags of variables, it will be difficult to see which sets of variables have significant effects on each dependent variable and which do not. To address this issue, tests are usually conducted that restrict all the lags of a variable to zero. In this study to ascertain the causal relationship between financial performance and capital structure, the Granger causality test was employed. Moreover, it is worth to note that Granger-causality means only a correlation between the current value of one variable and the past values of others; it does not mean that movements of one variable cause movements of another (Studenmund, 2017).

3.9.1 Measurement of Study Variables

The main objective of this study is to investigate effect of financial performance on capital structure. This in addition to evaluate the potentiality of the reverse causality hypothesis. Therefore, the study adopts financial performance as the independent variable and capital structure (Leverage) as the dependent variable while firm size was adopted as the moderating variables. These variables are discussed below:

Independent Variable

The independent variable for this study is financial performance. Financial Performance refers to the degree to which financial objectives being or has been accomplished in a firm which indicates a process of measuring the results of a firm's policies and operations in monetary terms. It is used to measure firm's overall financial health over a given period of time and can also be used to compare similar firms across the same industry, compare industries or sectors in aggregation. Due to the nature of this research as indicated in the research gap the proxies of financial performance measures used in this study include, firstly, Earning per Shares (EPS). This is the portion of a company's profit that is allocated to each outstanding share of common stock, serving as an indicator of the company's profitability. It is often considered to be one of the most important variables in determining a stock's value and can be defined as the ratio of net income to number of equities in a firm (Goya, 2013; Savathaasan & Rathika, 2013). It shows earnings that the company has achieved in a fiscal period for an ordinary share and often is used to evaluate the profitability and risk associated with earning and also judgments about stock prices.

Secondly, the Market value to the Book value ratio (MBV): This is also the market assessment of the firm from investor's perspective relative to a share's book value. The market-to-book ratio has been one of the major sources from which the costly external financing theory draws inspiration to interpret capital structure decisions. According to this theory, firms with higher market-to-book ratios are more likely to issue equity because a higher market-to-book ratio signals a lower cost of external equity financing

(Myers & Mujluf, 1984; Korajczyk & Levy, 2003). The choice of this variable is appropriate since the major objective of this study is to determine the effect of financial performance on capital structure choice of firms listed in NSE.

Thirdly, the Return on Assets (ROA): ROA, as an accounting-based measurement that gauges the operating and financial performance of the firm (Klapper & Love, 2002). The measurement is such that the higher the ROA, the more effective is the use of assets to the advantage of shareholders (Haniffa & Huduib, 2006). Higher ROA also reflects the company's effective use of its assets in serving the economic interests of its shareholders (Ibrahim & AbdulSamad, 2011). This variable is of importance because profitability measure by ROA is the most comprehensive measure of the performance management because three variables: (1) total revenues, (2) total cost and (3) the assets are used. If the company has a good ROA it will generate a satisfactory ROE (Walsh, 2006).

Fourthly, Return on Capital Employed (ROCE): ROCE is an important shareholder value metric in that it compares a firm's earnings from its primary operations with the capital invested in the company. It can help investors see through growth forecasts and can serve as a reliable measure of corporate performance (McClure, 2017). ROCE provides a means of measure to determine how well a company invests funds in its basic business operation (Eilon, 1992). The choice of this metric was informed by its potent use as a performance measure in the profit-seeking sector (Rutherford, 2002) and can be employed in making intra and inter-organisational comparisons (Drury, 2000; Skinner, 1990).

Finally, the study employed firm size as the moderating variable for the study. The choice of this moderating variable was informed by its relevance and significance as a firm-specific factor that may affect the performance of firms as employed by previous financial performance and capital structure studies (Yeh, 2010; Margaritis & Psillaki, 2010; Yinusa et al., 2016). In empirical research, different measures have been adopted to operationalize firm size. Measures such as natural logarithm of total assets, natural logarithm of total sales, as well as natural logarithm of total employees have been

extensively employed with success to depict the size of the firm in empirical research (Kodongo, Mokoaleli-Mokoteli & Maina, 2014; Mwangi, Muathe, & Kosimbei, 2014). For this study, firm size was measured by taking the natural logarithm of total assets.

Dependent Variable

Capital structure signifies the extent to which a firm employs both debt and equity in financing its activities. Total equity comprises of the sum of paid-up share capital, share-premium, reserves, minority interest and retained earnings (Fabozzi & Drake, 2009). On the other hand, total debt variable represents the combination of current and non-current liabilities. This is measured as leverage and segregated into three parts namely: total debt to total assets, total debt to total equity and long-term debts to total assets. The inclusion and segregation into these three dimensions was informed by the inconclusive and mixed report by researchers in different context while studying the relationship between financial performance and capital structure (Otieno & Ngwenya, 2015).

The debt-to-assets ratio is the most basic solvency ratio, measuring the percentage of a company's total assets that is financed by debt. Secondly, the debt-to-equity ratio measures the amount of debt capital a firm uses compared to the amount of equity capital it uses. And lastly, the long-term debt to total assets ratio is a measurement representing the percentage of a corporation's assets financed with loans or other financial obligations lasting more than one year. The ratio provides a general measure of the long-term financial position of a company, including its ability to meet financial requirements for outstanding loans.

However, the choice proxy for the dependent and independent variables are summarized in Table 3.3with their measurements.

Table 3.3: Variables and Measurement

Variables	Selected Indicators	Proxy	Measurement
Independent			
Financial Performance	Earnings Per Share	EPS	Net Profit/Total Shareholders' Equity
	Market to Book Value of equity	MBV	Market Value/Book Value of Equity
	Return on Assets	ROA	Net Income/ Total Assets
	Return on Capital Employed	ROCE	EBIT/ Capital Employed
Moderating			
Firm size	Total Assets	Z	Natural log of total assets
Dependent			
Capital structure	Total debt ratio (TDR)	CS	Total debt to total asset
	Debt to Equity ratio (DER)	CS	Total Debt/ Total Equity
	Long-term debt ratio (LTDR)	CS	Long-term debt/ Total asset

Sources: and Ngwenya, 2015; Goya, 2013; Ibrahim and AbdulSamad, 2011; McClure, 2017; Yinusa, et al, 2016; Fabozzi and Drake 2009; Baker & Wurgler 2002

3.8.2 Model Specification

Many studies on capital structure and firms' performance in the literature have been inspired by the seminar work of Modigliani and Miller (1958, 1963). Most tests carried out in this instance employed the OLS model as presented below:

$$Y = \alpha + \beta X + \mu \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad 3.1$$

Where, Y is the dependent variable, X = independent variable, α = constant, β = coefficient of the explanatory variables and μ = stochastic variable. However, Berger and Bonaccorsi di Patti (2006), examined reverse causality from performance to capital structure by estimating the leverage equation as derived from equation 3.1:

$$Leverage = f(Efficiency) \quad \ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots\ldots \quad 3.2$$

Equation 3.2 represents a static leverage equation form of the reverse from performance to the capital structure where *Leverage* is used to capture capital structure while *efficiency* was used to capture performance. However, based on the theoretical postulation of the reverse causality hypothesis, this study employs the lagged values of performance indicators as suggested by the theoretical position of the reverse causality hypothesis. From a technical point of view, endogeneity appears when two variables exhibit a bi-directional relationship between them. In this context, OLS methods yield biased and inconsistent estimators, because endogeneity affects the orthogonality of the variables to the residual errors (Federico, 2016). The basic problem of using OLS is that the lagged dependent variable is correlated with the error term as the dependent variable is a function of the error term and it immediately follows that lagged dependent variable is also a function of the error term. The fixed effect (FEM) and random effect (REM) estimators are also biased and inconsistent unless the number of time periods is large (Baltagi, 2002).

One method to solve this problem is to introduce dynamic panel data models, i.e. models in which lagged values of the dependent variable are included as explanatory. In this context, Arellano and Bond (1991) proposed a GMM estimator for panel data which may deal with potentially endogenous regressors in dynamic panel data models. As Bond (2002) opined, *'…even when coefficients on lagged dependent variables are not of direct interest, allowing for dynamics in the underlying process may be crucial for recovering consistent estimates of other parameters…'*

This study exploits the GMM technique of Arellano and Bond (1991), which suggests to first difference the model and to use lags of the dependent and explanatory variables as instruments for the lagged dependent variable as a regressor. First differencing the dynamic model, in general, the GMM estimator could be viewed as a simultaneous estimation of a system of equations, one for each year, using different instruments in each equation and restricting the parameters to be equal across equations. First-differencing the equations removes the individual effects thus eliminating a potential

source of omitted variables bias estimation and secured against the problems of series non-stationary. The standard approach is to estimate the GMM model in first differences, using previous lags of the dependent variables as instruments (Caselli, Esquivel & Lefort, 1996; Dollar & Kraay, 2003).

The general empirical capital structure used in this study was defined as follows:

Capital Structure = f (Financial Performance) …………………………………........ 3.3

This Equation was transformed to a GMM dynamic model as shown in equation 3.4

$$CS_{it} = \alpha CS_{it-1} + \beta_i X_{it-1} + \mathcal{E}_{it} \qquad 3.4$$

Where:

CS = Capital structure (TDR, DER, LTD)

X = Financial Performance (EPS, MBV, ROA, ROCE)

α = Constant

β = Parameter estimates of the explanatory variables while

Ɛ = Error term.

i = *1 2 3 …………. n firms*

t = *time 1999 - 2015*

In addition, lagged values of the dependent variables are introduced in each Equation to account for possible omitted variables, to weaken any autocorrelation in the residuals and to improve the efficiency of the estimators in the presence of endogenous variables.

However, the study considered the combined effect of the moderating effect of firm size on financial performance indicators on capital structure choice using equation 3.5.

This was because it enables the comparison of the magnitude of the probabilities (Twisk, 2013). The multivariate model thus estimated for this study was formulated as leverage equation format in equation 3.9.

$CS_{it} = \alpha\, CS_{it-1} + \beta_i XZ_{it-1} + \varepsilon_{it}$……………………………………………………………….... 3.5

Where:

Z = Firm Size

Other variables are as defined in 3.4

3.9.2.1 Specification tests for the Panel Model

To test the validity of the GMM estimates, two tests were performed. First, since lagged values are used as instruments, unbiased estimation requires the absence of second-order serial correlation in the error term (Arellano & Bond, 1991). To test this requirement, the Arellano-Bond AR (2) test was carried out. A *p*-value of greater than 0.05 implies the absence of second-order autocorrelation. In that case, the systems GMM can be applied without any adjustments to the instrument set. A p-value of less than 0.05 indicates the presence of a moving average error term of order one or higher.

Secondly, determining the validity of the instrument employed for the justification of its relevance and appropriateness for the study the Hansen *J*-test was performed. This is because it is more robust and appropriate in a dynamic model estimated with GMM (Yinusa, 2015). The probability value of Hansen is expected not to be less than 0.1. Hansen value less than 0.1 signals problem with the validity of instruments employed in the models.

CHAPTER FOUR

RESULTS AND DISCUSSION

4.1 Introduction

The general objective of this study was to ascertain the effect of Financial Performance on Capital Structure of non-financial firms on the Nigerian Stock Exchange. In pursuant of this objective the following specific objectives were set: to assess the effect of Earnings per share on capital structure, investigate the effect of Market to book value of equity on capital structure, examine the effect of Return on Assets on capital structure, determine the effect of return on capital employed on capital structure and ascertain the moderating effect of firm size on the relationship between financial performance and capital structure. This chapter which contains the empirical analysis of the study include a detailed analysis of the descriptive statistics of the data, the pane model specification test, the general method of moment estimation results and test of the hypotheses earlier formulated.

4.2 Descriptive Analysis

This section contains the descriptive statistics of all the variables included in the analysis. According to Kothari (2014), descriptive statistics is concerned with the development of some important statistical measures or indices that are used to summarize research data such as measures of central tendency or statistical averages, measures of dispersion, measures of asymmetry (skewness), measures of relationship and other measures from the raw data. Table 4.1 presents the summaries of the descriptive statistics of all the variables employed in this thesis. This include earnings per share, market to book value of equity, return on assets and return on capital employed which proxy financial performance as the independent variables. On the other hand, capital structure which is the dependent variable was measured by total debt to total assets, debt to equity ratio and long-term debt to total assets.

Table 4.1: Panel Variables Summary Statistics

	TDR	DER	LTD	EPS	MBV	ROA	ROCE	SIZE
Mean	0.669355	2.198943	0.139163	144.9111	0.664038	0.039756	0.450078	7.004626
Median	0.611155	1.309547	0.104317	96.00000	0.599515	0.054072	0.124851	7.168436
Maximum	2.078701	39.08302	0.648392	1492.920	2.078701	0.377707	22.18582	8.976039
Minimum	0.307331	-19.87599	0.000000	-1549.000	0.307331	-0.437973	0.001955	5.301768
Std. Dev.	0.284898	7.102842	0.115345	327.9135	0.285470	0.111933	1.981567	0.815404
Skewness	1.539068	2.265552	2.113403	0.250580	1.577455	-1.540891	9.477934	-0.105087
Kurtosis	6.785174	13.86954	7.510472	9.851181	6.874881	7.748075	100.0444	2.556725
Jarque-Bera	1466.827	8546.022	2354.706	2908.074	1538.663	1974.564	602504.0	14.83102
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000602

Number of companies included: 87

As shown on Table 4.1, in all 8 variables were utilized in this study namely leverage (Total debt, Debt to Equity and long-term leverage ratios), which represents the dependent variable. The independent variables are earnings per shares, market to book value of equity, return on assets and return on capital employed while size was employed as the moderating variable. From Table 4.1, the mean total leverage represented by TDR was 0.669 which indicate that debt constitutes approximately 66.9% of the capital structure of the sampled firms. The maximum of total debt level stood at 2.1 and the minimum is 0.31while the standard deviation is recorded at 0.285. Meanwhile, the averages for debt to equity ratio and long-term ratio stood at 2.198 and 0.139 respectively. The range of the debt to equity utilisation is from 39.08 to -19.87 while long term leverage is from 0.65 to 0.00 their dispersions around their means are 2.26 and 0.11 as represented by the standard deviations.

The mean of earnings per share of the sampled firms is 144.9 with 1492.92 being maximum and -1549 as the minimum. The variability as depicted by the standard deviation stood at 327.9. this is a disturbing level of risk associated with earnings of

shareholders of the sampled firms on the stock exchange between 1999 and 2015. Looking at the figures of the market to book value of equity, it will be noted that the average is 66.4%. The maximum of the market to book value of the selected sample is 207% with a corresponding minimum of 30.7%. The standard deviation is 28%. The descriptive statistics further suggest that mean return on asset of all the sampled firms is 0.039. The maximum of return on assets is 0.38 and the minimum is -0.44. The variability in giving by standard deviation is 0.11. On the other hand, the statistics in Table 4.11 shows that the mean of the return on capital employed is 0.45 while the range was recorded between 22.181 to 0.0092 and the standard deviation stood at 1.98. The average size (log of total assets) which is included as the moderating variable is 7.0 The range of the size as measured by maximum and minimum values from the table is 8.97 and 5.07 respectively. The level of variability stood at 0.82.

