

CHAPTER ONE

INTRODUCTION

1.1 Background to the Study

The relationship between corporate financial structure and performance are topical issues in empirical researches in corporate finance. Its relevancy is attributed to the causal nexus between firms and their owners especially as regards the obligation of the former to the latter. Financing decision by firms, as envisaged by Ajewole (2012), demands that managers look for various means of accessing funds or making financial provisions for new investments. To this effect, managers are favourably disposed to the combinations of debt instruments, equity and retained earnings. Hence, the composition of a firm's financing structure would include retained earnings, debt and equity. La-Porta, Lopez and Shleifer (1999) observe that the model of financial structure adopted by firms in developing and developed economies is one in which debt, equity and retained earnings show a structure of firm ownership in such a way that retained earnings and equity show ownership mainly by shareholders whereas, debt instrument as ownership by debt holders. If a wrong mix of finance is employed; the performance and survival of the business enterprise may be seriously affected (Muritala, 2012).

While an optimal combination of the various sources of finance is required to guarantee good performance, a number of other macroeconomic factors have also been noted as bearing on corporate performance. The devaluation of the Nigerian Naira in 2015 by the Central Bank of Nigeria, inflation and persistently high interest rate charged by banks have mounted huge pressure on both domestic and foreign companies. In the wake of the increasing macroeconomic instability in the country, access to and availability of both internal and external corporate finance are more

constrained. Camara (2012) shows that macroeconomic conditions including inflation rate have significant relationship with financial structure. Banks for instance, cautiously strive to minimise their credit and currency risks; and firms themselves are faced with the pressure of high cost of capital, which influences their decision to maintain a balance between debt and equity (Adesina, Nwidobie & Adesina, 2015). It follows therefore that, according to Adesina, Nwidobie and Adesina (2015), if a company fails to plan its financial structure, raising of funds to finance future operations may be difficult and judicious application of such funds may be compromised. Firms are advised to plan their financial structure in a way that allow maximization of fund and adaptability to changing circumstances (Adesina, Nwidobie & Adesina, 2015).

Ryoonhee (2011) asserts that operating at an optimal level of financial structure is beneficial to firms as this would positively impact on their corporate performance. This is hinged on the weighty effect of financial structure on cost and availability of capital, which in turn will affect the financial performance of firms. The rising responsibility of firms to different stakeholders around the world has recently increased the need for research into the relationship between financial structure and corporate performance, with emphasis on the effect of financial structure (Ajewole, 2012; Olokoyo, 2012; Ryoonhee, 2011; Schauten, 2008; Naizuli, 2005). The general notion that a firm's corporate performance is related to its financial structure was first highlighted by Modigliani and Miller (1958). Ryoonhee (2011) noted that even though the irrelevance theory of Modigliani and Miller (1958) provides a good insight to the understanding of financial structure. It is generally accepted that financial structure can greatly alter firm value in the presence of

constraints. Therefore, various factors such as taxes, bankruptcy costs and agency conflicts are regarded as elements of financial structure analysis.

The effect of financial structure on financial performance is not generally accepted within the corporate growth literature, owing in part, to the inconsistencies in the results of available studies on such relationship. In this context, the theoretical and empirical relationship between financial structure and corporate performance still generates contradictory evidence. The question hinges on whether corporate financial structure in the empirical studies are of important influence on corporate performance of firms. Opinions differ greatly among researchers on this point, from the earliest studies in this area by Lintner (1956), Hirshleifer (1958) Modigliani and Miller (1958) through Modigliani and Miller (1963), Kraus and Litzenberger (1973), Jensen and Meckling (1976) up to Myers (1977), Myers and Majluf (1984); down to the latest works by Naizuli (2005), Schauten (2008), Ryoonee (2011), Akeem, Terer, Kiyanjui and Kayode (2014), Martis (2013), Osuji and Odita (2012), Pratheepkanth (2011), Manawaduye, Zoysa De, Chowdhury and Chandarakumara (2011).

Modigliani and Miller (1958) stated that under the perfect market, a firm's financial structure would not affect firm value. However, in a follow up article, Modigliani and Miller (1963) argued that in reality, a firm's value could be increased by changing the firm's financial structure, because of the tax advantage of debts. Kraus and Litzenberger (1973) contended that the Static Trade-off Theory assumes that a firm could trade-off the benefits and costs of debt and equity financing and find an optimal financial structure after accounting for market imperfections such as taxes, bankruptcy costs and agency costs. In contrast, Myers and Majluf (1984) favour the Pecking Order Theory, which suggests that firms should follow a financing hierarchy in order to minimize information asymmetry between parties. So, the Pecking Order

Theory predicts that firms prefer to finance themselves internally before opting for debt. It states that only when all internal finances have been depleted, would firms opt for debt and as last resort, will turn to equity financing. Thus firms that are profitable and therefore generate high cash flows are expected to use less debt capital than those which do not generate high cash flow (Naizuli, 2005).

Agency theory that has been introduced by Jensen and Meckling (1976) is also relevant to deviation of financial structure. Jensen and Meckling (1976) suggest that in the decisions about a firm's financial structure, the level of leverage affects the agency conflicts between shareholders and managers. Studies on the effect of financial structure on corporate performance are of the perspective that the decision and choice of an optimal level of financial structure based on the trade-off between cost and benefits should be the responsibility of the firm. Although rapidly expanding literature suggests that there is an optimal level of financial structure that is required to enhance the performance of a firm, there is no specific methodology to ensure the achievement of an optimal debt level (Salim & Yadav, 2012). Not only that, the presumed impact of financial structure on performance can also be relative to a number of factors, including the level of economic development and stability prevailing in a country, as well as the internal structural mechanism of the affected firm. Firm related factors such as firm size, risk, tangibility, tax rate and growth opportunity are capable of affecting corporate performance of firms. Macroeconomic factors such as inflation, government taxation policy, financial market supply of debt, gross domestic product and unemployment among others affect the financial structure corporate performance relationship.

Nigeria, being a developing economy and facing persistent re-occurrence of macroeconomic instability can yield a uniform set of new evidence on the financial structure versus performance debate. The financial system of the country has equally undergone series of reforms that might have in one way or the other altered availability and access to corporate finance. The recent developments in the macroeconomic and financial system of the country thus open new opportunity for research in the age-long debate on the impact of financial structure on firm's performance, hence the need for this study.

1.2 Statement of the Problem

The increasing obligations of firms to different stakeholders in developing countries around the world over the last few decades have shifted the focus of researchers to explore the effect of financial structure on financial performance. This development has been influenced by the rising instability in the macroeconomic environments of the developing countries, especially those in Africa. In Nigeria, for instance, increasing interest rates, inflation and fall in the value of the local currency implies that firms' overall costs of borrowing and costs of capital might have risen in reaction. Inflation rate, for example rose from 6.6% as at end of 2007 to 17.6% by July 2016; average lending rates stood at 16.54% in 2015, from a level of 15.48% in 2010; the recent trend in the exchanged value of the Naira witnessed a crash from a level of ₦155 per US dollar in 2010 to almost ₦400 per US dollar by the end of July 2016 (CBN, 2015). Amidst this, the cost of operation and production of most firms have also been on the rise. The adverse effect of macroeconomic instability in the country and the negative consequence on firm's access to corporate finance has also been raised as the major challenge against the growing call to diversify the economy. Outside theoretical claims, however, empirical evidence to explain how the changing dynamics in the operating environment has affected the performance of firms in

Nigeria seems scanty. One area where this is more pressing is the impact of financial structure on the financial performance of firms, especially non-financial service firms.