Table 4.2: Mean Summary of the Variables from 1999-2015

Year	TDR	DER	LTD	EPS	MBV	ROA	ROCE	SIZE
1999	0.647759	1.685553	0.082599	75.69994	0.676287	0.003638	0.143112	6.527075
2000	0.639337	0.549655	0.083486	127.7449	0.667953	0.031774	0.199736	6.55432
2001	0.652278	2.719235	0.116006	149.6594	0.658128	0.0378	0.274241	6.619074
2002	0.711851	2.000456	0.13036	76.4923	0.653521	0.020378	2.903412	6.710669
2003	0.751605	2.646773	0.122858	106.7259	0.6649	0.042535	0.332493	6.755535
2004	0.747863	1.92533	0.134305	105.7989	0.665957	0.040462	0.228635	6.790566
2005	0.781107	1.343198	0.113156	89.58805	0.649705	-0.01923	0.232795	6.878729
2006	0.778305	1.114499	0.171651	27.26989	0.644542	-0.00956	0.762567	6.968052
2007	0.725994	1.188209	0.173363	127.2315	0.658092	0.048478	0.216867	7.040366
2008	0.636479	1.772542	0.124019	199.9383	0.668695	0.063402	0.537575	7.102931
2009	0.56975	1.847732	0.194782	338.5429	0.672018	0.096431	0.224225	7.145452
2010	0.532075	4.005564	0.153689	348.11	0.664181	0.099328	0.171977	7.201446
2011	0.564085	3.892441	0.170981	242.4392	0.661167	0.067904	0.14168	7.268511
2012	0.616542	3.956324	0.159729	146.5113	0.66288	0.037195	0.925809	7.320474
2013	0.628941	3.607446	0.112924	222.4416	0.662093	0.06964	0.143677	7.361306
2014	0.675726	1.87965	0.157776	25.87195	0.676127	0.023257	0.14059	7.400004
2015	0.719334	1.247432	0.164091	53.42241	0.682399	0.02242	0.071941	7.434128
	0.669355	2.198943	0.139163	144.9111	0.664038	0.039756	0.450078	7.004626

Number of companies:87

Table 4.2 summarises the means per year of the dependent and independent variables for the periods under investigation. This was carried out in other to explicitly bring out the trends in mean movement of the individual variables between 1999 and 2015. These trends were further expressed using graphs for meaningful explanations and proper understanding.

4.2.1 Trend Analysis of the Mean Distributions of Variables

4.2.1.1 Mean Distribution of Total Debt Ratio

The debt-to-assets ratio is the most basic solvency ratio, measuring the percentage of a company's total assets that are financed by debt (Solomon, Amponteng & Luu Yin 2015).

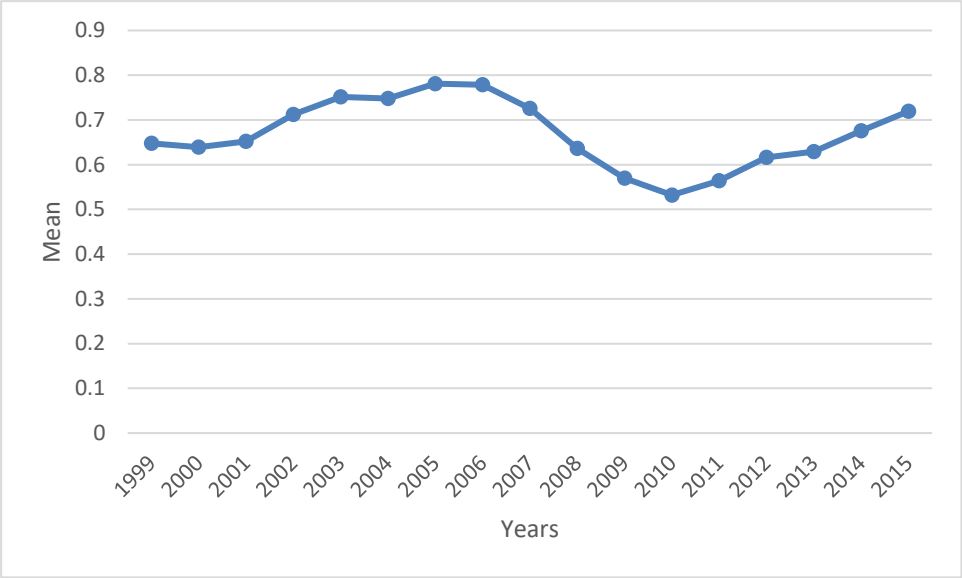

Figure 4.1: Mean distribution of Total Debt to Total Asset Ratio (TDR)

The trend of the mean distribution of ratio of total debt to total assets as depicted by figure 4.1 indicate that the firms' employment of debt ranges between 53% in 2010 which recorded the lowest to as high as 78% in 2005 which is not too good for the firms under consideration as a ratio 0.4 and below are considered better debt ratio (Modugu, 2013; Mireku, Mensah & Ogoe, 2014).

4.2.1.2 Mean Distribution of Debt to Equity Ratio

The debt-to-equity ratio (D/E) is a financial ratio indicating the relative proportion of shareholders' equity and debt used to finance a company's assets. In general, a high debt to equity ratio indicates that a company may not be able to generate enough cash to satisfy its debt obligation (Onaolapo, Kajola & Nwidobie, 2015).

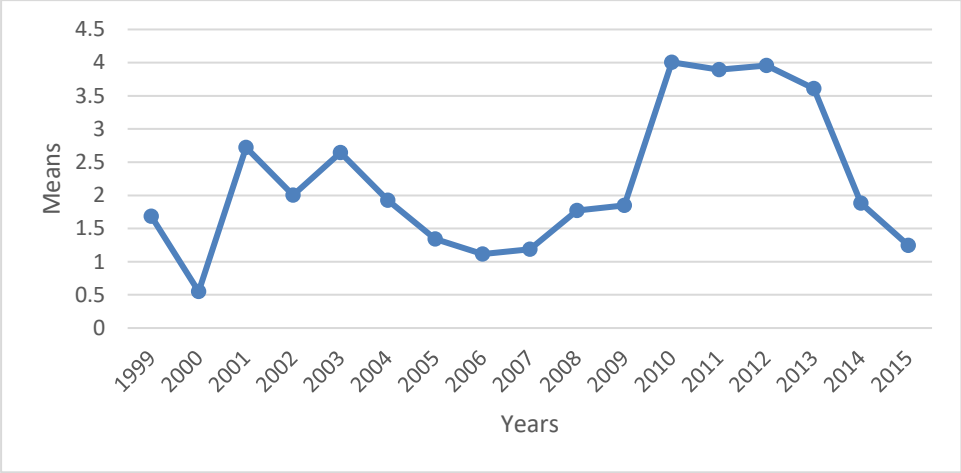

Figure 4.2: Mean distribution of Total Debt to Total Equity Ratio (DER)

From figure 4.2, the mean distribution from 1999 to 2015 indicate different high levels of financial leverage above the owner's contribution except at 2000 which is slightly above. The implication of this is that the non-financial firms in Nigeria under this period are very sensitive to financing their activities in relation to shareholders equity probably depending on the profit they are making to employ more debt than equity as debt is adjudged to be a cheaper source.

4.2.1.3 Mean Distribution of Long-term Debt Ratio

The long-term debt to total assets ratio is a measurement representing the percentage of a corporation's assets financed with loans or other financial obligations lasting more than one year. The ratio provides a general measure of the long-term financial position of a company, including its ability to meet financial requirements for outstanding loans (Rahul, 2016).

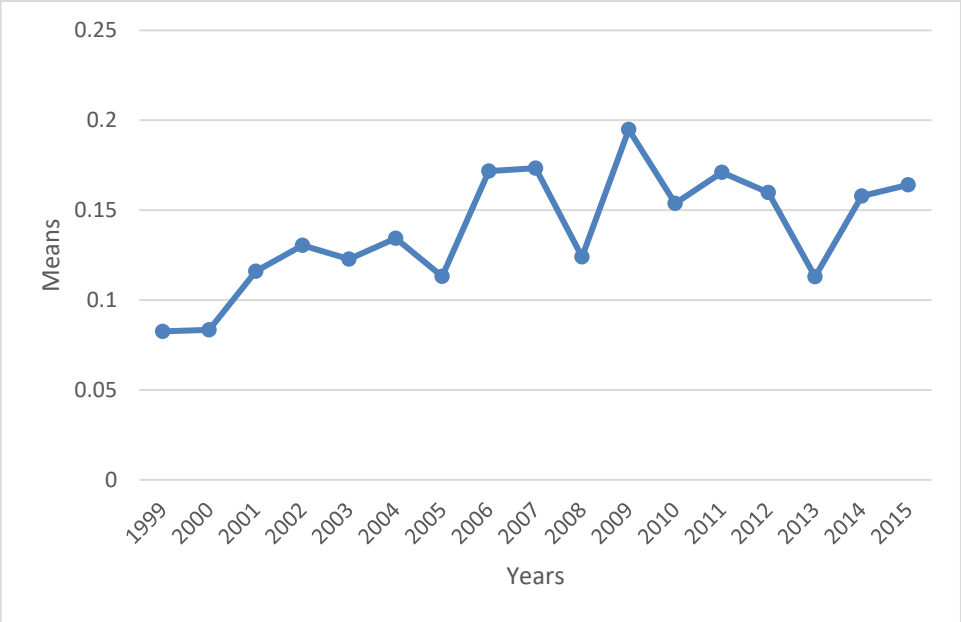

Figure 4.3: Mean distribution of Long-term Debt to Total Asset (LTD)

The trend of the mean distribution of the long-term debt to total assets ratio shows fluctuations in its applicability as applied in the capital structure of the non-financial firms on the NSE. It shows an unstable movement up and down throughout the period under observation as represented in figure 4.3.

4.2.1.4 Mean Distribution of Earnings Per Share

According to Milad et al. (2013) earnings per share (EPS), is one of the most important financial statistics that is noteworthy for investors and financial analysts which shows earnings that the company has achieved in a fiscal period for an ordinary share and

often is used to evaluate the profitability and risk associated with earning and judgments about stock prices.

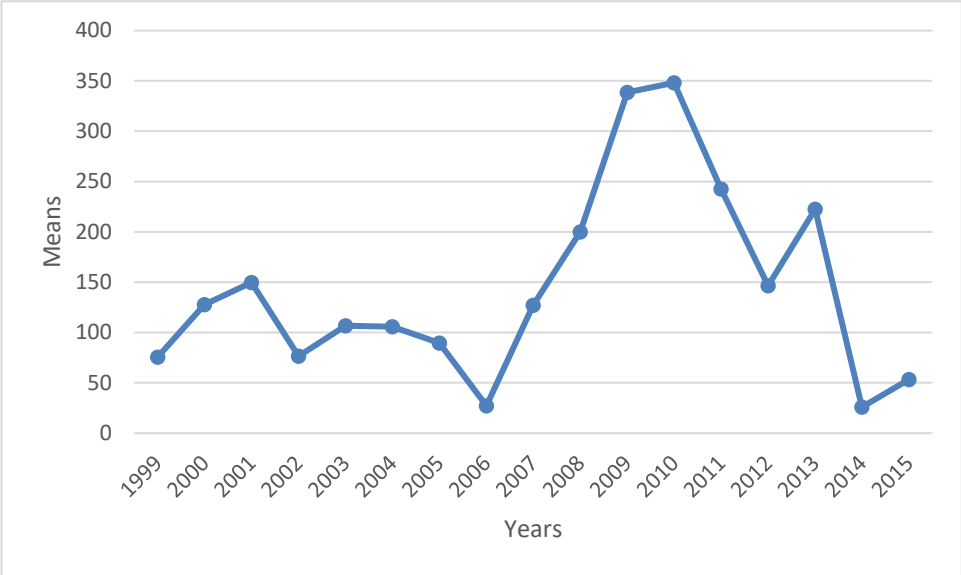

Figure 4.4: Mean distribution of Earnings Per Shares (EPS)

The mean distribution of earnings per share during the period under study shows a very wide disparity in its movement from year to year. From figure 4.4, the lowest EPS recorder were in 2014 and 2006 while the highest was recorded in 2009 and 2010. The success may not be farfetched from the policy initiated by the government and the peaceful transfer of power in Nigeria during this period.

4.2.1.5 Mean Distribution of Market to Book Value

It has been argued in the literature that firms with higher market-to-book ratios are more likely to issue equity because a higher market-to-book ratio signals a lower cost of external equity financing (Myers & Mujluf, 1984).

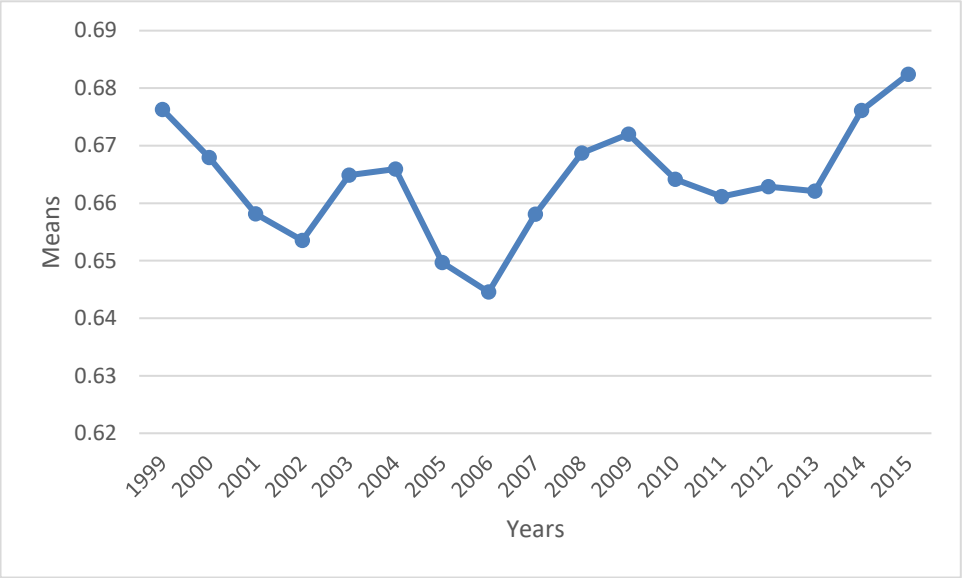

Figure 4.5: Mean distribution of Market to Book Value of Equity

Figure 4. 5 shows the mean distribution of the market to book value of equity of the 87 sampled firms. The picture reveals randomness in the movement of the means. It started falling as soon as a democratically elected government was ushered-in in 1999 to 2002, while it slightly picked up in 2003 and 2004 before dropping to its lowest in 2006, however, it did not stop from fluctuating till it reached its highest point in 2015.

4.2.1.6 Distribution of Return on Assets

Return on assets (ROA) shows the percentage of profit a company earns in relation to its overall resources and gives an idea as to how efficient management is at using its assets to generate earnings (Lawal, Edwin, Kiyanjui & Adisa, 2014).

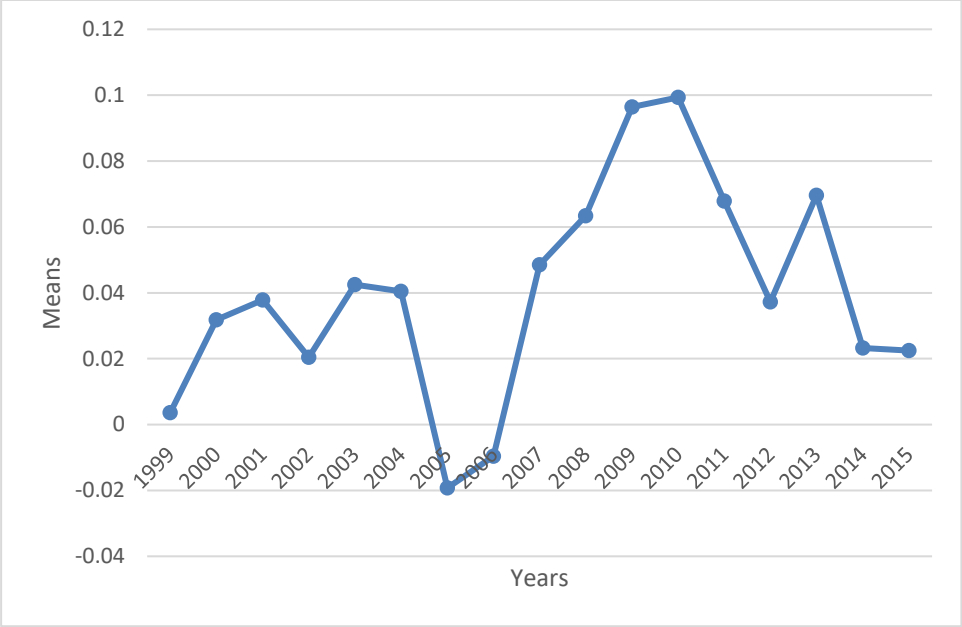

Figure 4.6: Mean distribution of Return on Asset (ROA)

The mean distribution of this ratio shows an increase in ROA from 1999 as depicted in figure 4.6. The situation became bad to a negative level 2005 and 2006 which may not be unconnected with the crisis that greeted the political crises around this period. However, the situation improved after the political situation improves, nevertheless, the fluctuations persist.

4.2.1.7 Mean Distribution of Return on Capital Employed

Return on capital employed (ROCE) is a financial ratio that measures a company's profitability and the efficiency with which its capital is employed. It is a better measurement than the return on equity because it shows how well a company is using both its equity and debt to generate a return (Swain & Das, 2017). A high ROCE indicates that a larger chunk of profits can be invested back into the company for the benefit of shareholders. The reinvested capital is employed again at a higher rate of return, which helps to produce higher earnings-per-share growth.

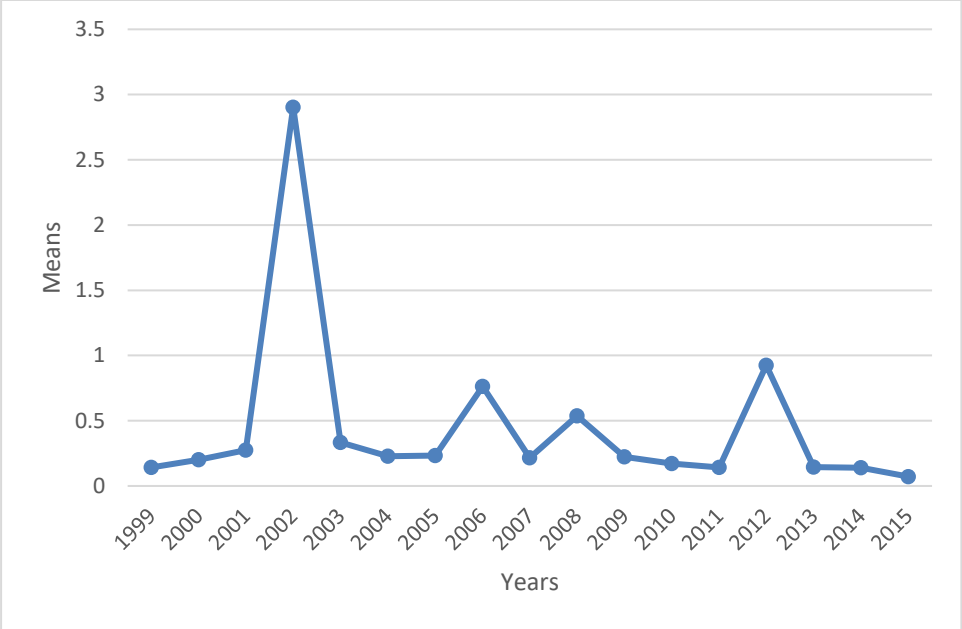

Figure 4.7: Mean distribution of Return on Capital Employed

During the period under investigation as shown in figure 4.7, the mean distribution of the ROCE by non-financial firms on the NSE increased between 1999 and 2001 but skyrocketed to its highest in 2002 before falling in 2003 and since then to 2015 it has remained unstable fluctuating up and down.

4.2.1.8 Mean Distribution of Firm Size

Nzeoha (2008), opined that the size of a firm plays a significant role in determining the form of relationship the firm enjoys within and outside its operating environment. The larger a firm is, the better the influence it has on its stakeholders.

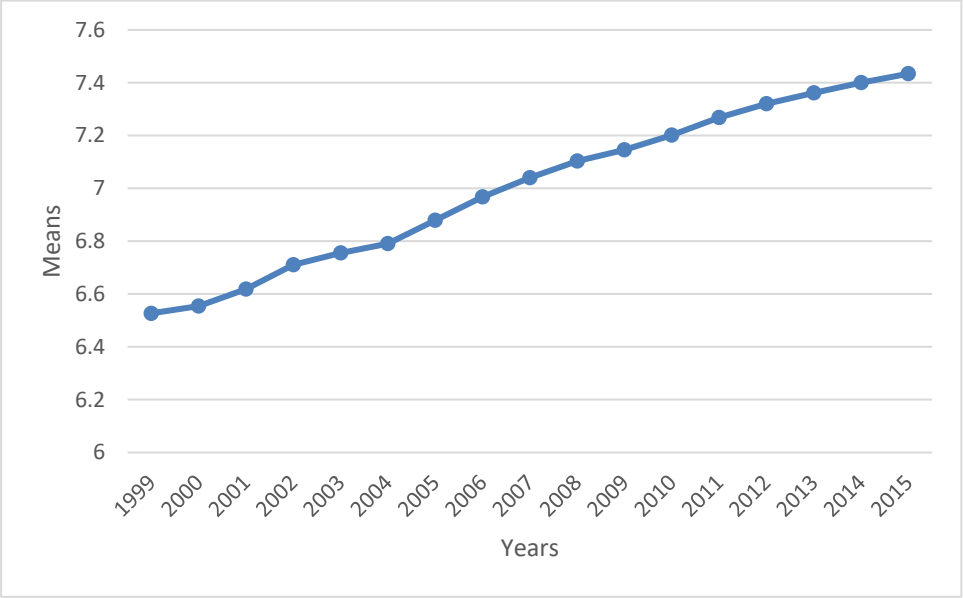

Figure 4.8: Mean distribution of Size

From figure 4.8, the mean distribution of firm size remained constantly increasing during the period under evaluation. This implies that the sampled non-financial firms in Nigeria despite all odds have been increasing in size which was measured by the log of their respective total assets.

4.2.2 Analysis of Normal Distribution

Inferential statistics are meant to infer whether there is underlying relationship between the respective variables for purposes of sequential analysis. The variables were subjected to normality to check whether the data provided was normally distributed or not. To know the decision to take the rule is that if the p-value is greater than 0.05, H_0 is not rejected and H_1 is rejected if the p-value is less than 0.05, H_0 is rejected and H_1 is accepted.

In this study, the standardized moments of skewness and kurtosis were employed. This was further augmented by the Jarque–Bera test which is a derivative of skewness and kurtosis estimates. From Table 4.1, the skewness value of 1.54, 2.26 and 2.11 was computed for the dependent variables (total debt, short-term and long-term

ratio) as shows that TDR, DER, and LTD are positively skewed. The positive skewness is also enjoyed by earnings per share 0.25 and market to book value of equity 1.58 among the independent variables. However, return on assets, return on capital employed and the moderating variable are negatively skewed at -1.54, 11.99 and -0.11 respectively. The recorded figures for kurtosis from the total, debt to equity and long-term leverages to earnings per share, market-book-value of equity return on assets, return on capital employed and the moderating variable (size) are 6.8, 13.86, 7.5, 9.85, 6.87, 7.74, 145.2 and 2.55 respectively. In conclusion, the probability values obtained from the Jarque-Bera test statistics result suggest that all the variables failed the normality at five percent level of significance. In view of this, we cannot reject the null hypothesis that the data for this analysis is not normally distributed.

4.2.3 Correlation

To determine whether an association exists between the variables employed in the study, a pairwise correlation analysis was conducted to see the severity of the relationship. The resulting value in the correlation analysis shows whether the change in the dependent variable was caused by a change in the independent variable (Cohen, Cohen, West & Aiken, 2002). Correlation analysis results give a correlation coefficient which measures the linear association between two variables (Crossman, 2013). According to Mugenda and Mugenda (2003), correlation technique is used to analyze the degree of relationship between two variables. Correlation is the measure of the relationship or association between two continuous numeric variables (Kothari, 2014). Kothari and Garg (2014) suggest that the value of correlation coefficient ranges between -1 and +1 and that a correlation coefficient of +1 indicates that two variables are perfectly in a positive linear relation while a correlation of -1 indicates a perfect linear negative relationship between two variables and a correlation coefficient of 0 indicates no relationship between two variables.

Table 4.3: Correlation Matrix

Correlation t-Statistic Probability	TDR	DER	LTD	EPS	MBV	ROA	ROCE	SIZE
TDR	1.000000							

DER	-0.022829	1.000000						
	-0.877602	-----						
	0.3803	-----						
LTD	0.316750	-0.038611	1.000000					
	12.83408	-1.485001	-----					
	0.0000**	0.1378	-----					
EPS	-0.243197	-0.018157	-0.058315	1.000000				
	-9.635775	-0.697929	-2.244964	-----				
	0.0000**	0.4853	0.0249**	-----				
MBV	0.982395	-0.025009	0.237695	-0.258064	1.000000			
	202.1005	-0.961448	9.404573	-10.26559	-----			
	0.0000**	0.3365	0.0000**	0.0000**	-----			
ROA	-0.539076	0.011254	-0.164446	0.542645	-0.568395	1.000000		
	-24.59776	0.432556	-6.407163	24.82825	-26.55027	-----		
	0.0000**	0.6654	0.0000**	0.0000**	0.0000**	-----		
ROCE	-0.147010	-0.013933	-0.011496	0.107113	-0.148569	0.350309	1.000000	
	-5.711926	-0.535526	-0.441853	4.140362	-5.773850	14.37380	-----	
	0.000**	0.5924	0.6587	0.000**	0.000**	0.000**	-----	
SIZE	-0.356129	-0.000593	0.088045	0.341609	-0.372308	0.312701	0.148539	1.000000
	-14.64698	-0.022807	3.396897	13.96897	-15.41677	12.65213	5.772657	-----
	0.000**	0.9818	0.0017**	0.000**	0.000**	0.000**	0.000**	-----

Included observations: 1479
Sample period: 1999 2015
* indicate significant at 1% and ** indicate significant at 5%

In accordance with the result presented in Table 4.3 the correlation of firm's financial performance (earnings per share, market to book value of equity, return on assets, return on capital employed and size) and capital structure (total, debt to equity and

long-term leverage) were computed. However, proxying earnings per share as a variable of financial performance against all variables of capital structure established their correlation coefficient as -0.243, -0.018 and -0.058. These outputs as contained in Table 4.2 suggests a statistically significant negative relationship exists between financial performance and capital structure of non-financial companies in the context of total debt ratio and long-term debt at p-value=0.000, 0.000 <0.05 and an insignificant conclusion on the part of the debt to equity ratio at a p-value= 0.485>0.05.

The correlation coefficients computed between Market to book value of equity and capital structure at all level of leverages was established as 0.982, -0.025 and 0.237 respectively. The result revealed a positive and statistically significant relationship between the MBV, TDR and LTD with a p-value=0.000 < 0.05 in each situation while a negative and insignificant correlation relationship exist between MBV and DER at p-value = 0.337. Furthermore, the computed results as displayed in Table 4.3 between return on the asset as a variable of financial performance against all variables of capital structure established their correlation coefficients as -0.539, 0.011 and -0.164. The results indicated that a statistically significant negatively correlated relationship exists between financial performance and capital structure of non-financial companies in NSE at p-value=0.000<0.05 at the levels of TDR and LTD while a positively insignificant correlation was observed between ROA and DER with an associated p-value=0.664>0.05.

To show the kind of a relationship that existed between the independent variable measured as return on capital employed and the dependent variable capital structure at all levels of leverages, the computed correlation coefficients were established as -0.147, -0.014 and -0.011 respectively. This result as indicated in Table 4.3 suggested a negatively and statistically significant correlation between return on capital employed, total debt ratio at a p-value=0.000<0.05. It further reveals a negative but statistically insignificant relationship between ROCE, DER and LTD at a p-value=0.592 and 0.658>0.05. On the other hand, firm size was included as a moderating variable to expand the reliability of this studies and what invariable may be its effects on the explanatory variables in influencing capital structure of non-

financial companies in the NSE. A cursory look at Table 4.2 revealed a statistically significant negative correlation between size, total debt, debt to equity ratio and market to book value of equity as established by the correlation coefficients of -0.356, -0.439 and -0.372 respectively and a p-value=0.000<0.05 in all cases. A further assessment of the relationship showed statistically significant positively related correlation exists between size, long-term leverage, assets turn over, earnings per share, return on assets and return on capital employed. The correlation coefficient from Table 4.3 do establish this suggestion at the values of 0.080, 0.168, 0.341, 0.313 and 0.149 with a p-value=0.000<0.05 in all ramifications. However, none of these relationships either negative or positive could be expressed beyond 38% as they ranged between 37.2% and 8%.

4.3 Panel Specification Test

To determine the suitability of the panel data for statistical analysis, various tests were conducted. These tests that were carried out to establish if the panel data fulfilled the cardinal requirements of classical linear regression analysis include visual plot presentation, panel unit root test, multicollinearity test, panel-level heteroscedasticity test, serial correlation test as well as the Hausman effect test. In addition, panel cointegration test was conducted to determine if the variables used in the study had a long run association. This section, therefore, presents the results of these various diagnostic tests carried out on the panel data.

4.3.1 Visual Plot

Visual plot helps to visualize the trend of the panel regression variables (Green, 2008). The visual plot inherent describes a way to verify and to present, the behaviour of a data set based on a user's interactively defined set of properties, over which the records will be confronted in order to determine their importance according to what was stated as important by the user, that is, to what is more relevant to the analyst. This procedure permits the verification, the discovering and the validation of hypothesis, providing a data insight capable of revealing essential features of the data (Rodrigues, Traina &

Traina Jnr., 2003). The importance of this is to help visualise the statistical, or stochastic mechanism or the data generation process as applied in the study. The visualised plot in Figure 4.9 to Figure 4.16 indicates that the observations were randomly distributed.