Despite several decades of research, there is no generally accepted conclusion about the effect of financial structure on financial performance. The empirical results of Sourmadi and Hayajneh (2015), Hassan, Ahsan, Rahaman and Alan (2014), Akeem et al. (2014), Martis (2013), Osuji and Odita (2012), Pratheepkanth (2011), Manawaduye, Zoysa, Chowdhury and Chandarakumara (2011), Zeitun and Tain (2007), Majumdar and Chhibber (1999) and Pushner (1995) claimed that financial structure have negative effect on financial performance. The findings of these studies provided evidence in support of the Agency Cost Theory of financial structure. This is confusing as Adesina, Nwidobie and Adesina (2015), Gill, Biger and Mathur (2011), David and Olorunfemi (2010), Margaritis and Psillaki (2010) and Nickell and Nicolitsas (1997) argue that financial structure is positively related to financial performance whereas King and Santor (2008), Weill (2007) and Krishnan and Moyer (1997) reported that financial structure and financial performance is independent. In the light of all these differences in the findings of the many research works, this research work aim at adding to the debate and to achieve the objective of determining the effect of financial structure on firm's performance in Nigeria. Furthermore, Nigeria provides an ideal case for examining this interesting phenomenon as it has successfully undergone economic and political changes in recent years, producing various macroeconomic, monetary and fiscal policies affecting the business environment.

1.3 Objectives of the Study

The main objective of this study is to ascertain the effect of financial structure on financial performance of non-financial service firms quoted on the Nigerian Stock Exchange. Specifically, the study aimed to:

1. Ascertain the effect of financial structure on Return on Assets of quoted non-financial service firms.
2. Assess the effect of financial structure on Return on Equity of quoted non-financial service firms.
3. Evaluate the effect of financial structure on Net Profit Margin of quoted non-financial service firms.
4. Ascertain the effect of financial structure on Gross Revenue of quoted non-financial service firms.

1.4 Research Questions

In order to achieve the objectives of this study, the following research questions were developed:

1. To what extent does financial structure of quoted non-financial service firms significantly affect Return on Assets?
2. How has financial structure of quoted non-financial service firms affected Return on Equity?
3. To what extent does financial structure of quoted non-financial service firms impact on Net Profit Margin?
4. To what extent does financial structure of quoted non-financial service firms impact on Gross Revenue?

1.5 Research Hypotheses

The hypotheses, stated in null, tested in the course of this study were:

1. H_0 : Financial structure has no significant effect on Return on Assets of quoted non-financial service firms in Nigeria
2. H_0 : Financial structure has no significant effect on Return on Equity of quoted non-financial service firms in Nigeria.

3. H₀: Financial structure has no significant effect on Net Profit Margin of quoted non-financial service firms in Nigeria.
4. H₀: Financial structure has no significant effect on Gross Revenue of quoted non-financial service firms in Nigeria.

1.6 Scope and Limitations of the Study

The effect of financial structure on financial performance constitutes an important decision variable for any firm, not only because it affects the returns to various stakeholders, but also because of the effect such decisions can have on the firm's overall financial performance. This study was restricted to a period of twenty three years from 1993 to 2015 and focused on the effect of financial structure on financial performance of quoted non-financial service firms on Nigerian Stock Exchange. Within this period 1993 to 2015, the Nigerian Stock Exchange (NSE) has been able to document detailed information on financial performance of firms listed on the exchange through the Nigerian Stock Exchange factbook of various issues. The study is not intended to compare the performance of quoted non-financial service firms in Nigeria with their counterparts in other countries. This is based on the fact that both theoretically and practically, the idea of financial structure are basically the same but the difference is in the accounting reporting standard and the size of the stock market that permit listing of firms.

This study utilized secondary data collected from Nigerian Stock Exchange factbook of various issues. As a result, the quality of the study depends entirely upon the accuracy and reliability of that secondary data source. The study was pursued within the Trade-off Theory and Pecking Order framework given the increased support for these theories in existing literature. Hence, no other perspectives of interpreting the interrelationships among financial performance variables were considered. This study did not tackle the prompt effect on financial performance of

any variation in financial structure. The assumptions and limitation associated with fixed effect and random effect model estimation in regression analysis were presupposed.

1.8 Significance of the Study

This study will be of benefit to the following stakeholders:

Financial Managers: This study will help corporate financial managers to make improved financial structure decisions in their operations. It will provide and add new knowledge to corporate managers as a benchmark in making their own decision on the company's performance.

Investors: The empirical result of this study will be helpful to investors as it will throw more light on the role that financial structure plays in influencing firm's corporate performance.

Researchers, Students and Scholars: Individuals or groups who want to study the causal nexus between financial structure and corporate performance will find this study very valuable and proffered solutions on suitable mix of debt and equity to enhance financial performance. In addition, this study will also add to the body of existing literature in Nigeria context on the effect of financial structure on corporate performance.

CHAPTER TWO

REVIEW OF RELATED LITERATURE

2.1 Conceptual Review

2.1.1 Concepts of Financial Structure

Financial structure is the mix of debt and equity that a company uses to finance its business. It refers to the various means of financing a firm, that is, the proportionate relationship between debt and equity (Pandey, 2010). Memon, Bhutto and Abbas (2012) see financial structure as the combination of different sources of funds which a firm uses to finance its overall operations and growth. Financial structure is a significant managerial decision because it influences the shareholder's return and risk as well as the market value of the share. Financial structure is a financial term and it is a strategy to finance company's overall assets by selecting an appropriate mixture of debt (long term and short term) and equity (common equity and preferred equity). In making financial structure decisions, corporate managers are expected to seek answers to the following questions: How should the investment project be financed? Does the way in which the investment projects are financed matter? How does financing affect shareholders' risk, return and value? Is there an optimum financing mix in relation to the maximum value for the firm's shareholders? Can the optimum financing mix be determined in practice for a company? What factors in practice should a company consider in designing its financing policy? (Pandey, 2010).

2.1.2 Features of a Sound Financial Structure

Perfect trade-off between risk and return: Leverage raises the return on equity and thereby raises the value of the firm. However, at the same time, it tends to inflate the debt, increasing in turn the financial risk to be borne by shareholders (Harris & Raviv,

1991). Thus, a sound financial structure permits leverage only to the extent that it represents a trade-off between risk and return.

Minimum cost of capital: To be sound financial structure should lead to the feasible minimum cost of capital. Titman (1988) notes that the relevance and irrelevance approach in the world of corporate taxes support the view that consistent use of leverage leads to a decline in the weighted average cost of capital. However, when a firm considers a targeted debt ratio beyond which financial risk appears unmanageable, these two approach analogise the traditional approach and confirm that only a moderate use of leverage minimises the cost of capital, and is compatible with a sound financial structure.