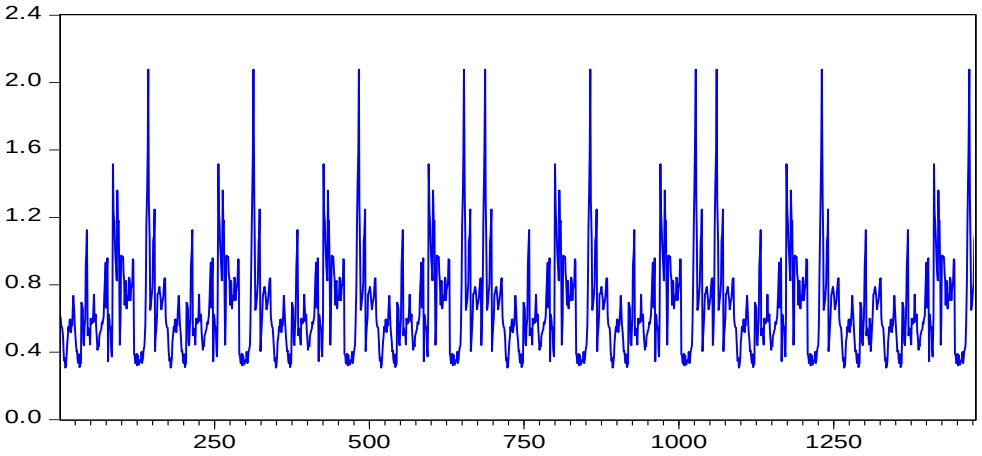

Figure 4.9: Plot for TDR stacked by cross sections

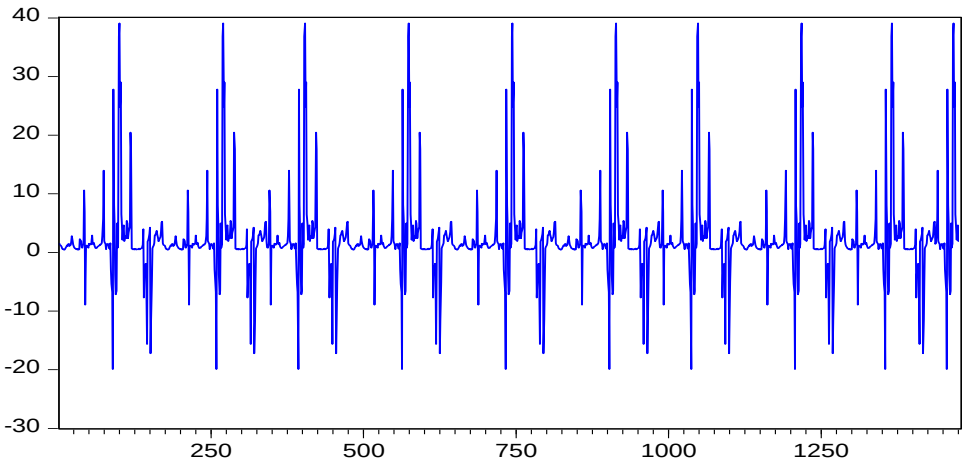

Figure 4.10: Plot for DER stacked by cross sections

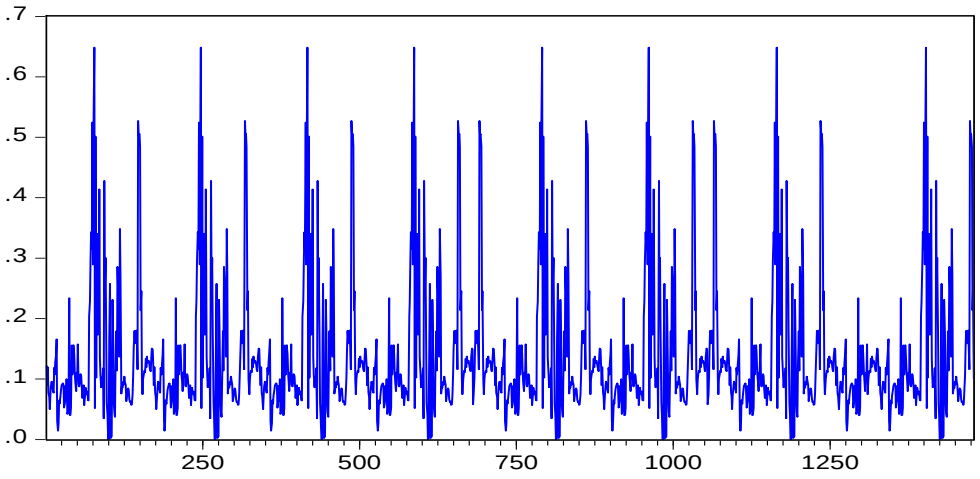

Figure 4.11: Plot for LTD stacked by cross sections

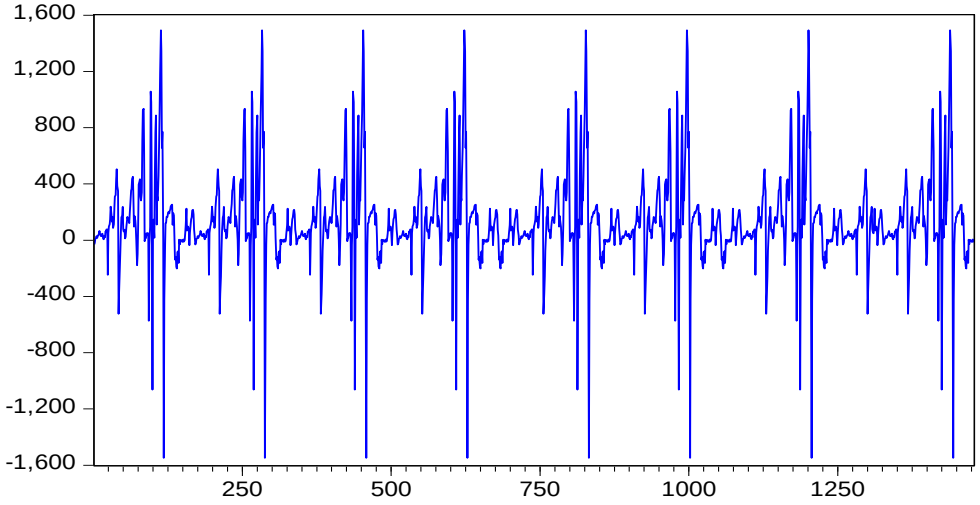

Figure 4.12: Plot for EPS stacked by cross sections

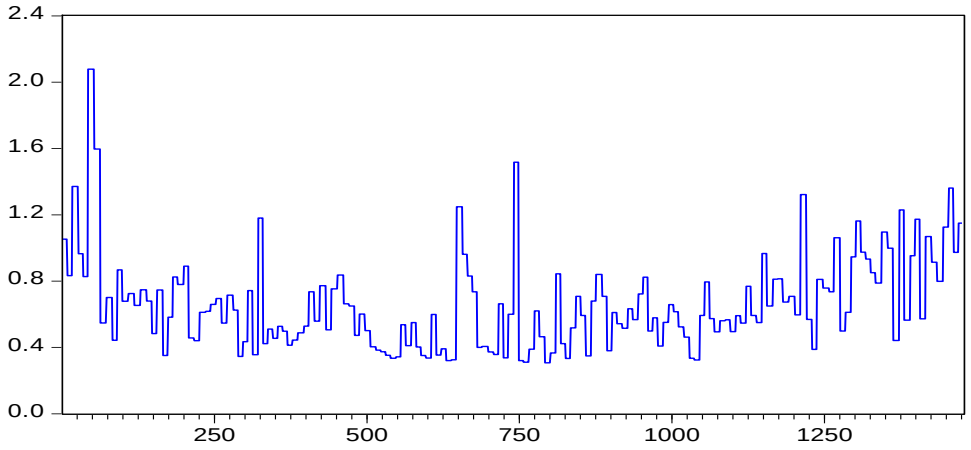

Figure 4.13: Plot for MBV stacked by cross sections

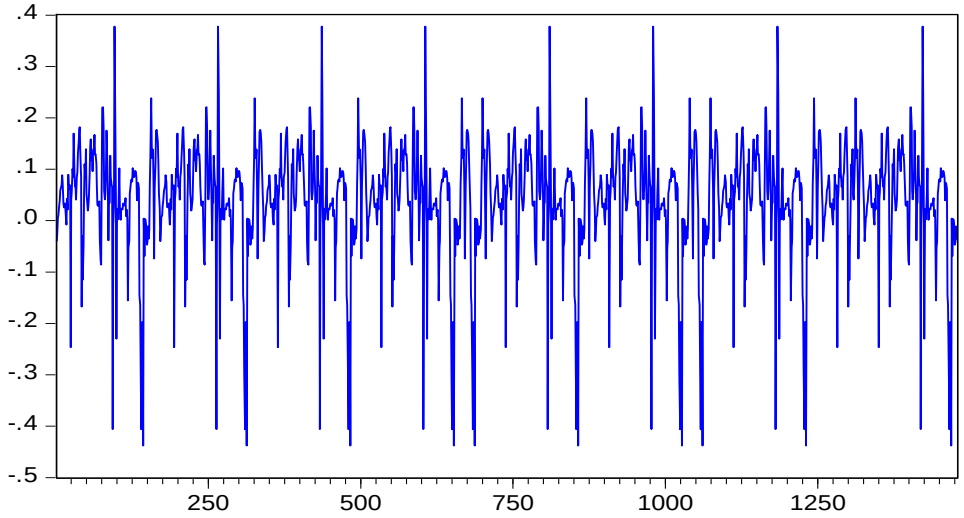

Figure 4.14: Plot for ROA stacked by cross sections

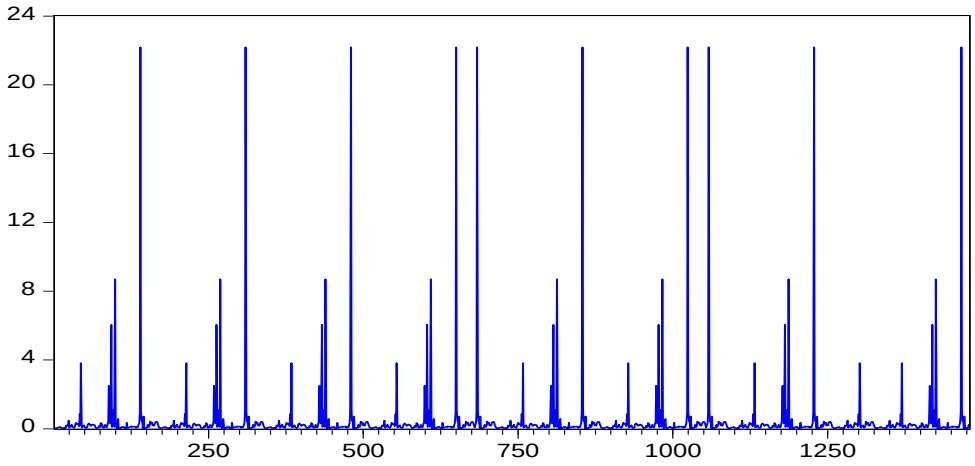

Figure 4.15: Plot for ROCE stacked by cross sections

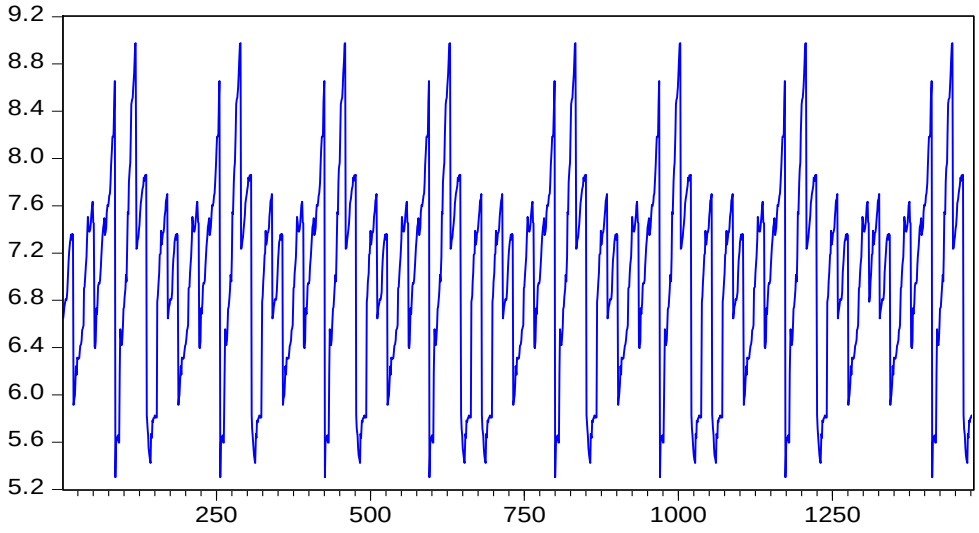

Figure 4.16: Plot for SIZE stacked by cross sections

4.3.2 Stationary Test

The relationship between unit roots and non-stationarity is so strong that some econometricians use the words interchangeably, even though they recognize that many factors other than unit roots can cause non-stationarity (Studenmund, 2017). A stationary series is one whose basic properties, for example, its mean, variance and covariance is time-invariant that is, do not change over time (Gujarati, 2013). In contrast, a nonstationary series has one or more basic properties that do change over time. The major consequence of non-stationarity for regression analysis is the spurious correlation that inflates R^2 and the *t*-scores of the non-stationary independent variables, which in turn leads to incorrect model specification.

To detect whether the data employed in this study is stationary or not, the study employed four different tests namely Levin, Lin and Chu test (2002), Im, Pesaran and Shi W – Statistics (2003), Fisher- type Augmented Dickey and Fuller (ADF) and Fisher- type Phillips and Perro (PP) (Maddala, 1999; Choi, 2001) for the purpose of a wider comparison, thus, the decision rule here is that if the p value is less than 0.05 H_0 is rejected and the acceptance of H_1 and vice versa.

Table 4.4: Panel Unit root test

Variables	Test	Statistic	P**	Result
Total Debt Leverage	Levin, Lin & Chu t	-9.83253	0.000	Stationary
	Im, Pesaran & Shin W- Stat	-12.0651	0.000	Stationary
	Fisher ADF- Chi	459.996	0.000	Stationary
	Fisher PP – Chi	953.837	0.000	Stationary
Debt to Equity	Levin, Lin & Chu t	-0.9666	0.000	Stationary
	Im, Pesaran & Shin W- Stat	-9.91981	0.000	Stationary
	Fisher ADF- Chi	406.430	0.000	Stationary
	Fisher PP – Chi	1102.19	0.000	Stationary
Long-term Leverage	Levin, Lin & Chu t	-5.62723	0.000	Stationary
	Im, Pesaran & Shin W- Stat	-9.74583	0.000	Stationary
	Fisher ADF- Chi	409.997	0.000	Stationary
	Fisher PP – Chi	1118.70	0.000	Stationary
Earnings per share	Levin, Lin & Chu t	-13.5962	0.000	Stationary
	Im, Pesaran & Shin W- Stat	-14.3378	0.000	Stationary
	Fisher ADF- Chi	531.397	0.000	Stationary
	Fisher PP – Chi	939.086	0.000	Stationary
Market to Book value of equity	Levin, Lin & Chu t	-13.4108	0.000	Stationary
	Im, Pesaran & Shin W- Stat	-13.0803	0.000	Stationary
	Fisher ADF- Chi	494.785	0.000	Stationary
	Fisher PP – Chi	1520.85	0.000	Stationary
Return on Assets	Levin, Lin & Chu t	-8.96954	0.000	Stationary
	Im, Pesaran & Shin W- Stat	-11.5695	0.000	Stationary
	Fisher ADF- Chi	443.414	0.000	Stationary
	Fisher PP – Chi	904.083	0.000	Stationary
Return on capital employed	Levin, Lin & Chu t	-12.3152	0.000	Stationary
	Im, Pesaran & Shin W- Stat	-8.84827	0.000	Stationary
	Fisher ADF- Chi	368.000	0.000	Stationary
	Fisher PP – Chi	505.773	0.000	Stationary
Size	Levin, Lin & Chu t	-7.18236	0.000	Stationary
	Im, Pesaran & Shin W- Stat	-15.4211	0.000	Stationary
	Fisher ADF- Chi	596.219	0.000	Stationary
	Fisher PP – Chi	2581.97	0.000	Stationary
Group	Levin, Lin & Chu t	-72.9743	0.000	Stationary
	Im, Pesaran & Shin W- Stat	-57.9401	0.000	Stationary
	Fisher ADF- Chi	700.026	0.000	Stationary
	Fisher PP – Chi	961.179	0.000	Stationary

** Probabilities for Fisher tests are computed using an asymptotic Chi-square distribution. All other tests assume asymptotic normality

The output on Table 4.4 was based on the LLC, Im, Persaran & Shin W-Sta, Fisher-type ADF and Fisher-type PP panel unit root test results carried out on the each of the variables and the entire group. As may be seen from the earlier formulated hypothesis,

all these methods test the same null hypothesis of non-stationarity but differ in terms of the considered alternatives.

The result indicates that the probability values (0.000) attached to the corresponding statistic output carried out at level for all methods employed in the study were statistically significant. Therefore, the null hypothesis of "non-stationarity" was rejected since the associated *p*-values were less than the conventional 5% statistical level of significance which is consistent with all methods applied for comparison. It can, therefore, be deduced that all the variables used in the study were stationary thereby informing the acceptance of the alternative hypothesis.

4.3.3 Granger Causality Test

One importance of the application of distributed lag models is to provide evidence about the direction of causality in economic relationships (Studenmund, 2017). Such a test is useful when we know that two variables are related but we don't know which variable causes the other to move. Granger causality, or precedence, is a circumstance in which one-time series variable consistently and predictably changes before another variable (Granger, 1969). Granger causality is important because it allows us to analyse which variable precedes or "leads" the other. For this study, the Granger causality test results for the estimated models are as provided in Table 4.5.

Table 4.5: Granger causality test between financial performance variables and Capital structure (Total Debt)

Model	Null Hypothesis:	F-Statistic	Prob.	Result
Model 1	EPS does not Granger Cause TDR	6.20895	0.0128	Reject
	TDR does not Granger Cause EPS	5.34481	0.0209	Reject
	MBV does not Granger Cause TDR	0.41328	0.5204	Fail to Reject
	TDR does not Granger Cause MBV	0.08561	0.7699	Fail to Reject
	ROA does not Granger Cause TDR	0.36064	0.5482	Fail to Reject
	TDR does not Granger Cause ROA	0.35078	0.5538	Fail to Reject
	ROCE does not Granger Cause TDR	10.3263	0.0013	Reject
	TDR does not Granger Cause ROCE	0.37553	0.5401	Fail to Reject
	SIZE does not Granger Cause TDR	33.0015	1.E-08	Reject
	TDR does not Granger Cause SIZE	32.9364	1.E-08	Reject

The summary of the Granger causality results at lag 1 in Table 4.5 (model 1) suggests a bidirectional relationship exit between the dependent variable as measured by total leverage and independent variables as measured by earnings per share and size. The Granger causality statistics computed proved that no causal relationship however little exists between total leverage, market to book value of equity and return on assets. Meanwhile, in the case of return on capital employed, a unidirectional relationship was established. That is, the return on capital employed does Granger cause total leverage while total leverage does not Granger cause return on capital employed.

Table 4.6: Granger causality test between financial performance variables and Capital structure (Debt to Equity Ratio)

Model	Null Hypothesis:	F-Statistic	Prob.	Result
Model 2	EPS does not Granger Cause DER	0.01884	0.8909	Fail to reject
	DER does not Granger Cause EPS	1.08992	0.2967	Fail to reject
	MBV does not Granger Cause DER	3.17663	0.0749	Fail to reject
	DER does not Granger Cause MBV	2.32362	0.1277	Fail to reject
	ROA does not Granger Cause DER	2.57219	0.1090	Fail to reject
	DER does not Granger Cause ROA	0.01480	0.9032	Fail to reject
	ROCE does not Granger Cause DER	0.58762	0.4435	Fail to reject
	DER does not Granger Cause ROCE	0.01374	0.9067	Fail to reject
	SIZE does not Granger Cause DER	0.08625	0.7690	Fail to reject
	DER does not Granger Cause SIZE	1.04665	0.3065	Fail to reject

From Table 4.6 (model 2), a causal relationship could not be established between debt to equity ratio and all the explanatory variables. From all the observations, the null hypothesis of no causation could not be rejected at 0.05 level of significance.

Table 4.7: Granger causality test between financial performance variables and Capital structure (Long-term Debt)

Model	Null Hypothesis:	F-Statistic	Prob.	Result
Model 3	EPS does not Granger Cause LTD	1.00830	0.3155	Fail to Reject
	LTD does not Granger Cause EPS	0.93017	0.335	Fail to Reject
	MBV does not Granger Cause LTD	0.02409	0.8767	Fail to Reject
	LTD does not Granger Cause MBV	0.00349	0.9529	Fail to Reject
	ROA does not Granger Cause LTD	12.5435	0.0004	Reject
	LTD does not Granger Cause ROA	0.45799	0.4987	Fail to Reject
	ROCE does not Granger Cause LTD	0.40372	0.5253	Fail to Reject
	LTD does not Granger Cause ROCE	5.02411	0.0252	Reject
	SIZE does not Granger Cause LTD	7.07016	0.0079	Reject
	LTD does not Granger Cause SIZE	2.16981	0.141	Fail to Reject

As depicted in Table 4.7 (model 3), the Granger causality test performed on firm's financial performance variables and capital structure as measured by long-term leverage conclude that no bidirectional or unidirectional causal relationship exists

between long-term leverage earnings per share and market to book value of equity. Nevertheless, the analysis could establish a unidirectional relationship between long-term leverage, return on assets, return on capital employed and size. Precisely it concludes that return on assets granger causes long-term leverage while long-term leverage does not Granger cause return on assets. While the latter situation applies to size and long-term leverage the relationship between return on capital employed and long-term leverage differs, it was established that return on capital employed does not Granger causes long-term leverage while long-term leverage granger causes return on capital employed.

4.3.4 Multicollinearity Test

Multicollinearity arises when a linear relationship exists between two or more independent variables in a regression model (Pedace, 2013). It is a statistical situation where some independent variables in a multiple regression model are highly correlated. It is an unacceptable high level of intercorrelation among the independent variables, such that effects of independent variables cannot be separated (Garson, 2012). According to Lauridsen and Mur (2005), when multicollinearity occurs the correlated predictors provide redundant information about the responses. In multiple regression, the variance inflation factor (VIF) is used as an indicator of multicollinearity. Variance inflation factor (VIF) is a factor by which the variance of the given partial regression coefficient increases due to given variable ‘s extent of correlation with other predictors in the model (Dennis, 2011). As a rule of thumb, lower levels of variance inflation factor (VIF) are desirable as higher levels of VIF are known to affect adversely the results associated with multiple regression.

Garson (2012) asserts that the rule of thumb is that VIF > 4.0 multicollinearity is a problem while other scholars use a more lenient cut-off of VIF > 5.0 when multicollinearity is a problem. However, O'Brien (2007) suggests that this rule of thumb should be assessed in contextual basis considering the factors that influence the variance of the regression coefficient.

To identify if multicollinearity really exists among the independent variables, a Variance Inflation Factor (VIF) measure was utilized while a threshold of VIF value of 4.0 was considered appropriate for this study. As can be observed in table 4.8 earnings per share 1.47, market to book value of equity 1.028, return on asset 1.623, return on capital employed 1.011 and size 1.158. These results indicate that the VIF values of the independent variables were within the threshold of 4.0, therefore, exhibiting no risk of multicollinearity from the data employed.

Table 4.8: Multicollinearity test result

Variables	Tolerance Level	VIF
EPS	0.646	1.47
MBV	0.972	1.028
ROA	0.616	1.623
ROCE	0.988	1.011
SIZE	0.863	1.158

4.3.5 Serial Correlation Test

It has been alluded that it is a common practice to treat the term serial correlation and autocorrelation simultaneously (Gujarati, 2013). However, for the purpose of this thesis, the study adopts autocorrelation as defined by Kendall and Buckland (1971) as "correlation between members of series of observations ordered in time (time series) or space (cross-sectional data)". The implication of this is that the of OLS estimators determined in presence of autocorrelation normally provide smaller standard errors than what is appropriate leading to misleading results of hypothesis testing. Also, the R-squared (coefficient of determination) value is deceptively large (Torres-Reyna, 2007). To detect the presence of autocorrelation in the sampled panel data for this study the Breush-Godfrey Serial Correlation Lagrange Multiplier test was given preference for this study over Durbin Watson test against the null hypothesis that there was no first-order autocorrelation. According to Onio and Ukaegbu (2014), Durbin Watson test is likely to produce an inconclusive result.

Table 4.9: Breusch-Godfrey Serial Correlation LM Test

Models	**F- Statistic (2,1470)**	***p*-value**
Panel Model 1	120.9019	0.000
Panel Model 2	232.8208	0.000
Panel Model 3	248.2687	0.000

H_0: No first-order autocorrelation tests carried out at 5% significance level

The output on Table 4.9 was computed for the three models. The result shows that the F statistic for models 1, 2 and 3 are statistically significant at 0.05 level of significance. These signified that the null hypothesis cannot be accepted for the three models since the probability value is less than 0.05 which led to the acceptance of the alternative hypothesis. Therefore, the study concludes that there exists autocorrelation in the panel data employed in the analysis.

4.3.6 Panel Cointegration Test

This study employed the unrestricted Johansen panel cointegration test with a constant trend and 1 lag Lags interval (in first differences): 1 to 4. This test is preferred because it permits more than one cointegrating relationship therefore, it is more generally applicable than the Engle-Granger test which is based on the Dickey-Fuller (or the augmented) test for unit roots in the residuals from a single (estimated) cointegrating relationship (Davidson, 2002). In addition, panel cointegration test in empirical research provides the researcher with a mechanism to determine the long run relationship among the study variables (Baltagi, Bresson, & Etienne, 2015).

The test results reject the null hypothesis if both trace and max statistics exceeded their corresponding critical values at 5% significance level; otherwise, the null hypothesis

is accepted. The results of the panel cointegration tests on the variables are presented in the Table 4.10:

Table 4.10: Johansen Fisher Panel Cointegration Test result

Hypothesized No. of CE(s)	Fisher Stat.* (from trace test)	Prob.	Fisher Stat.* (from Max-Eigen test)	Prob**.
None *	2263.820	0.0001	708.4118	0.0001
At most 1 *	1555.408	0.0001	449.4174	0.0001
At most 2 *	1105.991	0.0001	347.8546	0.0001
At most 3 *	758.1364	0.0001	240.8483	0.0001
At most 4 *	517.2881	0.0001	213.7331	0.0001
At most 5 *	303.5550	0.0001	130.7440	0.0001
At most 6 *	172.8110	0.0001	96.40655	0.0000
At most 7 *	76.40445	0.0000	76.40445	0.0000

Trace and Max-eigenvalue test indicates 8 cointegrating eqn(s) at the 0.05 level
* denotes rejection of the hypothesis at the 0.05 level
**MacKinnon-Haug-Michelis (1999) p-values

The results of Johansen test for cointegration displayed in Table 4.10 indicate that probability values of trace and Max-Eigen statistics are below the corresponding 5% critical values at all levels of the variable combination under leverage model. This suggested that the null hypothesis of no cointegration could be rejected at all levels of variable combinations of trace and max-eigen tests for the model. The result implied that the primary variables were cointegrated and therefore have a long-run association. However, the study employed the dynamic two-step generalized method of moments by Blundell and Bond (1998). This dynamic estimator does not test for panel unit root

and accounts for cointegration among the variables. It assumes the variables do not have unit root and they cointegrate.

4.3.7 Heteroscedasticity Test

Heteroscedasticity means that previous error terms influence other error terms and hence violating the statistical assumption that the error terms have a constant variance But, Homoscedasticity suggests that the dependent variable has an equal level of variability for each of the values of the independent variables (Garson, 2012). A test for homoscedasticity is made to test for variance in residuals in the regression model used. If there exist equal variance of the error terms, we have a normal distribution. Lack of an equal level of variability for each value of the independent variables is known as heteroscedasticity, The Breusch–Pagan test developed by Breusch and Pagan (1979) was used to test for homogeneity in the linear regression model.

From the output in Table 4.11 for the three panel models, it can be observed that an F-statistic of 12.27910 and probability value of 0.000 was produced for model 1 while 45.94626 (0.000) and 22.62196 (0.000) were produced for models 2 and 3 respectively. With this result, the null hypothesis is rejected at a p-value=0.000<0.05 while the alternative hypothesis indicating that the data is heterogeneous in variance is accepted. According to Baum, Schaffer and Stillman (2003), the presence of statistically significant heteroscedasticity will make a General Method of Moment more efficient.

Table 4.11: Breusch-Pagan-Godfrey Heteroscedasticity Test Result

Models	**F- Statistic (2,1470)**	***p*-value**
Panel Model 1	12.27910	0.000
Panel Model 2	45.94626	0.000
Panel Model 3	22.62196	0.000

H_0: Not heterogenous in variance tests carried out at 5% significance level

4.3.6 Hausman Test of the Fixed and Random effect

To establish which estimation effects (between fixed and random) provided superior results for the study, Hausman test was carried out for the specified panel regression model. The test was conducted against the null hypothesis that random effect model was the preferred model. The test results rejected the null if the chi-square statistic was significant at 5% significance level; otherwise, the null was accepted.

Table 4.12: Hausman test result

Model	Chi-Square Statistic	Chi-Square degree of freedom	*p*-value
1	123.799537	6	0.004
2	208.766887	6	0.000
3	249.693899	6	0.000

H_0: Random effects model is appropriate at 0.05 significant level

Table 4.12 display the Hausman specification test results for panel regression equations. The test results show that the chi-square statistics for the three panel equations are statistically significant at 5% level as supported by the p-values of 0.004, 0.000 and 0.000 for models 1, 2 and 3 respectively. The study, therefore, rejects the null hypothesis that the random effects estimation was appropriate for the model at 0.05 significance level. Nevertheless, the fixed effect (FEM) and random effect (REM) estimators are also biased and inconsistent unless the number of time periods is large $n \geq 30$ (Baltagi, 2002). Moreover, the period included in this study is 15 years, effectively, the study estimated the panel equations for dynamic GMM.

4.4 Panel Regression Analysis

Panel (or longitudinal) data are cross-sectional and time-series. There are multiple entities, each of which has repeated measurements at different time periods (Park, 2009). A panel dataset contains *n* entities or subjects (e.g., firms and states), each of which includes *T* observations measured at 1 through *t* time period. The combination of time series and cross-sectional data enhances the quality and quantity of data employed in this study in ways that would be impossible using only one of these data

set. Models like the constant coefficient model, fixed and random effect model among others have been applied in various context to estimate panel regression analysis, however, the application and appropriateness of these models are limited when time lag is accounted for in a panel regression. A purely distributed lag model can be estimated by the OLS but can have limited use in the presence of multicollinearity.

In guiding against the earlier mentioned inefficiency of the other panel regression models in handling time lag, various dynamic models were assessed but the choice of the Arellano-Bond linear GMM estimators was preferred for this study. The model has a one- and two-step variants even though, a lot of applied work has been done with focus on results from the one-step estimator than the two-step estimator, simulation studies have suggested very modest efficiency gains from using the two-step version, even in the presence of considerable heteroskedasticity (Ledyaeva & Linden, 2006). As suggested by White (1980), the two-step uses the residuals of the one-step estimation to estimate the covariance matrix and that makes it a preferred option for this study. To this end, the capital structure as captured by leverage was decomposed into three from where three leverage models were constructed and estimated for each of the earlier stated objectives in chapter one. This is in anticipation of a robust conclusion from this study.

4.4.1 Effect of Earnings Per Share on Capital Structure

The formulated null hypothesis was that Earnings per Share (performance) has no significant effect on Capital structure (Leverage: TDR, DER, LTD). To validate or otherwise this hypothesis a thorough analysis using Earnings per Share performance indicator as a predictor variable. The results of the thorough analysis that was conducted are presented in Table 4.13.

Table 4.13: Two-step dynamic GMM estimated results of the effect of Earnings Per Share (performance) on Capital Structure

Dependent Variables TDR, DER and LTD

Explanatory variables	**Model1**	**Model2**	**Model3**
CS_{it-1}	0.892248	0.439197	0.801192
	(0.000)	(0.000)	(0.000)
EPS_{it-1}	-5.50E-05	0.003982	0.000225
	(0.000)**	(0.000)**	(0.000)**
Observation	1305	1305	1305
Companies	87	87	87
Periods included	15	15	15
Instrument rank	40	57	40
Arellano and Bond AR (2)	0.261	0.579	0.228
Hansen Test p-value	0.388	0.314	0.579

Models 1, 2 & 3 Total debt to Total assets, Total Debt to Total Equity & Long-term debt to Total assets leverage models

* indicate significant at 1% and ** indicate significant at 5%

The output in Table 4.13 shows a negative significant relationship between financial performance as measured by Earnings Per shares and Capital Structure (total leverage to the total asset). The estimated result pulled a coefficient of -5.50E-05 and a corresponding p-value of 0.000. For the estimated model1 the Arellano and Bond (AR2) test of second-order autocorrelation shows a value of 0.261 which is greater than 0.05 which suggested the absence of second-order autocorrelation, denotating that the model was correctly specified. The Hansen test of instrument validity and first difference condition shows probability value of 0.388 suggesting that the instruments used in the estimated model are valid instruments since the probability value of the Hansen test was greater than 0.1. The estimated model maintained the rule of the thumb as regard instruments and groups. The number of the instrument is expected to

be less or equal to the number of groups. The estimated result shows that the number of instruments is less than the number of groups.

To further validate the effect, of financial performance in the context of EPS on capital structure, as measured by DER. The estimated result of model 2 indicates that a statistically significant positive relationship exists between firm performance (EPS) and capital structure (TDR). The estimated result produced a coefficient of 0.003982 and P value of 0.000. The Arellano and Bond tests of autocorrelation show (AR2) value of 0.579 which is greater than 0.05 connotes the absence of second-order autocorrelation suggesting that the model is correctly specified. The Hansen test of instrument validity at first difference shows probability value that is not less than 0.1 which stood at 0.314. This suggests that the instruments used in the estimated models are valid instruments while the instrument ranking further satisfied the rule of the thumb that the number of the instrument should be less or equal to the number of groups.