Sufficiency of cash flow to service debt: The financial structure should take into account the realisable cash flow that form the basis for servicing debt. In other words, leverage should be used only to the extent that the cash flows are available to service debt. Otherwise, inability of the firm to service debt may lead to financial distress and ultimately to liquidation. During a boom, however, when cash flow are not scanty, debt servicing may not pose a problem. Thus, financial structure decision must take into account the probability of shrinkage in cash flow during time of recession and accordingly, debt should be relied upon that extent only (Werner & Stoner, 2011).

Maintenance of industry norms: The financial structure should conform to industry norms. This means that the debt-equity ratio of a firm should not deviate widely from the industry average. This is relevant in the sense that whenever the lenders lend to a firm, they analyse the debt-equity of the firm against the background of the industry norms. Indeed, any major deviation from the industry average makes the firm suspect (Werner & Stoner, 2011).

Flexibility: A sound financial structure must be significantly flexible so as to be attuned to changes in macroeconomic conditions. Flexibility means that the firm is in a position to raise fund easily and, at the same time, redeem its debt securities without much difficulty whenever it does not require the given amount of capital (Chand, 2014)

2.1.3 The Importance of Financial Structure

Decisions relating to financing the assets of a firm are very crucial in every business and the finance manager is often caught in the dilemma of what the optimum proportion of debt and equity should be. As a general rule there should be a proper mix of debt and equity capital in financing the firm's assets. Financial structure is usually designed to serve the interest of the equity shareholders. Therefore, instead of raising the entire fund from shareholders a portion of long term fund may be raised as loan capital in the form of debenture or mortgage bond by paying a fixed annual charge. Though these payments are considered as expenses to an entity, such method of financing is adopted to serve the interest of the ordinary shareholders in a better way. The importance of designing a proper financial structure is explained below:

Value Maximization: Financial structure maximizes the market value of a firm, i.e. in a firm having a properly designed financial structure the aggregate value of the claims and ownership interests of the shareholders are maximized (Trisha, 2014)

Cost Minimization: Financial structure minimizes the firm's cost of capital or cost of financing. By determining a proper mix of fund sources, a firm can keep the overall cost of capital to the lowest level (Trisha, 2014).

Increase in Share Price: Financial structure maximizes the firm's market price of share by increasing earnings per share of the ordinary shareholders. It also increases dividend receipt of the shareholders (Buigut, Soi, Koskei & Kibet, 2013). In a study by Buigut, Soi, Koskei and Kibet (2013) on the effect of financial structure on share

price of quoted energy firms indicates debt, equity and gearing ratio are significant determinants of share prices for the sector under consideration. Further, gearing ratio and debt were found to positively affecting share prices, while equity negatively affected share prices

Investment Opportunity: Financial structure increases the ability of the company to find new wealth-creating investment opportunities. With proper capital gearing it also increases the confidence of suppliers of debt. Kariuki and Kamau (2014) empirically noted that investment opportunities positively influence financial structure of food and beverage manufacturing firms in Kenya.

Growth of the Country: Financial structure increases the country's rate of investment and growth by increasing the firm's opportunity to engage in future wealth-creating investments (Trisha, 2014).

2.1.4 Patterns of Financial Structure

Equity Financing: Equity finance describe an investment into a company for a share of business ownership which dilutes the existing company ownership. Typically, equity investors recognise that their capital is needed to fuel growth in business and, accordingly, don't require monthly or quarterly interest payments. Furthermore, equity terms are generally more flexible than debt, have few covenant, less defined remedies in the event the company does not perform in accordance with business plan. Furthermore, equity investors will seek to align their interests with those of the management team (not always possible with debt), and then work actively to assist management in maximizing the ultimate value of the business during the investment period (typically 3-5 years). It is only an unlevered firm that uses equity financing (Werner & Stoner, 2011).

Debt Financing: Debt comes in two primary forms: senior and subordinated. Senior debt from banks are less expensive than subordinated debt but often has more extensive covenants that provide the lender with certain remedies in the event the covenants are not satisfied. In addition, most senior lenders will expect a company to have the collateralized by account receivables, other company assets, real estate, personal guarantees or some source of secondary source of repayment in the event the cash flows proves insufficient to service the debt. In liquidation event, senior debt obligation take precedence over all other debt obligations and equity positions. In most case, senior debt is the least expensive financing alternative, and most firms therefore look to finance as much as their capital needs as possible using senior debt facility, typically with a bank. However, for most of the high-growth, emerging and balance sheet “light” companies, the financing available through senior debt will prove insufficient for all their capital need, leading them to turn to the two most common forms of additional capital: mezzanine debt and equity (Werner & Stoner, 2011).

Subordinate or mezzanine debt, is a type of debt that typically has both debt and equity characteristics and sits below the senior debt in the capital structure. Since the risk exposure is greater than senior debt, mezzanine debt carries a higher interest and some form of equity “kicker” (an equality interest in the company usually in the form of stock or warrants) to drive acceptable risk-adjusted returns. Mezzanine debt normally requires that some or all of the related costs be paid monthly or quarterly, placing a high potential drain on a growing company’s cash flow. And, since mezzanine debt interest rates are higher than senior debt, these repayments can be significant. Accordingly, subordinated debt is commonly used specifically for recapitalizations or acquisition. It is also a good financing alternative for stable,

moderate-growth companies consistent with predictable cash flows and firms that are unwilling to entertain a liquidation event within seven years (Werner & Stoner, 2011).

2.1.5 Determinants of Financial Structure

Financial structure of a firm is influenced by different external and internal factors. The major external factors affecting financial structure are the macroeconomic variables of the economy such as government tax policy, monetary policies of the Central Bank and the level of development of the stock market. The factors capable of influencing a firm's financial structure relative to various theories of capital structure are:

Profitability: The Static Trade-off Theory pleads for the low level of debt capital of risky firms (Panda & Panigrahi, 2010). The higher profitability of a firm signifies higher debt capital and less risky to the debt holders. On the basis of this theory, there exist a positive relationship between profitability and financial structure. On the contrary, the pecking order theory posits a negative relationship. Firms have preference for financing operation internally and pursue stick dividend policy. If funds obtained internally are inadequate to effectively and efficiently finance the firm operation, it prefers debt to equity financing. Therefore, the higher profit a firm makes the more investment it can finance internally and less dependent on debt financing. The empirical findings of Cassor and Holmes (2003), Huang and Song (2006) and Tong and Green (2005) support the negative relationship between profitability and capital.

Firm Growth Opportunities: The Agency Cost Theory hypothesized a negative relationship between financial structure and growth opportunities of firm by showing that firms with future growth opportunities, which also represents some form of intangible assets, have a propensity to borrow less than firms having more tangible assets due to the fact that growth opportunities cannot be collateralized. The agency

cost is likely to be higher for enterprises in growing industries which have more flexibility in their choice of future investment (Panda & Panigrahi, 2010). On the other hand, the existence of a positive relationship between growth opportunities and financial structure was epitomized by the Pecking Order Theory. This was adduced from the fact that a higher growth rate means a high demand for funds, and all things been equal, the firm will rely more on debt for financing operations.

Firm Risk: The Pecking Order and Trade-off theories supports that risk negatively impacts a firm's financial structure. According to Pecking Order Theory, investors are less able to predict the future earnings of a firm with variable earnings, which increases the cost of debt. Trade-off Theory suggests that the more firms are exposed to bankruptcy costs, the larger the incentive is to reduce their debt level. Firms with variable earnings are more prone to missing their debt commitments and thus have a higher probability of default. Therefore, lenders are reluctant to lend to firms with high earning variability and tend to charge a higher premium to such firms because of the higher probability of default. Al-Ajmi, Hussain and Al-Saleh (2009), Petersen and Rajan (1994) and Bradley, Jarrel and Kim (1984) affirmed the negative relationship between firm risk and financial structure.

Firm Size: Firm size has been considered a very important determinant of financial structure, and one of the reasons given for this is the fact that large firms are usually more spread out in term of operations and thus have lower propensity to default. The size of a company greatly influences the availability of funds from different sources. A small company may often find it difficult to raise long-term loans. If somehow it manages to obtain a long-term loan, it is available at a high rate of interest and on inconvenient terms. The highly restrictive covenants in loans agreements of small companies make their financial structure quite inflexible. The management thus

cannot run business freely. Small companies, therefore, have to depend on owned capital and retained earnings for their long-term funds. A large company has a greater degree of flexibility in designing its financial structure. It can obtain loans at easy terms and can also issue ordinary shares, preference shares and debentures to the public. A company should make the best use of its size in planning the financial structure. The Pecking Order Theory postulates the presence of negative relationship between firm size and its financial structure. This hypothesis has been validated by the studies conducted by Kashafi-pour, Lasfer and Carapeto (2010) and Heshmati (2001).

Tax Structure: Taxation is one form of market imperfection that can influence a firm's financial structure. Trade-off Theory highlights the importance of taxation in determining the financial structure of a firm. According to static Trade-off Theory, optimal leverage would decrease when bankruptcy costs, non-debt tax shields and/or marginal tax rates to bondholders are boosted (Bradley, Jarrel & Kim, 1984). Conversely, it would increase when the personal tax rate on equity is increased (Atta, 2014). Therefore, the tax jurisdictions under which companies operate significantly influence their leverage decisions.

Liquidity: Liquidity ratios have been considered to have both positive and negative effects on a firm's leverage. The Trade-off Theory predicts a negative relationship between liquidity and debt ratio. The firm with huge volume of liquid will rather finance its investments internally than borrow to finance new investments, in other words, this theory explains that the more liquid assets a firm has, the more it would use the assets to finance its future opportunities for investment (Ajewole, 2012). Sheikh and Wang (2011) noted that asset liquidity poses different obscure signals to investors, as some investors may regard a high liquidity ratio as a negative sign for a

firm because it shows that the firm lacks the ability to make long-term investment decisions, on the other hand, other investors could consider a high liquidity ratio as an encouraging sign from a firm, as it shows that the firm can meet its contractual responsibilities, and thus is highly incapable of default.

Dividend Payout: The Bankruptcy Costs Theory pleads for adverse relationship between dividend payout ratio and debt level in financial structure. The low dividend payout ratio means increase in equity base for debt capital and low probability of going into liquidation. As a result of low prospect of bankruptcy, the bankruptcy cost is low. According to the Bankruptcy Theory, low bankruptcy signifies high level of debt in the financial structure. On the contrary, the Pecking Order Theory envisaged the existence of a positive relationship between debt level and dividend payout ratio. On the premises of this theory, management would greatly rely more on internal financing than external one. This result in low dividend payout to shareholders due reinvestment of retained earnings (Bevan & Danbolt, 2002).

Operating Leverage: The use of fixed costs in production also affect the financial structure. The high use of operating leverage-in the total cost over a period of time can magnify the fluctuations in future earnings. The Bankruptcy and Agency Cost Theory indicates the presence of negative relationship between operating leverage and debt level in the financial structure. The Bankruptcy Cost Theory contends that, the higher the operating leverage, the greater the chance of business failure and the greater will be the weight of bankruptcy costs on the firm financing decisions. In the same manner, as the prospect of bankruptcy cost rises, the agency problems related to debt becomes more exasperating. On the basis of Bankruptcy and Agency Cost theories, the higher the operating leverage, the lower the debt level in the financial structure of firms (Chen & Chen, 2011).

2.1.6 Optimal Financial Structure

An optimal financial structure can be described as the best debt to equity ratio for the firm in which this will minimize the cost of financing and maximizes the value of the firm. Determining optimal financial structure is one of the most important tasks to be fulfilled by financial managers. In fact the search for optimal financial structure has dominated the theory of financial structure. Financial managers should always choose between debt and equity financing which will be more beneficial to the company. Choosing on the best source of finance also related to the minimizing the tax liability of the company. This is due to the fact that in trade-off theory, interest on debt is tax-deductible which resulted to the lower cost of financing. However, this is not always the case if the debt is used not in the production of gross income. The link between debt and tax was initiated by Miller (1977). He focused on the effects of corporate and personal taxes on leverage ratio. His research also attempted to prove the existence of tax benefit that causes the preference of firm towards debt financing. DeAngelo and Masulis (1980) proved that the relevancy of financial structure only exists in several situations. The uniqueness of optimum financial structure equilibrium can be reached in the presence of corporate and personal taxes. They explained that the increase of inflation decreases the real value of investment tax shield and immediately increases the proportion of debt. Therefore, by incorporating the tax element, tax deduction or tax benefit makes debt financing cheaper than equity financing. Thus, without the existence of personal tax, firm may use debt to reduce corporate tax liability. However, if the marginal tax value of debt financing equals to zero, the financial structure is considered irrelevant.

Aggarwal (1981), Naidu (1986), Rajan and Zingales (1995), Bevan and Danbolt (2000), Ghosh, Nag and Sirmans (2000), Booth, Aivazian, Demirguc-Kunt and Maksimovic (2001) and Yang and Li (2001) revealed that there are a lot of factors that significantly determine the firm financial structure, such factors as size of the firm, country and industry. Panda and Panigrahi (2010) in their study of financial structure observed that financing with internal funds as suggested by the Pecking Order Theory has emerged as a major feature of corporate financial structure. Furthermore, firms prioritise their sources of fund (from internal financing to equity) according to the law of effort or of least resistance, preferring to raise equity as a financing means of last resort. Hence, internal funds are used first, when that is depleted debt is used, and when it is not sensible to issue any more debt, equity is issued. Some other determinants, however, have patterns of influence that match with the postulations of the static trade off theory and the agency cost theory.

2.1.7 Measures of Firm Leverage

Leverage refers to the use of a relatively small investment or a small amount of debt to achieve greater profits. That is, leverage is the use of assets and liabilities to boost profits while balancing the risks involved. There are two types of leverage, operating and financial. Operating leverage is the extent to which a firm uses fixed costs in producing its goods or offering its services. Fixed costs include advertising expenses, administrative costs, equipment and technology, depreciation, and taxes, but not interest on debt, which is part of financial leverage. By using fixed production costs, a company can increase its profits. If a company has a large percentage of fixed costs, it has a high degree of operating leverage. According to Brigham and Houston (2002), operating leverage is the extent to which operating fixed costs are used in a firm's operation. If a high percentage of total costs are fixed, then the firm is said to have a high degree of operating leverage and implication is that high degree of

operating leverage implies that a relatively small change in sales results in a large change in return on equity (Brigham & Houston, 2002). Horne and Wachowicz (2001) measured operating leverage as the percentage change in firm's operating profit (earnings before interest and taxes) resulting from a percentage change in output (sales), noted that Potential effect of operating leverage is that a change in the volume of sales result in a more than proportional change in operating profit (or loss).