In addition, to strengthen and expand the horizon of the study in determining the effect of financial performance in the context of EPS on capital structure using long-term debt to total assets as a measure of leverage, the estimated result of model 3 in Table 4.13, revealed that a statistically significant positive relationship exists between firm financial performance (EPS) and capital structure (long-term leverage). This is confirmed by a coefficient value of 0.00225 and an associated P value of 0.000. The Arellano and Bond tests of autocorrelation show (AR2) value of 0.329. Since this autocorrelation value is greater than 0.05 the implication is that the problem of second-order autocorrelation does not exist meaning the model was correctly specified. The Hansen test of instrument validity at first differencing produced a probability value of 0.579 which is greater than 0.1 connoting that the instruments used in the estimated models are valid instruments which were further satisfied by the rule of the thumb that the number of the instrument should be less or equal to the number of groups.

The consequence of the negative significant relationship found between firm performance (EPS) and capital structure proxied by total debt ratio is that the capital

structure choice of firms in Nigeria responds negatively to the financial success of the firms in achieving optimal use of debt in place of equity. That is, the more efficient the management of firms in Nigeria are at increasing the EPS of the firm the more the possibility of the operations being financed by equity capital rather than debt. In line with findings of Margaritis and Psillaki (2007) in the behaviours of firms in New Zealand, this finding is consistent with the theoretical postulation of the franchise value hypothesis which postulates that profit is a source of rents, and that firm holds additional equity capital to prevent the loss of these rents in the event of liquidation. However, the positive effect recorded on debt to equity ratio and long-term leverage is consistent with the efficiency risk hypothesis as observed in Ghana and Taiwanese banks by Ayuki (2015) and Yeh (2010) respectively. This hypothesis postulates that more efficient firms choose lower equity ratios than other firms, all else equal because higher efficiency reduces the expected costs of bankruptcy and financial distress. This infers that the past financial performance of firms in Nigeria is reflected in their choice of capital structure combination. The study, therefore, rejects the null hypothesis and accepts alternative hypothesis based on the estimated results that there is a statistically significant relationship between firm performance as measured by earnings per shares and capital structure as measured by TDR, DER and LTD of firms in the Nigeria Stock Exchange.

Estimation Equation:

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$CS_{it} = \alpha CS_{it-1} + \beta_1 EPS_{it-1} + \varepsilon_{it}$

Substituted Coefficients:

Model 1 $CS_1 = 0.8924448CS_{1t-1} - 5.50E\text{-}05\ EPS_{it-1}$

Model 2 $CS_2 = 0.439197\ CS_{2t-1} + 0.003982\ EPS_{it-1}$

Model 3 $CS_3 = 0.801192\ CS_{3t-1} + 0.000225EPS_{it-1}$

4.4.2 Effect of Market to Book Value of Equity on Capital Structure

Contrary with most of the literature, Chen & Zhao (2006) discovered that firms with higher market-to-book ratios face lower debt financing costs and borrow more. Therefore, to determine the effect of financial performance on capital structure, the null hypothesis tested was that market to book value of equity has no significant effect on capital structure as depicted by total, short and long-term leverages. The outcome of the dynamic panel regression analyses is laid out in Table 4.14.

Table 4.14: Two-step dynamic GMM estimated results of Market to Book Value of Equity (performance) on Capital Structure

Dependent Variables TDR, DER and LTD

Explanatory variables	**Model1**	**Model2**	**Model3**
CS_{it-1}	0.044710	0.442791	0.865221
	(0.000)	(0.000)	(0.000)
MBV_{it-1}	0.988330	-11.32370	-0.010416
	(0.000)**	(0.000)**	(0.000)**
Observation	1305	1305	1305
Companies	87	87	87
Periods included	15	15	15
Instrument rank	10	57	10
Arellano and Bond AR (2)	0.217	0.319	0.385
Hansen Test p-value	0.690	0.768	0.264

Models 1, 2 & 3 Total debt to Total assets, Total Debt to Total Equity & Long-term debt to Total assets leverage models

* indicate significant at 1% and ** indicate significant at 5%

The estimated result presented in Table 4.14 between first lag of Market to Book value of equity and total leverage ratio (total debt to total asset) produced a coefficient of

0.988330 and a corresponding p-value of 0.000. This result indicates that a statistically significant positive relationship exists between MBV and total leverage ratio. For the estimated model1 the Arellano and Bond (AR2) test of second-order autocorrelation shows a value of 0.217 which is greater than 0.05 thereby indicating that there exists no problem of second-order autocorrelation, meaning the model was correctly specified. The Hansen test of instrument validity at first differencing shows a probability value of 0.690. For the fact that the probability value of the Hansen test was not less than 0.1. this suggests that the instruments used in the estimated model are valid instruments. The estimated model indicates that the number of the instrument is less than the number of groups thereby satisfied the rule of the thumb that the number of the instrument should be less or equal to the number of groups.

Similarly, the effect of financial performance in the context of MBV on the capital structure as measured by leverage (debt to equity ratio) was assessed. The estimated result in model 2 indicates a statistically significant negative relationship between firm performance (MBV) and capital structure (DER). The estimated result produced a coefficient of -11.32370 (p-value of 0.000). The Arellano and Bond tests of autocorrelation show (AR2) a value of 0.329. This autocorrelation value is greater than 0.005. This indicates that there is no problem of second-order autocorrelation and the model is correctly specified. The Hansen test of instrument validity at first difference shows probability value that is not less than 0.1 which is 0.768. This suggests that the instruments used in the estimated models are valid instruments. The estimated model indicates that the number of instruments ranked at 57 is less than the number of groups (87) thereby satisfied the rule of the thumb that the number of the instrument should be less or equal to the number of groups.

In addition, the effect of financial performance in the context of MBV on capital structure proxied by long-term debt was determined. As estimated by model 3 in Table 4.14, the result shows that a statistically significant negative relationship exists between firm financial performance (MBV) and capital structure (long-term leverage) with a coefficient value of -0.010416 (P value of 0.000). The Arellano and Bond tests of autocorrelation show (AR2) value of 0.385. This autocorrelation value is greater

than 0.05. This indicates that there is no problem of second-order autocorrelation and the model is correctly specified. The Hansen test of instrument validity at first difference shows a probability value of 0.264 which is greater than 0.1 suggesting that the instruments used in the estimated models are valid instruments. The estimated model indicates that the number of instruments is less than the number of groups thereby satisfied the rule of the thumb that the number of the instrument should be less or equal to the number of groups.

The implication of the positive significant relationship found between firm performance (MBV) and capital structure (total debt ratio) is that the capital structure choice of firms in Nigeria responds positively to the financial success of the firms to achieve optimal use of debt in place of equity. That is, firms in Nigeria are having a lower market to book value of equity which may make them favour more debt. This is in congruent with the findings of Bayrakdaroglu, Ege, and Yazici (2013) that companies with high market-to-book ratios had significantly lower leverage than companies with low market-to-book ratios. Moreover, the statistically significant negative relationship recorded between MBV and capital structure at the level of debt to equity ratio and long-term leverage indicate a preference for equity rather than debt which further confirmed the findings of Frank and Goya (2009) that market-to-book equity ratio has a negative relationship with the market leverage of firm but this result is not reliable for book leverage.

In conclusion, the effects deduced from total debt ratio supported the theoretical position of the reverse causality hypothesis as postulated by the efficiency risk hypothesis that efficient firms are more likely to favour more debt in their capital structure than equity as confirmed by Cheng and Tzeng (2011) in Taiwanese textile industry however, the position of the debt to equity ratio and long-term leverage is consistence with the franchise value hypothesis which suggested that more efficient firms will prefer the application of more equity into the capital structure rather than debt in tandem with the findings of Otieno and Ngwenya (2015) among firms on the Nairobi Stock Exchange. This implies that the past financial performance of firms in Nigeria is reflected in their choice of capital structure combination. The study,

therefore, rejects the null hypothesis and accepts alternative hypothesis based on the estimated results that there is a statistically significant relationship between firm performance as measured by MBV and capital structure as measure TDR, DER and LTD of firms in the Nigeria Stock Exchange.

Estimation Equation:

==========

$CS_{it} = \alpha CS_{it-1} + \beta_1 MBV_{it-1} + \varepsilon_{it}$

Substituted Coefficients:

Model 1 $CS_1 = 0.044710CS_{1t-1} + 0.988330MBV_{it-1}$

Model 2 $CS_2 = 0.442791CS_{2t-1} - 11.32370\ MBV_{it-1}$

Model 3 $CS_3 = 0.865221CS_{3t-1} - 0.010416MBV_{it-1}$

4.4.3 Effect of Return on Assets on Capital Structure

The study further adopted return on assets as a proxy of performance against the decomposed three levels of leverage associated with capital structure in this study. This was in the effort to have a wider coverage and improve the content of the study. The result generated from the estimation are as presented in Table 4.15.

Table 4.15: Two-step dynamic GMM estimated results of the effect of return on asset (performance) on Capital Structure

Dependent Variables TDR, DER and LTD

Explanatory variables	**Model1**	**Model2**	**Model3**
CS_{it-1}	0.895198	4.33E-06	0.841724
	(0.000)	(0.000)	(0.000)
ROA_{it-1}	-0.179922	0.002263	0.243650
	(0.000)**	(0.000)**	(0.000)**
Observation	1305	1305	1305
Companies	87	87	87
Periods included	15	15	15
Instrument rank	10	57	10
Arellano and Bond AR (2)	0.258	0.105	0.99
Hansen Test p-value	0.554	0.371	0.129

Models 1, 2 & 3 Total debt to Total assets, Total debt to Total Equity & Long-term debt to Total assets leverage models

* indicate significant at 1% and ** indicate significant at 5%

The output in Table 4.15 shows a negative significant relationship between financial performance as measured by Return on Assets and Capital Structure (total leverage to the total asset). The estimated result pulled a coefficient of -0.179922 and a corresponding p-value of 0.000. For the estimated model1 the Arellano and Bond (AR2) test of second-order autocorrelation shows a value of 0.258 which is greater than 0.05 suggested the absence of second-order autocorrelation thereby means the model was correctly specified. The Hansen test of instrument validity and first difference condition shows probability value of 0.554 suggesting that the instruments used in the estimated model are valid instruments since the probability value of the Hansen test was greater than 0.1. The estimated model maintained the rule of the thumb as regard instruments and groups. The number of the instrument is expected to

be less or equal to the number of groups. The estimated result shows that the number of instruments is less than the number of groups.

Table 4.16 further shows the effect, of financial performance in the context of ROA on capital structure, as measured by debt to equity ratio. The estimated result of model 2 indicates that a statistically significant positive relationship exists between firm performance (EPS) and capital structure (DER). The estimated result produced a coefficient of 0.002263 and P value of 0.000. The Arellano and Bond tests of autocorrelation show (AR2) value of 0.105 which is greater than 0.05 connotes the absence of second-order autocorrelation suggesting that the model is correctly specified. The Hansen test of instrument validity at first difference shows probability value that is not less than 0.1 which stood at 0.371. This suggests that the instruments used in the estimated models are valid instruments while the instrument ranking further satisfied the rule of the thumb that the number of the instrument should be less or equal to the number of groups.

It is a different twist of result looking at the effect of financial performance in the context of ROA on the capital structure using long-term debt to total assets as a measure. The estimated result of model 3 in Table 4.15, revealed that a statistically significant positive relationship exists between firm financial performance (ROA) and capital structure (long-term leverage). This is confirmed by a coefficient value of 0.243650 and an associated P value of 0.000. The Arellano and Bond tests of autocorrelation show (AR2) value of 0.99. Since this autocorrelation value is greater than 0.05 the implication is that the problem of second-order autocorrelation does not exist meaning the model was correctly specified. The Hansen test of instrument validity at first differencing produced a probability value of 0.129 which is greater than 0.1 connoting that the instruments used in the estimated models are valid instruments which were further satisfied by the rule of the thumb that the number of the instrument should be less or equal to the number of groups.

The implication of the negative significant relationship found between firm performance (ROA) and capital structure proxied by total debt ratio is that the capital

structure choice of firms in Nigeria responds negatively to the financial success of the firms in achieving optimal use of debt in place of equity. That is, the more efficient the management of firms is at using its assets to generate returns the more the possibility of debt been substituted by equity in the firm's capital structure. The result is consistent with the earlier research efforts of Yinusa et al., (2016) in Nigeria thereby further strengthening the theoretical position of the franchise value hypothesis. While the positive position of the debt to equity and long-term debt is consistent with the efficiency risk hypothesis as observed by Fazel et al., (2016) in Pakistanis firms. This suggests that the past financial performance of firms in Nigeria is reflected in their choice of capital structure combination. The study, therefore, rejects the null hypothesis and accepts alternative hypothesis based on the estimated results that there is a statistically significant relationship between firm performance as measured by ROA and capital structure as measured by leverage (TDR, DER and LTD) of non-financial firms in the Nigeria Stock Exchange.

Estimation Equation:

==========

$CS_{it} = \alpha CS_{it-1} + \beta_1 ROA_{it-1} + \varepsilon_{it}$

Substituted Coefficients:

Model 1 $CS_1 = 0.895198CS_{1t-1} - 0.179922ROA_{it-1}$

Model 2 $CS_2 = 4.33E\text{-}06CS_{2t-1} + 0.002263ROA_{it-1}$

Model 3 $CS_3 = 0.841724CS_{3t-1} + 0.243650ROA_{it-1}$

4.4.4 Effect of Return on Capital Employed on Capital Structure

Return on Capital employed measures a company's profitability and the efficiency with which its capital is employed. It is a useful metric for comparing profitability across companies based on the amount of capital they use which necessitated its adoption as one of the variables for this study in analysing the effect of performance on capital structure. Table 4.16, therefore, contained the output of the models estimated for this purpose.

Table 4.16: Two-step dynamic GMM estimated results of the effect of return on capital employed (performance) on Capital Structure

Dependent Variables TDR, DER and LTD

Explanatory variables	**Model1**	**Model2**	**Model3**
CS_{it-1}	0.915481	8.67E-06	0.767881
	(0.000)	(0.000)	(0.000)
$ROCE_{it-1}$	-0.000265	9.02E-05	0.229988
	(0.818)	(0.000)**	(0.000)**
Observation	1305	1305	1305
Companies	87	87	87
Periods included	15	15	15
Instrument rank	10	57	10
Arellano and Bond AR (2)	0.255	0.323	0.619
Hansen Test p-value	0.548	0.286	0.229

Models 1, 2 & 3 Total debt to Total assets, Total debt to Total Equity & Long-term debt to Total assets leverage models

* indicate significant at 1% and ** indicate significant at 5%

The output in Table 4.16 shows a negative but insignificant relationship between financial performance as measured by Return on Capital Employed and Capital

Structure (total leverage to the total asset). The estimated result pulled a coefficient of -0.00265 and a corresponding p-value of 0.818. For the estimated model1 the Arellano and Bond (AR2) test of second-order autocorrelation shows a value of 0.255 which is greater than 0.05 which suggested the absence of second-order autocorrelation, denotating that the model was correctly specified. The Hansen test of instrument validity and first difference condition shows probability value of 0.548 suggesting that the instruments used in the estimated model are valid instruments since the probability value of the Hansen test was greater than 0.1. The estimated model maintained the rule of the thumb as regard instruments and groups. The number of the instrument is expected to be less or equal to the number of groups. The estimated result shows that the number of instruments is less than the number of groups.

The study further sort to investigate the effect of financial performance in the context of ROCE on capital structure, as measured by debt to equity ratio. The estimated result of model 2 indicates that a statistically insignificant positive relationship exists between firm performance (ROCE) and capital structure (DER). The estimated result produced a coefficient of 9.02E-05 and P value of 0.000. The Arellano and Bond tests of autocorrelation show (AR2) value of 0.322 which is greater than 0.05 connotes the absence of second-order autocorrelation suggesting that the model is correctly specified. The Hansen test of instrument validity at first difference shows probability value that is not less than 0.1 which stood at 0.286. This suggests that the instruments used in the estimated models are valid instruments while the instrument ranking further satisfied the rule of the thumb that the number of the instrument should be less or equal to the number of groups.