Financial leverage involves changes in shareholders' income in response to changes in operating profits, resulting from financing a company's assets with debt or preferred stock. Similar to operating leverage, financial leverage also can boost a company's returns, but it increases risk as well. Financial leverage is concerned with the relationship between operating profits and earnings per share. If a company is financed exclusively with common stock, a specific percentage change in operating profit will cause the same percentage change in shareholder earnings. Pandey (2008) envisaged that financial leverage causes variability in the returns of shareholders, thus, adds financial risk; consequently, beta (risk) of a levered firm's equity will increase as debt is introduced in the firm's capital structure. Ojo (2012) asserted that Leverage exert substantial shock on corporate performance in Nigeria. According to Ojo (2012), earnings per share depends more on feedback shock and less on leverage shock. Leverage shocks on earnings per share indirectly affect the net assets per share of firms as the bulk of the shocks on the net assets per share was received from earnings per share of the firms.

Another type of leverage is the total or combined leverage. Total leverage is therefore concerned with the relationship between sales and earnings per share. Specifically, it is concerned with the sensitivity of earnings to a given change in sales. The degree of total leverage is defined as the percentage change in stockholder

earnings for a given change in sales, and it can be calculated by multiplying a company's degree of operating leverage by its degree of financial leverage (Gerhardinger, 2015). Consequently, a company with little operating leverage can attain a high degree of total leverage by using a relatively high amount of debt. The implication of combined leverage is that when a company uses debt or preferred stock financing, additional risk- financial risk is placed on the company's common shareholders. They demand a higher expected return for assuming this additional risk, which in turn, raises a company's costs. Consequently, companies with high degrees of business risk tend to be financed with relatively low amounts of debt. The opposite also holds: companies with low amounts of business risk can afford to use more debt financing while keeping total risk at tolerable levels. Moreover, using debt as leverage is a successful tool during periods of inflation. Debt fails, however, to provide leverage during periods of deflation.

Leverage measures specifically addresses a firm financial structure. A firm capital structure is the degree to which operating assets are financed with debt versus equity. Debt obligations normally requires mandatory calls on the firm's cash through payment of interests and repayment of principal on a periodic basis. Common equity, on the other hand, does not has a mandatory cash calls either for periodic return to capital providers or return of equity holders capital investment on the firm. The four major proxies for measuring leverage according to Gerhardinger (2015) are succinctly outlined as follows:

Total Liabilities to Total Assets: The liabilities to assets ratio is a solvency ratio that examines how much of a firm's assets are made of liabilities. A liabilities to assets ratio of 20% means that 20% of the firms are liabilities. A high liabilities to assets ratio can be negative; this indicates the shareholder equity is low and potential

solvency issues. Rapidly expanding firms often have higher liabilities to assets ratio (quick expansion of debt and assets). Firms in signs of financial distress will often also have high liabilities to assets ratios. A firm facing declining revenues and poor long-term prospects of growth will be impacted on retained equity (Gerhardinger, 2015). Firms with low liabilities to assets ratios indicate a company with little to no liabilities. With some notable exceptions, this is normally a good sign of financial health for the firm.

Total Debt to Total Assets: The debt to assets ratio is a leverage ratio used to determine how much debt (a sum of long term and current portion of debt) a firm has on its balance sheet relative to total assets. This ratio examines the percent of the firm that is financed by debt. If a firm's debt to assets ratio was 60 percent, this would mean that the firm is backed 60 percent by long term and current portion debt. Most firm's carry some form of debt on its books. All things being equal, a higher debt to assets ratio is riskier for equity investors; debt holders often have seniority over firm assets during bankruptcy (Well, 2007). A ratio of 1 (unlikely) would indicate a company is 100% backed by debt, whereas a ratio of 0 means the company is carrying no debt on its books. High debt to assets ratios will also mean that the company will be forced to make more interest payments on its debt before net earnings are calculated.

Total Assets to Total Equity: Assets to Shareholder Equity is a measurement of financial leverage. It shows the ratio between the total assets of the firm to the amount on which equity holders have a claim. A ratio above two means that the firm funds more assets by issuing debt than by equity, which could be a more risky investment. A low ratio could be seen as more conservative (Pushner, 1995). The assets to shareholder equity moves in conjunction with the debt to equity ratio.

Total Debt to Total Equity: Leverage ratio indicating the relative proportion of shareholders' equity and debt used to finance a company's assets. A low debt to equity ratio indicates lower risk, because debt holders have less claims on the company's assets. A debt to equity ratio of five means that debt holders have a five times more claim on assets than equity holders. A high debt to equity ratio usually means that a firm has been aggressive in financing growth with debt and often results in volatile earnings (Ojo, 2012).

2.1.8 Financial Performance

Originally indicating how well the results of an effort are shown, the phrase “performance” is a concept of two tiers, namely efficiency and effectiveness (Chao, 2012). While efficiency is the ratio between output and input, effectiveness is the degree of goal achievement for an organization. Organizational operations are pursuits of successful outcomes that combine efficiency with effectiveness. Xie (2006) noted that the science of organizational behaviour refers to financial performance as an integrated success consisting of efficiency, effectiveness and efficacy. Financial performance is the degree of a company achieving its strategic goals, as well as an indicator for the examination of the company’s overall competitiveness (Xu, 2007). When conducted properly, the evaluation of financial performance will give a firm’s manager an idea of the current conditions of his/her firm. Ling and Hong (2010) argued that financial performance is the sum of accomplishments attained by all businesses/departments involved with an organizational goal during a determined period of time, with the goal either meant for a specific stage or on the overall extent.

2.1.9 Measurement of Financial Performance

Literature uses a number of different measures of firm’s performance. Measurement of performance can offer significant invaluable information to allow

management's monitoring of performance, report progress, improve motivation and communication and pinpoint problems (Waggoner, Neely & Kennerley, 1999). Accordingly, it is to the firm's best interest to evaluate its performance (Al-Matari, Al-Wwidi & Fadzil, 2014). Nevertheless, this is a management area characterized by lack of consistency as to what constitutes organizational performance. Cameron and Whetten (1983) as was cited in Al-Matari, Al-Wwidi and Fadzil (2014) envisaged that the importance of business performance in strategic management can be categorized into three dimensions; theoretical dimension, empirical dimension and managerial dimension.

Moreover, performance measurement is critical in performance management. Through the measurement, people can create simplified numerical concepts from complex reality for its easy communication and action (Lebas, 1995). The simplification of this complex reality is conducted through the measurement of the prerequisites of successful management (Xu, 2007).

Accounting Based Measurements: Accounting-based measurement is generally considered as an effective indicator of the company's profitability and the business when compared to benchmark rate of return equal to the risk adjusted weighted average cost of capital. The accounting based measurement indicators measures the profitability of firms and include indicators such as return on assets, return on equity, return on sales, profit before tax or return on investment, operating cash flows, earnings per share, operating profit, growth in sales, return on capital employed, expense to assets, cash to assets, sales to assets, return on revenue, cost of capital, etc. The profit measure is criticized for its backward-looking element and its partial estimation of future events in terms of depreciation and amortization (Al-Matari, Al-Wwidi & Fadzil, 2014). Kapopoulos and Lazaretou (2007) noted that the rate of profit

is measured by the accountant, limited by standards established by the profession and is hence impacted by the accounting practices like the various methods employed for the assessment of tangible and intangible assets.

Market Based Measurements: The second type of measurement is the market-based measurement which is categorized as long term like Tobin's Q, market value added, market to book value, dividend yield and price earnings ratio among others. According to Al-Matari, Al-Wwidi and Fadzil (2014) the market-based measurement is characterized by its forward-looking aspect and its reflection of the expectations of the shareholders concerning the firm's future performance, which has its basis on previous or current performance. Their perspective was hinged to Wahla, ShahSyed and Hussain (2012), Shan and McIver (2011) and Ganguli and Agrawal, (2009). Tobin's Q refers to a traditional measure of expected long-run firm performance. The employment of market value of equity may present the firm's future growth opportunities which could stem from factors exogenous to managerial decisions and this is indicated by the company's level. Kapopoulos and Lazaretou (2007) noted that a high Q ratio shows success in a way that the firm has leveraged its investment to develop the company that is valued more in terms of its market-value compared to its book-value. Moreover, market-based expectations for firm performance may result in management incentive to modify their holdings on the basis of their expectations of the future performance of the firm. As a result, when the company's market-based performance is higher than the results of Tobin's Q, this indicates that the company has succeeded in achieving its planned high performance (Nuryanah & Islam, 2011) but if it is less than Tobin's Q, then the company needs to revise its plans to enhance its short-term performance. The negative performance leads to investor's loss (local and foreign) and hence, it is important for the company to update its objectives from

time to time if it is desirous of competing in the market place (Al-Matari, Al-Wwidi & Fadzil, 2014).

2.1.10 Financial Structure and Firm's Financial Performance

Firm's financial structure decisions plays a pivot role in maximizing firm value and performance. Firm's financial structure decision revolves the use of an amalgamation of different sources of funds which a firm uses to finance its operations as well as for capital investments. These sources comprise the use of short term debt, long term debt, preferred stock and common stock or equity sources of funding. The financial structure of all firms are not harmonised; they differ in their financial decisions. It is a difficult task for managers to take decision about financial structure where risk and cost is minimized and can give more profits and also can increase shareholder wealth. The relationship between financial structure and corporate performance has been discussed by a number of theories which include, the irrelevance theory of Modigliani and Miller (1958) and (1963), Agency Cost Theory (1976), Trade-off Theory (1977) and Pecking Order Theory (1984).

Modigliani and Miller (1958) argue that under very restrictive assumptions of perfect capital market, investor's homogeneous expectations, tax-free economy and no transaction costs, financial structure do not play any role in determining firm value. Their succeeding preference of entirely debt financing is due to tax shield, in 1963, was a denial to traditional approaches, which advise an optimal capital structure (Javed, Younas & Imran, 2014). Financial managers have been on deck in determining the right mix of debt and equity capable of improving corporate performance. Miller (1977) relying on the premises of the Trade-off Theory opined that firms prefers how much amount of debt finance and how much amount of equity finance to be used by considering costs and benefits. In effect, if a firm is highly profitable, the firm then would prefer debt financing for increasing the shareholder

wealth, further debt in a firm's financial structure gives more tax benefits. If a firm has low profit, then there is a larger probability of bankruptcy if it uses more debt. Myers and Majluf (1984), the pioneers of the Pecking Order Theory envisaged that firms with high profits tends to rely more on internal financing for their operations and which can maximize the value of shareholders. If retained earnings are not enough, then debt financing is preferred and if additional financing is required, equity is issued. The choice of retained earnings is preferred because it has nearly no cost. Myers and Majluf (1984) went further and empirically assessed the influence of the financial structure decisions on the firm corporate performance. As financial structure is essentially based on two forms of funding that are equity and debt. The application of each form of funding explains the mixed and conflicting conclusion on corporate performance (Javed, Younas & Imran, 2014). Jensen and Meckling (1976) express the sum of leverage in the financial structure of a firm influences agency conflicts among shareholders and managers, and so can change managers' behaviours and operating decisions.

Javed, Younas and Imran (2014) proved that financial structure has positive impact on corporate performance and that financial managers should adopt necessary carefulness while taking decisions regarding financial structure. This claim has been supported by Adesina et al. (2015), Gill, Biger and Mathur (2011), Margaritis and Psillaki (2010), Nickell and Nicolitass (1997) and David and Olorunfemi (2010) among others. On the contrary, studies have also established the presence of negative relationship between firm's financial structure and corporate performance. Among these scholars are Sourmadi and Hayajneh (2015), Hassan, Ahsan, Rahaman and Alan (2014), Akeem et al. (2014), Martis (2013), Osuji and Odita (2012) and Zeitun and Tain (2007). However, Santor (2008), Weill (2007) Krishnan and Moyer reported

mixed or independent relationship between corporate performance and financial structure.’

2.1.11.1 Relationship between Financial Structure and Return on Assets

Most firms commonly use Return on Assets (ROA) as a measure of corporate performance. Lislevand (2012) asserted that return on asset is a widely accepted measure of corporate performance and that accounts for its usage in the various finance research. According to Zeitun and Tian (2007), return on assets is a financial measure that measures how profitable a firm is in relation to its total assets. This measure tells how efficient management is at using assets to generate income. Funding a company through debt, rather than selling company stock to attract capital, avoids diluting the stockholders' percentage ownership of the company. However, if there is a large capital position supplied by stockholder investment, the company has a better credit profile. If shareholders assume risk by funding the company with their capital, the company is likely to be more conservatively operated. If the firm finances itself through debt, the creditors shoulder the risk.

However, if the debt results in increased earnings, the return on shareholder investment is exponential. Increased debt has the potential to lower revenues as more money is spent servicing that debt. Increase in equity will result in higher revenue as no money will be spent to service debt. If debt is acquired to increase production and production leads to significantly increased revenues, increased debt may increase return on assets (Lislevand, 2012). That depends on whether the debt burden is so costly it cuts into net income. If revenues rise as a result of debt financing of production, but net income falls due to increased expense, return on assets declines.

2.1.11.2 Relationship between Financial Structure and Return on Equity

Return on equity is an approximate figure of the earnings of invested equity capital, or on the other hand, the percentage returns to owners on their investment in

the company. In Kimondo (2015) perspective, Return on equity is a frequently used variable in judging top management performance, and for making executive compensation decisions. The return on equity points out the efficiency of using the own capital of the company; that's why its level is important primarily for shareholders, who may thus determine whether the remuneration they get rewards the risk assumed. Debt favourably impact on a company's return on equity, however, this enhancement of return on equity is not without cost. It raises fixed interest expenses and thus shifts a company's break-even point upward toward the expected sales level. More important, it boosts the volatility of earnings and, by extension, of share price. Increased debt increases the leverage factor in a company. During normal or boom times, leverage results in exponential profit returns. During recessions, leverage can result in exponential losses, as well. A large debt burden carries risk because of the reaction of leverage to the prevailing economic conditions. Increased debt favours return on equity during boom times but hurts equity during boom during recessions. This is not the case when there is increased equity finance from the shareholders of the firm.