In addition, to strengthen and expand the horizon of the study in determining the effect of financial performance in the context of ROCE on capital structure using long-term debt to total assets as a measure of leverage, the estimated result of model 3 in Table 4.16, revealed that a statistically significant positive relationship exists between firm financial performance (ROCE) and capital structure (long-term leverage). This is confirmed by a coefficient value of 0.229988 and an associated P value of 0.000. The Arellano and Bond tests of autocorrelation show (AR2) value of 0.619. Since this

autocorrelation value is greater than 0.05 the implication is that the problem of second-order autocorrelation does not exist meaning the model was correctly specified. The Hansen test of instrument validity at first differencing produced a probability value of 0.229 which is greater than 0.1 connoting that the instruments used in the estimated models are valid instruments which were further certified by the rule of the thumb that the number of the instrument should be less or equal to the number of groups.

The implication of the negative significant relationship found between firm performance (ROCE) and capital structure proxied by total leverage is that the capital structure choice of firms in Nigeria responds negatively to the financial success of the firms in achieving optimal use of debt in place of equity. That is, the more efficient the management of firms in Nigeria are at achieving more ROCE of the firm the more the possibility of the operations being financed by equity capital rather than debt. This finding reflected the theoretical postulation of the franchise value hypothesis in line with the results of Cheng and Tzeng (2011) in the beverage and electronic industries in Taiwan. According to Berger and Bonaccorsi di Patti (2006), the franchise-value hypothesis is a joint hypothesis that profit efficiency is a source of rents, and that firm holds additional equity capital to prevent the loss of these rents in the event of liquidation. While the position of the debt to equity ratio and long-term debt ratio is consistent with the efficiency risk hypothesis. This hypothesis postulates that more efficient firms choose lower equity ratios than other firms, all else equal because higher efficiency reduces the expected costs of bankruptcy and financial distress. These research findings are consistent with the research findings of (Berger & Bonaccorsi di Patti 2006; Ahari & Viverita, 2015; Margaritis & Psillaki, 2010**).** This implies that the past financial performance of firms in Nigeria is reflected in their choice of capital structure combination. The study, therefore, rejects the null hypothesis and accepts alternative hypothesis based on the estimated results that there is a statistically significant relationship between firm performance as measured by ROCE and capital structure as measured by leverage (TDR, DER and LTD) of firms in the Nigeria Stock Exchange.

Estimation Equation:

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$CS_{it} = \alpha CS_{it-1} + \beta ROCE_{it-1} + \varepsilon_{it}$

Substituted Coefficients:

Model 1 $CS_1 = 0.915481CS_{1t-1} - 0.000265ROCE_{it-1}$

Model 2 $CS_2 = 8.67E\text{-}06CS_{2t-1} + 9.02E\text{-}05ROCE_{it-1}$

Model 3 $CS_3 = 0.76881CS_{3t-1} + 0.229988ROCE_{it-1}$

4.4.5 Moderating effect of Firm Size on the Relationship between Financial Performance and Capital Structure

A moderator variable influences the nature (e.g., magnitude and/or direction) of the effect of an antecedent on an outcome (Aguinis, Edwards & Bradley, 2016). When the moderator variable is categorical (e.g., industry type), the traditional data-analytic approach is subgrouping analysis, which consists of comparing correlation or regression coefficients across the various subgroups or categories (Boyd, Haynes, Hitt, Bergh, & Ketchen, 2013). When the moderating effect is continuous (e.g., firm resources), studies typically rely on moderated multiple regression (Aiken & West, 1991; Cohen, 1978), which consists of creating a regression model that predicts the outcome based on a predictor X, a second predictor Z hypothesized to be a moderator, and the product term between X and Z, which carries information on the moderating effect of Z on the X-Y relation. The regression coefficient for the XZ product term from which X and Z have been partial out offers information on the presence as well as the magnitude of the moderating effect. From the estimated GMM results the moderating effect of size is presented in Table 4.17

Table 4.17: The two-step dynamic GMM estimated results of moderating effect of size on the performance variables on Capital Structure

Explanatory variables	Model 1		Model 2		Model 3	
	1	Moderating effect of size	2	Moderating effect of size	3	Moderating effect of size
CS_{it-1}	-4.2E-06	0.001301	0.433476	0.001216	-0.551600	0.170997
	(0.135)	(0.000)	(0.000)	(0.000)	(0.330)	(0.000)
EPS_{it-1}	5.60E-10	0.001895	-0. 001101	0.001894	0.000247	5.40E-07
	(0.308)	(0.000)**	(0.000)	(0.000)**	(0.156)	(0.000)**
MBV_{it-1}	1.000002	0.036059	-2.074032	0.036055	0.086128	3.20E-06
	(0.000)**	(0.000)**	(0.000)	(0.000)**	(0.139)	(0.000)**
ROA_{it-1}	-2.18E-06	-7.557956	-0.339866	-7.572746	-0.420187	-7.557956
	(0.187)	(0.000)**	(0.000)	(0.000)**	(0.0156)	(0.000)**
$ROCE_{it-1}$	5.76E-10	-0.000952	-0.001970	-0.000888	0.000184	-0.000952
	(0.771)	(0.000)**	(0.000)	(0.000)**	(0.544)	(0.000)**
$SIZE_{it-1}$	**2.68E-06**		**0.882934**		**0.29604**	
	(0.004)**		**(0.000)****		**(0.009)****	
Observation	1305	1305	1305	1305	1305	1305
Companies	87	87	87	87	87	87
Periods included	15	15	15	15	15	15
Instrument rank	10	67	57	67	10	67
Arellano and Bond AR (2)	0.99	0.22	0.593	0.32	0.225	0.232
Hansen Test p-value	0.47	0.79	0.984	0.82	0.956	0.42

Models 1, 2 & 3 Total debt to Total assets, Total debt to Total Equity & Long-term debt to Total assets leverage models
Models 1a, 2a & 3a GMM analysis without moderating variable
* indicate significant at 1% and ** indicate significant at 5%

In estimating the effect of the moderating variable depicted as size on financial performance variables (EPS, MBV, ROA and ROCE) against capital structure variables (TDR, DER and LTD). Firstly, it was revealed as shown on Table 4.17 that a statistically positive significant effect exists between EPS, MBV and TDR at an estimated coefficient value of 0.001895 and 0.036059 at a correspondent *p-value =0.000<0.0* while a statistically negatively significance was recorded against TDR by ROA and ROCE at an estimated coefficient value of -7.557956 and -0.000952 at a correspondent *p-value =0.000<0.0 respectively*.

As against the DER, the moderating effect of size of financial performance variables and capital structure toll the same dimension with the TDR results, for example a statistically positively significant outcome was recorded by EPS, MBV against DER at an estimated coefficient value of 0.001894 and 0.036055 at a correspondent *p-value =0.000<0.0 w*hile a statistically negatively significant results was displayed by ROA and ROCE employed towards DER at an estimated coefficient value of -7.572746 and -0.000888 at a correspondent *p-value =0.000<0.0 respectively*. Finally, the analysis using LTD as a proxy oy capital structure while moderating with size showed a little shift from the two earlier estimation as EPS, MBV and ROA results statistically positively affects LTD at an estimated coefficient value of 5.40E-07, 3.20E-06 and 0.019689 with a correspondent *p-value=0.000<0.0* while only ROCE was consistent with its negatively significance stand against LTD as in the other capital structure variables earlier discussed at an estimated coefficient value of -5.88E-05 with a correspondent *p-value =0.000<0.0.* The Arellano and Bond test of autocorrelation shows (AR2) value for TDR, DER and LTD models were 0.22, 0.32 and 0.232 respectively. The autocorrelation value is greater than 0.05 thereby indicating that there is no problem of second-order autocorrelation, therefore, the models were correctly specified. The Hansen test of instrument validity at first differencing produced probability values which are greater than 0.1 at 0.79 (TDR), 0.82 (DER) and 0.42 (LTD). This connotes that the instruments used in the estimated models are valid instruments and certified by the rule of the thumb that the number of the instrument should be less or equal to the number of groups.

The implication of this finding is that given size moderating the financial performance variables the resultant effect at all levels of financial performance against capital structure conclude that the size of a firm has a very crucial role to play in the capital composition of any organization either positive or negative. This finding is consistence with findings Adhari and Viverita (2015) among the firms in ASEAN countries and Fazle et al., (2016) among Pakistani firms.

The study therefore rejects the null hypothesis based on the estimated results that firm size has is no statistically significant moderating effect on relationship between firm performance and capital structure at all levels of leverage of non-financial firms in the Nigeria Stock Exchange which prompted the acceptance of the alternative hypothesis which suggests that firm size has statistically significant moderating effect on relationship between firm performance measures and capital structure at all levels of leverage of non-financial firms in the Nigeria Stock Exchange.

Estimation Equation:

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$CS_{it} = \alpha CS_{it-1} + \beta_1 EPS_{it-1} + \beta_2 MBV_{it-1} + \beta_3 ROA_{it-1} + \beta_4 ROCE_{it-1} + \beta_5 Z_{it-1} + \varepsilon_{it}$

Substituted Coefficients:

Model 1

$CS_1 = -4.2E\text{-}06CS_{1t-1} + 5.60E\text{-}10EPS_{it-1} + 1.00002MBV_{it-1} - 2.18E\text{-}06ROA_{it-1} + 5.76E\text{-}10ROCE_{it-1} + 2.68E\text{-}06Z_{it-1}$

Model 2

$CS_2 = 0.433476CS_{2t-1} - 0.001101EPS_{it-1} - 2.074032MBV_{it-1} - 0.339866ROA_{it-1} - 0.001970ROCE_{it-1} + 0.882934Z_{it-1}$

Model 3

$CS_3 = -0.551600CS_{3t-1} + 0.000247EPS_{it-1} + 0.086128MBV_{it-1} - 0.420187ROA_{it-1} + 0.000184ROCE_{it-1} + 0.29604Z_{it-1.}$

Moderated model

$CS_{it} = \alpha CS_{it-1} + \beta_1 EPS(Z)_{it-1} + \beta_2 MBV(Z)_{it-1} + \beta_3 ROA(Z)_{it-1} + \beta_4 ROCE(Z)_{it-1} + \varepsilon_{it}$

Model 1

$CS_1 = 0.001301CS_{it-1} + 0.001895EPS(Z)_{it-1} + 0.036059MBV(Z)_{it-1} - 7.557956ROA(Z)_{it-1} - 0.000952ROCE(Z)_{it-1}$

Model 2

$CS_2 = 0.001216CS_{it-1} + 0.001894EPS(Z)_{it-1} + 0.036055MBV(Z)_{it-1} - 7.572746ROA(Z)_{it-1} - 0.000888ROCE(Z)_{it-1}$

Model 3

$CS_2 = 0.170997CS_{it-1} + 5.40E\text{-}07EPS(Z)_{it-1} + 3.20E\text{-}06MBV(Z)_{it-1} + 0.019689ROA(Z)_{it-1} - 5.88E\text{-}05ROCE(Z)_{it-1}$

4.4.6 Result of the Reverse Causality Hypothesis

The reverse causality hypothesis offered two competing hypotheses with opposite predictions, the findings from study as interpreted by the tested hypotheses further assesses the presence of reverse causality form capital structure to financial performance and determined which hypothesis empirically dominates the other. Under the *efficiency-risk hypothesis*, the expected high earnings from greater financial performance substitute for equity capital in protecting the firm from the expected costs of bankruptcy or financial distress, whereas under the *franchise-value hypothesis*,

firms try to protect the expected income stream from high profit efficiency by holding additional equity capital. The results on Table 4.18 suggest that the substitution effect of the *efficiency-risk hypothesis* dominates for the behaviour of all explanatory variables against the capital structure models except market to book value of equity which favours the *franchise-value hypothesis more*, signifying a difference in behaviour in relation to firm size.

Table 4.18 Findings on the Reverse Causality Hypothesis

Dependent Variables TDR, DER and LTD

Explanatory Variables	**Model 1**	**Model2**	**Model2**	**ERH**	**FVH**
EPS	FVH	ERH	ERH	2	1
MBV	ERH	FVH	FVH	1	2
ROA	FVH	ERH	ERH	2	1
ROCE	-	-	ERH	1	0
SIZE	ERH	ERH	ERH	3	0
Dominance					
ERH	2	3	4	9	-
FVH	2	1	1	-	4

Models 1, 2 & 3 Capital structure (Total debt to Total assets, Total debt to Total Equity & Long-term debt to Total assets) models
ERH: Efficiency Risk Hypothesis
FVH: Franchise Value Hypothesis

Generally, in consonant with the results and finding generated from Table 4.13 to Table 4.17, the negative relationship found between firm performance and leverage supports the findings in the works of Margaritis and Psillaki (2007) for firms in New Zealand, Yinusa, (2015) and Yinusa et al., (2016) for firms in Nigeria. Otieno and Ngwenya, (2015) for firms in Kenya. However, the negative findings reported in this

study ran contrary to the findings of Berger and Bonaccorsi di Patti (2006) on banks in the United States, Margaritis and Psillaki (2010) for French firms, Yeh (2010) for Taiwanese firms, Adhari and Viverita (2015) for ASEAN countries and Fazle et al., (2016) for Pakistani firms, that found positive relationship between performance and capital structure as postulated in the efficiency-risk hypothesis (better performance is related to higher leverage ratio).

Table 4.19: List of the hypotheses accepted or rejected based on the significance of results

	Hypothesis	Sign	Significance	Conclusion
$H_{01:}$	Earnings per Share has no significant effect on Capital structure (Total leverage)	-	Significant	H_0 Rejected
	Earnings per Share has no significant effect on Capital structure (Debt Equity Ratio)	+	Significant	H_0 Rejected
	Earnings per Share has no significant effect on Capital structure (long-term leverage)	+	Significant	H_0 Rejected
H_{02}:	Market to Book value of equity has no significant effect on Capital structure (total leverage)	+	Significant	H_0 Rejected
	Market to Book value of equity has no significant effect on Capital structure (Debt Equity Ratio)	-	Significant	H_0 Rejected
	Market to Book value of equity has no significant effect on Capital structure (long-term leverage)	-	Significant	H_0 Rejected

	Hypothesis	Sign	Significance	Conclusion
H_{03}:	Return on Assets has no significant effect on Capital structure (total leverage)	-	Significant	H_0 Rejected
	Return on Assets has no significant effect on Capital structure (Debt Equity Ratio)	+	Significant	H_0 Rejected
	Return on Assets has no significant effect on Capital structure (long-term leverage)	-	Significant	H_0 Rejected
H_{04}:	Return on Capital Employed has no significant effect on Capital structure (total leverage)	-	Not significant	Fail to reject H_0
	Return on Capital Employed has no significant effect on Capital structure (Debt Equity Ratio)	+	Not significant	Fail to reject H_0
	Return on Capital Employed has no significant effect on Capital structure (long-term leverage)	+	Significant	H_0 Rejected

CHAPTER FIVE

SUMMARY, CONCLUSION AND RECOMMENDATIONS

5.1 Introduction

This study provided evidence in line with the objective of this study which was to ascertain the effect of Financial Performance on Capital Structure of firms listed on the Nigeria Stock Exchange. Particularly, the study aimed at finding out if earnings per share, market to book value of equity and return on asset as a proxy of financial performance have effect on capital structure choice in Nigeria while firm size was included as the moderating variable. This chapter provides a summary of the findings of this study arrived at after testing the hypotheses earlier postulated in chapter one. Based on these findings conclusions are arrived at for each of the research objectives. Finally, based on both the findings and the limitations encountered in the study, policy recommendations as well as suggestions for further research are made at the end of the chapter.

5.2 Summary

The study was hinged on the hitherto lack of clarity as to whether it is only capital structure that determines firms' financial performance as issues in finance literature or firms' financial performance too do have effect on how capital structure choice is determined in corporate financing with particular reference to firms listed on the Nigeria stock exchange as entrenched in the reverse causality hypothesis. The analyses performed using panel data employed a dynamic econometric analytical tool using General Method of Moments in estimating 87 Nigerian quoted companies with 1479 observations for the period 1999 to 2015.