2.1.11.3 Relationship between Financial Structure and Net Profit Margin

This is an accounting based performance measure which can be tagged as forward looking because profit for the period is measured against sales for the current period. Net profit margin is calculated as profit after tax divided by turnover or net sales. The essence is that it provides information on the percentage of profit that sales are able to generate. The use of borrowed capital increases the level of investment undertaken by the firm without causing any additional cost for firm's owners other than interest expenses. This increases profitability and the return of invested capital by owners. However, borrowed capital increases the risk for the firms as well as for owners, because borrowed capital creates fixed expenses (i.e. Interest), thus a

minimum profit level is necessary for financing the level of interest. The higher the debt, the higher the net profit margin and debt servicing cost. At the same time, rising interest rates overwhelm the tax advantages of debt. If the firm falls on hard times and if it's operating income is insufficient to cover interest charges, then stockholders will have to make up the short fall, and if they can't, the firm may be forced into bankruptcy. Good times may be just around the corner. But too much debt can keep the company wipe out shareholders in the process (Azhagaiah & Gavoury, 2011).

2.1.11.4 Relationship between Financial Structure and Gross Revenue

Following the Pecking Order Theory, firms with high sales consequent to higher growth opportunities have greater need for fund, internal fund via retained earnings are likely to exhausted, hence need for external fund. Revenue growth from sales is positively related with financial structure. Bevan and Danbolt (2002) asserted that revenue growth is positively related with financial structure of firms in United Kingdom. On the perspective of the Trade-off Theory, companies with greater growth opportunities have more retained earnings, then, they issue more debt to maintain the target debt ratio, and thus, they will tend to have a higher capital structure (Chen & Chen, 2011). Thus, an inverse relationship exist between financial structure and revenue growth. Financial structure is inversely related to growth rate, because the tax deductibility of interest payments is less valuable to fast growing firms, since they usually have non-debt tax shields (Auerbach, 1985). Rajan and Zingales (1995) using international data found that financial structure is negatively associated with revenue growth of firms.

2.2 Theoretical Review

Financial structure theory as accredited to Modigliani and Miller (1958) concluded that it does not matter how a firm finances its operations and that the value of a firm is independent of its financial structure making financial structure irrelevant

(Wakida, 2011). The study was based on the assumption that there were no brokerage costs, earnings before interest and tax were not affected by the use of debt and that investors could borrow at the same rate as corporations and lastly there was no information asymmetry. The possible preference of a firm's owner to a certain type of financing over others was not overruled, it did affect the irrelevance of the value of the firm to the means of financing it given a perfect market (Fischer, Heinkel & Zechner, 1989). In the finance literature, theories have been developed to explain firm's financial structure prominent among which are the Trade-off Theory and the Pecking Order Theory and they have been subject to argument over the years. The Trade-off Theory, Agency Cost Theory and the Pecking Order Theory are the prominent theories of financial structure that are widely used in the studies. The Trade-off Theory assumes the existence of optimal financial structure. The Pecking Order Theory is believed to be more efficient than Static Trade-off, as in this theory, firm will list all the possible internal financing before seek for external financial which will later bind the company for the prepayment. Although there is no consensus on the preferable theory in determinant of optimal financial structure, it is worthwhile to look at the theories as it will give an idea on the strategy to manage firm financial structure. This research work was pursued within the Trade-off Theory and Pecking Order Theory of financial structure.

2.2.1 Traditional Theory of Financial Structure

The traditional theory of financial structure is based on the belief that optimal financial structure always exists, and we can increase the value of firms by making use of leverage. Since the basic principles of corporate finance that are necessary to understand the financial structure theory have been introduced, we can enter the debate by looking at the traditional view that prevailed before the 1950s. The tradition theory of financial structure envisaged three assumptions. Firstly, cost of

debt capital remains more or less constant up to a certain degree of leverage but rises thereafter at an increasing rate. Secondly, cost of equity capital, remains more or less constant or rises only gradually up to a certain degree of leverage and rise sharply thereafter. Thirdly, average cost of capital as a consequence of the above behaviour of cost of debt capital and cost of equity capital, decreases up to a certain point; remains more or less unchanged for moderate increases in leverage thereafter; and rises beyond a certain point.

The principal implication of the traditional position is that the cost of capital is dependent on the financial structure and there is an optimal financial structure which minimises the cost of capital (Frentzel, 2013). It was thought beneficial to substitute cheaper funds for equity so long as the company's capacity to service the debt was ensured because the weighted average cost of capital is reduced and discounted future cash flows result in higher present values (Wrightsman, 1978). The risks of excessive levels of gearing including the increasing volatility of shareholders' earnings and probability of financial distress would inevitably be punished by the stock market by a deterioration of share prices of a highly geared company (Pike & Neale, 2006; Arnold, 2008). So the traditional view assumed that there was a specific optimal financial structure level that eventually minimizes the cost of capital and maximizes the value of the firm, hence shareholders' wealth (Wrightsman, 1978). Nevertheless, concept of an optimal financial structure with its critical gearing ratio turned out to be highly desirable but illusory and difficult to grasp (Pike & Neale, 2006). Some finance academics believed that a more solid theoretical foundation was needed to enhance the analysis of financial structure decisions and to increase the relevance to practitioners. Since then, several sophisticated models have been developed that attempt to expose and analyse the key theoretical relationships (Pike & Neale, 2006).

Staking and Babbel (1955) findings also supports this approach as their result show that the market value of equity at first grows but then later declines as leverage increases.

2.2.2 Modigliani-Miller Proposition on Financial Structure

Modigliani and Miller (1958) in their original proposition advocated that the relationship between financial structure and the cost of capital is explained by the net operating income approach. They make a formidable attack on the traditional position by offering behavioural justification for having the cost of capital remain constant throughout all degrees of leverage. The theory assumed a perfect capital market where there is no problem of asymmetric information: there are no transaction costs; no bankruptcy cost and the securities are infinitely divisible. Managers act in the interest of shareholders and the firms can be grouped into equivalent risk classes on the basis of their business risk; and they assumed that there is no tax. In their first proposition, they considered the value of the firm to be independent of its financial structure. This proposition was more or less similar to that of the net operating income approach. They viewed the value of a firm as a function of expected operating income divided by the discount rate appropriate to its risk class, and proved that the average cost of capital within a given class is independent of the degree of leverage. The second proposition held that financial leverage increases to expected earnings per share while the share price remains constant. This is because the change in the expected earnings is offset by a corresponding change in the return required by the shareholders. Their third proposition made an attempt to develop the theory of investment, wherein they concluded that an investment financed by common stock is advantageous to the current stockholders if and only if its yield exceeds the capitalization rate. When a corporate income tax, under which interest is a deductible expense, is considered, gain

can accrue to stockholders from having debt in the financial structure, even when capital markets are perfect.