This study tries to expand on the study on firm performance and capital structure choice in Nigeria in which the author's employed return on equity as performance indicator and leverage measured by long-term, debt-equity ratio and total debt. Their

conclusion which informed that performance does really influence capital structure choice in Nigeria by confirming the existence of the franchise value hypothesis and refuting the efficiency risk hypothesis triggered the interest in this study. Therefore, this study took a different dimension by introducing more financial performance variables against the decomposed capital structure as earlier applied to further investigate this influence on capital structure choice and the bidirectional situation at hand.

To achieve this fit, both theoretical and empirical literature from capital structure to financial performance and financial performance to the capital structure were reviewed. From the review of the related literature, a comprehensive conceptual framework was developed based on the apriori expectation of the reverse causality hypothesis. The hypothesized relationship between firms' financial performance and the capital structure was tested based on the specific objectives of the study. Based on the specific objectives of the study and the conceptual framework, a panel balanced data of 87 companies which excluded all the companies from the financial sector due to the nature of their business, financial characteristics and the employment of leverage that is totally different from other sectors was employed in the analysis.

However, to be specific chapter one of this study focuses on the general introduction on capital structure and firm performance with explicit deliberations on background to the study, statement of the problem, objectives of the study, research hypotheses, significance of the study, scope of the study and organisation of the thesis. In chapter two the relevant literature and theories were reviewed. Also, the conceptual framework and empirical reviews were not left out in this chapter. The third chapter focuses on the methodology employed in the study. The methodological framework in terms of research design, sample and sample technique as well as sources of data and model specification and estimation techniques were discussed in this chapter while results and findings of this study were extensively analysed and discussed in chapter four. The findings of the study include the following:

5.2.1 Effect of Earnings Per Share on Capital structure

Another key finding in this study has to do with the effect of earnings per share on capital structure. Interestingly this variable according to the estimated result has a negative significant effect on total debt while it has a positive effect on debt-equity ratio and long-term leverage. The interpretation of this development is that the more the earning powers of the return on the shares of these companies the more the reluctant effect it will have on the injection of more debt in the capital structure. The reason is not far fetch shareholders and other interested parties in the organization view will be different in the sense that it will be seeing as an improvement on the profitability position and injection of more debt will affect their ownership status and return on their investment, in view of this, management may not have option than to look inward. On the other hand, the positive effect it is having on debt-equity ratio and long-term leverage shows that the companies sampled can only commensurate their financial performance with long-term financial needs which may not likely to be frequent. In addition, this is a strong support for the existence of the efficiency risk and franchise value hypotheses of the reverse causality hypothesis in capital structure choice of companies in the Nigerian stock exchange.

5.2.2 Effect of Market to Book value of Equity on Capital structure

Also, in the study the specific objective of determining the effect of market to book value of equity on capital structure was included to have a broader insight into the problem at hand in Nigeria situation using investment opportunity. As a departure from using accounting ratio, market to book value of equity is a market-based valuation ratio that has to do with organization timing the market to know when to issue more equity or repurchase equity and when to incur debt or not in their capital structure. The findings from the analysis show that a positive and statistically significant relationship exists between market to book value of equity and capital structure as measured by total leverages while a negative result was recorded against debt-equity ratio and long-term leverage. The deduction here is that Nigerian firms when they are experiencing high market to book ratio will favour debt in terms of total leverage while the

preference will shift to sell their shares in the market when the need arises rather than looking out rightly for debt to catch up with their capital structure needs. This development is a strong indication that the Nigerian firms are operating based on the franchise value hypothesis when it comes to debt-equity ratio and long-term leverage and efficiency risk when it relates to total leverage as in some other economies of the world.

5.2.3 Effect of Return on Assets on Capital Structure

The fourth objective of this study which was to examine the effect of return on assets on capital structure as measured by leverage and represented total, debt-equity ratio and long-term debt ratios became necessary because of the limited scope on the application of performance indicator by the previous authors in Nigeria context. The generated output indicated a negative but significant relationship exists between return on assets and capital structure in the context of total leverage while a positively significant effect was established on debt-equity ratio and long-term leverage. The implication of this finding is that, firms in Nigeria in most situation, in as much as they are generating reasonable return on their assets, will prefer to be in favour of more equity participation at the total leverage and will prefer the injection of debt at the level of debt-equity ratio and long-term leverage in their capital structure than procuring debt. Again, this finding seriously supported both the efficiency risk and franchise value hypotheses of the reverse causality hypothesis.

5.2.4 Effect of Return on Capital Employed on Capital Structure

The study examines the effect of return on capital employed on capital structure as measured leverage which was decomposed into three as earlier mentioned. The data for return on capital employed was generated from getting the ratio of earnings before interest and tax to capital employed. The generate output indicates that a negative but significant relationship exists between return on capital employed and capital structure in the context of total leverage while a positively significant effect was established on debt-equity ratio and long-term leverage. The consequence of this finding is that in as

much as the return on capital employed is high, shareholders would not like to favour debt in their capital structure at the level of total leverage but will favour debt at the level of debt-equity ratio and long-term leverage in their capital structure than procuring debt. Also, this finding seriously reinforced the consideration of both the efficiency risk and franchise value hypotheses of the reverse causality hypothesis in capital structure choice of non-financial firms in Nigerian.

5.2.5 Moderating effect of Size on Capital Structure

Lastly, in the analysis size was included as a moderating variable to further substantiate the effect of the performance indicators used on the capital structure. This is to further support or refute earlier findings by researchers on the effect of firm-specific factors in determining the choice of capital structure of listed firms. The resultant effect of this variable which was determined as the log of total assets as analysed by the dynamic estimator was fascinating. For instance, all the performance variables conclude a significantly positive relationship effect on capital structure except ROA and ROCE when regressed against total leverage and debt equity which exhibits negativity. At the level of long-term debt only ROCE exhibited a negative relationship when moderated.

5.3 Conclusions

As supported by the empirical findings of this study as documented in chapter four quite a number of logical conclusions were drawn. The researcher was able to conclude that firm's past financial performance has effects on the capital structure choice of non-financial firms on the Nigerian stock exchange. In addition, this study was able to confirm with earlier researchers' findings that there exists both efficiency risk and franchise value hypotheses of the reverse causality hypothesis in the choice of their capital structure mix on the platform from which their research was based. From the perspective of this thesis it was however confirmed that the firms in Nigeria do not only exhibit franchise value hypothesis but also efficiency risk hypothesis as exhibited in the findings.

The study further concluded that the inclusion of size as a moderating variable has really brought out considerable effects in lieu of the resultant changes in the performance variables as they affect capital structure of the sampled firms. It is thus agreed that the effect of size in capital structure choice in Nigeria cannot be underestimated for instance most of the variables who have earlier renounced the risk efficiency hypothesis concurred after the inclusion of size as the moderating variable.

The study finally conclude that in the choice of capital structure of non-financial firms on the Nigeria Stock Exchange, the effectiveness and efficiency of past performance is not to be underrated as proved by the study while researchers should no more look at capital structure research from unidirectional angle alone instead, a bidirectional approach should be adopted as the research on capital structure is still continuing because of the lack of consensus on what and what not, how and how not capital structure choice is been achieve by managers of firms.

5.4 Recommendations

This study was carried out to add to the existing pool of wealth of research knowledge in corporate financing and the capital structure literature and to know whether the direction of capital structure choice in Nigeria is unidirectional as portend by some researchers or bidirectional as investigated by this thesis. In view of the findings of this study, it is of great importance that recommendations should be made. For this purpose, the recommendations are made not only for academic purposes but for management decision and policy-making in the larger economy.

At the management level, it is recommended that management should endure to intensify effort to further to look beyond academic research and be more practical in their pursuit of optimum capital structure that maximizes the expectation of the shareholder. It is equally recommended that in choosing the mode of financing to be employed, corporate managers should seek the advice of experts in analysing their firm's financial needs and profitability situation also consider other factors that are

critical in determining the effect of financial performance on their capital structure choice in Nigeria situation.

While at the policy level, it could be concluded that the volatility in the economic environment and political environment in Nigeria has really made creditors be warier of how, when and to whom funds are released to in the economy. This could be attributed to the lack of stable and consistent regulations in the financial sectors that have eroded the integrity of the sector. It is therefore recommended by this study that the arms of government saddled with this responsibility should live up to expectation so that rules and regulation to make the banking sector, capital market, the operators and instruments function well in the financial intermediation process more enabling are put in place. With this in place, corporate financiers will be willing to deal with their debtors accordingly while the firms will have better, comparable and conducive funding opportunities.

Finally, it has been observed that most investigations into the capital structure research have been on its effect on firms' financial performance with little or no efforts at exploring the possibility of a reverse causation between financial performance and capital structure. Therefore, this study will further be an eye opener for the researchers in the areas of corporate finance, related fields and the entire academic community to delve more into the reverse causation issues in corporate finance literature so that more and more contributions could make for a better understanding of this phenomenon.

5.5 Suggestions for Further Research

This study because of the characteristics of the financial sector in the use of leverage in their capital structure were excluded, we suggest that this type of investigation should be extended to them so that a more realistic conclusion can be made on the effect of financial performance on capital structure in Nigeria are further validate or invalidate the existence of the reverse causality hypothesis.

Another thing is that the earlier study carried out on Nigeria applied only to return on equity as a measure of performance while leverage was represented by short long and

total capital whereas, our study employed as a proxy of profitability two accounting ratios (return on assets and return on capital employed ratios) and two market ratios (earnings per share and market-to-book value of equity) while the ratio of total debt to total assets, debt-equity ratio and long-term were to measure leverage in Nigerian context. However, in some other studies, profit efficiency that was arrived at using the Data Envelopment Analysis was used to proxy profitability while others proxy it by technical efficiency, dual X efficiency and firm efficiency. It is my belief that these proxies can still be employed in the study of firm performance and its effect on the capital structure by interested researchers in the field of corporate finance.

Finally, it will be recalled that this study applied the dynamic estimation technique in its analysis, this study is encouraging intending researchers to further explore other estimation techniques so that we will have more insight and a better understanding of the problem at hand in the Nigerian situation.

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APPENDICES

Appendix A: Study Population

S/N	Companies	Sector
1	Ellah Lakes Plc	Agriculture
2	FTN Cocoa Processors Plc	,,
3	Livestock Feeds Plc	,,
4	Okomu Oil Palm Plc	,,
5	Presco Plc	,,
6	A. G. Leventis Nigeria Plc	Conglomerate
7	Chellarams Plc	,,
8	John Holt Plc	,,
9	SCOA Nig Plc	,,
10	Transnational Corporation of Nig. Plc	,,
11	UACN Plc	,,
12	Arbico PLC	Construction / Real Estate
13	Costain (WA) Plc	,,
14	G CAPPA PLC	,,
15	Julius Berger Nig. Plc	,,
16	Roads Nig. Plc	,,
17	Skye Shelter Fund Plc	,,
18	Smart Products Nig. Plc	,,
19	UACN Property Development Co. Ltd	,,
20	Union Homes Real Estate Investment Trust	,,
21	7-Up Bottling Comp. Plc	Consumer Goods
22	Cadbury Nig. Plc	,,
23	Champion Brew. Plc	,,
24	Dangote Sugar Refinery Plc	,,
25	DN Trye & Rubber Plc	,,

26	Flour Mills Nig. Plc	,,
27	Golden Guinea Brew. Plc	,,
28	Guinness Nig Plc	,,
29	Honeywell Flour Mill Plc	,,
30	International Breweries Plc	,,
31	Jos Int. Breweries	,,
32	MCNichols Plc	,,
33	Multi-Trex Integrated Foods Plc	,,
34	Nothern Nig. Flour Mills Plc	,,
35	Nascon Allied Industries Plc	,,
36	Nestles Nigeria Plc	,,
37	Nigerian Brew. Plc	,,
38	Nigerian Enamelware Plc	,,
39	P S Mandrides & Co Plc	,,
40	P Z Cussons Nig Plc	,,
41	Premier Breweries Plc	,,
42	Rokana Industries Plc	,,
43	U T C Nig. Plc	,,
44	Unilever Nig. Plc	,,
45	Union Dicon Salt Plc	,,
46	Vitafoam Nig. Plc	,,
47	Vono Products Plc	,,
48	Afrik Pharmaceuticals Plc	Healthcare
49	EkoCorp Plc	,,
50	Evans Medical Plc	,,
51	Fidson Healthcare Plc	,,
52	Glaxo Smithkline Consumer Nig Plc	,,
53	May & Baker Nigeria Plc	,,
54	Morison Industries Plc	,,
55	Pharmaceuticals Plc	,,
56	Nigeria-German Chemicals Plc	,,

57	Pharma-Deko Plc	,,
58	Union Diagnostic & Clinical Services Plc	,,
59	Chams Plc	ICT
60	Computer Warehouse Group Plc	,,
61	Courteville Business Solution Plc	,,
62	E-Tranzact International Plc	,,
63	Mass Telecommunication Innovations Nig. Plc	,,
64	MTech Communications Plc	,,
65	NCR (Nigeria) Plc	,,
66	Omatek Ventures Plc	,,
67	Tripple Gee and Company Plc	,,
68	Adswith Plc	Industrial Goods
69	African Paints (Nigeria) Plc	,,
70	Ashaka Cem Plc	,,
71	Austin Laz & Company Plc	,,
72	Avon Crowncaps & Containers	,,
73	Berger Paints Plc	,,
74	Beta Glass Co Plc	,,
75	CAP Plc	,,
76	Cement Co. of North Nig. Plc	,,
77	CUTIX Plc	,,
78	Dangote Cement Plc	,,
79	DN Meyer Plc	,,
80	First Aluminium Nig. Plc	,,
81	Greif Nig. Plc	,,
82	IPWA Plc	,,
83	Lafarge African Plc	,,
84	Nigerian Ropes Plc	,,
85	Paints and Coatings Manufactures Plc	,,
86	Portland Paints & Products Nig. Plc	,,
87	Premier Paints Plc	,,

88	W A Glass Ind. Plc	,,
89	Aluminium Extrusion Ind. Plc	Natural Resources
90	Aluminium Manufacturing Plc	,,
91	B.O.C. Gases Plc	,,
92	Multiverse Mining and Exploration Plc	,,
93	Thomas Wyatt Nig. Plc	,,
94	Anion International Plc	,,
95	BECO Petroleum Product Plc	Oil and Gas
96	Capital Oil Plc	,,
97	Conoil Plc	,,
98	Eterna Plc	,,
99	Forte Oil Plc	,,
100	Japaul Oil &Maritime Service Plc	,,
101	Mobil Oil Nig Plc	,,
102	MRS Oil Nig Plc	,,
103	Navitus Energy Plc	,,
104	Oando Plc	,,
105	Rak Unity Pet. Comp. Plc	,,
106	Seplat Petroleum Development Company Ltd	,,
107	Total Nig. Plc	,,
108	Academy Press Plc	Service
109	Afromedia Plc	,,
110	Airline Service & Logistics Plc	,,
111	Associated Bus Company Plc	,,
112	C & I Leasing Plc	,,
113	Capital Hotel Plc	,,
114	Caverton Offshore Support GRP	,,
115	DAAR Communications Plc	,,
116	Ikeja Hotel Plc	,,
117	Interlinked Technologies Plc	,,
118	Juli Plc	,,

119	Learn Africa Plc	,,
120	Lennards (Nig.) Plc	,,
121	Nigerian Aviation Handling Plc	,,
122	R T Briscoe Plc	,,
123	Red Star Express Plc	,,
124	Secure Electronic Technology Plc	,,
125	Studio Press (Nig.) Plc	,,
126	Tantalizers Plc	,,
127	Tourist Company of Nig. Plc	,,
128	Trans-Nationwide Express Plc	,,
129	Transcorp Hotels Plc	,,
130	University Press Plc	,,

Appendix B Secondary Data Collection Template

Company Name	YEAR	TDR	DER	LTD	ATO	EPS	MBV	ROA	ROCE	SIZE