2.2.3 Trade-off Theory

According to Maris (2013) who cited Kraus and Litzenberger (1973), the static trade-off theory presuppose that firms trade-off the benefits between costs of debt and equity financing and find an optimal financial structure after accounting for market imperfections such as taxes, bankruptcy costs and agency costs. The theory states that there is a benefit to financing with debt, specifically the tax benefit. However there is also a cost of financing with debt, namely the indirect bankruptcy costs and the more direct financial distress costs of debt. This is thus the trade-off that all firms, whom are maximizing value, should focus on when choosing the amount of debt and equity needed to finance their operations. Needless to say, there is a maximum point where the marginal benefit of further increases in debt declines as debt increases, whereas the marginal cost increases. Hence, this Static Trade-off Theory of financial structure states that optimal financial structure is obtained where the net tax advantage of debt financing balances leverages related to costs such as financial distress and bankruptcy, holding firm's assets and investment decisions constant.

Altman (2002) in view of this theory, claim that issuing equity means moving away from the optimum and should therefore be considered bad news. According to Myers (1984), firms this theory could be regarded as setting a target debt-to-value ratio with gradual attempt to achieve it. However, Myers (1984) suggests that managers will be reluctant to issue equity if they feel it is undervalued in the market. The consequences is that investors perceive equity issues to only occur if equity is either fairly priced or overpriced. Ebaid (2009) argues that leverage mitigates agency cost since the firm's reputation and manager's wage are at stake. On the other hand

however, higher leverage also means that the firm has higher commitment to fulfil its future obligations, in terms of principal and interest payment. Furthermore, higher leverage ratio also lead to higher costs relating to financial distress. The trade-off theory suggest that those firms with higher level of retained earnings, i.e. profitable firms, tend to have higher debt levels because they can more effectively use the tax shield on interest. Beside, sine these companies have higher operating profits, the probability and costs of financial distress for them are also lower. To this effect, the trade-off theory expects a positive association between firms leverage ratio and financial performance.

2.2.4 Dynamic Trade-off Theory

Implementing the role of time is very significant in identifying the optimal financial structure. In a dynamic model, the correct financing decision typically depends on the financing margin that the firm anticipates in the next period. Some firms expect to pay out funds in the next period, while others expect to raise funds. Stiglitz (1972) took the drastic step of assuming away uncertainty. The first dynamic models to consider the tax savings versus bankruptcy cost trade-off are Kane, Marcus and MacDonald (1984) and Brennan and Schwartz (1984). Their models took into consideration: uncertainty, taxes, and bankruptcy costs, but no transaction costs. These firms maintain high levels of debt to take advantage of the tax savings and to adjust to shocks without any cost as there is no transaction cost. Strebulaey (2007) analysed a model quite similar to that of Fischer, Heinkel and Zechner (1989) and Goldstein, Ju and Leland (2001). Again, if firms optimally finance only periodically because of transaction costs, then the debt ratios of most firms will deviate from the optimum most of the time. In the model, the firm's leverage responds less to short-run equity fluctuations and more to long-run value changes.

2.2.5 Pecking Order Theory

Myers and Majluf (1984) introduced pecking order hypothesis which claimed there is no well-defined target debt ratio exists. Pecking Order Theory assumed that there is no optimal financial structure where companies prefer internal (income) financing rather than external (debt) financing. This theory explains much more of the time series variance in actual debt ratios. The discussion on practice of Pecking Order Theory is widely discussed, however what have not been touch is the advantages of Pecking Order Theory in practice. While it is obvious the disadvantage of debt financing is that it binds the company to the obligation of periodically meeting fixed interest charges and to the repayment of the principal which somehow become burden to the firm. Failure to do so will lead to property and asset repossession by the bank. Thus the advantage of applying this theory by the firm is that they do not have to think about prepayment of loan. Second advantage of this theory is that the security of the firm. As mentioned earlier firms under this theory prefer internal as compared to external financing. However, if they do require external financing they will issue the safest security first, showing that equity financing will be least favourable as compared to debt financing.

2.2.6 Agency Cost Theory of Capital Structure

This is a theory concerning the relationship between the principal (shareholders) and the agent of the principal (company's managers). This suggests that the firm can be viewed as a nexus of contracts (loosely defined) between resource holders. An agency relationship arises whenever one or more individual, called principals, hire one or more other individuals, called agents, to perform some service and then delegate decision- making authority to the agents. Theoretically, shareholders are the only owners of a company, and the task of its directors is merely to ensure that shareholders' interests are maximised. More specifically, the duty of

directors is to run the company in a way which maximises the long term return to the shareholders, and thus maximises the firm's profit and cash flow (Elliot, 2002).

Jensen and Meckling (1976) identified the existence of the agency problem. They proposed that there are two kinds of agency costs - agency costs of equity and debt. The conflicts between managers and shareholders leads to agency costs of equity, and the conflicts between shareholders and debt-holders leads to agency costs of debt. Usually, managers are interested in accomplishing their own targets which may differ from the firm value. The owners may try to monitor and control the managers' behaviours. These monitoring and control actions results in agency costs of equity. When a lender provides money to a firm, the interest rate is based on the risk of the firm. Manager may tempt to transfer value from creditors to shareholders. These monitoring and control actions results in agency cost of debt. Jensen and Meckling (1976) suggested that, for an optimal debt level in capital structure by minimizing the agency costs arising from the divergent interest of managers with shareholders and debt holders. They suggest that either ownership of the managers in the firm should be increased in order to align the interest of managers with that of the owners or use of debt should be motivated to control managers' tendency for excessive extra consumptions. Jensen (1986) presents agency problem associated with free-cash flow. He suggested that free cash flow problem can be somehow controlled by increasing the stake of managers in the business or by increasing debt in the capital structure, thereby reducing the amount of free cash available to managers. Therefore, firms which are mostly financed by debt given managers less decision power of those financed mostly by equity, and thus debt can be used as a control mechanism, in which lenders and shareholders becomes the principal parties in the corporate governance structure.

2.3 Related Empirical Studies

2.3.1 Empirical Studies on Financial Structure and Return on Assets

The effect of financial structure on the firm performance of the firms from the non-financial sector of Pakistan was assessed by Bokhari and Khan (2013). Short term debt, Long term debt and Leverage of the firm were variables for the financial structure. Controlled variables installed in the study were size of the firm, sales growth, assets growth and assets turnover or efficiency of the firm. The total firms were 441, due to incomplete data it came down to 380 firms. Ordinary Least Square (OLS) method was used to analyse the performance, data were taken from 2005 to 2011 i.e. 7 years. The findings disclosed that short term debt, long term debt and leverage of the firm have negatively affected return on assets. Size of the firm positively affected the performance overall while sales growth has a significantly negative impact on return on assets.

Khanam, Nasreen and Pirzada (2014) evaluated the impact of financial structure on firm's financial performance in food sector. Four independent variables are taken for quantifying the financial structure like debt equity ratio, debt to total assets ratio, short term debt to total assets ratio and long term debt to total assets ratio. Quantitative data were gathered from annual reports of 49 firms in food sector listed on Karachi stock exchange in Pakistan over the six years from 2007-2012. Linear Regression analysis was used to discover the impact of financial structure on financial performance of firms. Results of their study indicated that financial structure has a significant negative impact on firm's return on assets. Akeem et al. (2014) examined the effect of financial structure on performance of manufacturing companies in Nigeria from 2003 to 2012 with the purpose of providing a critical appraisal of the need and importance of financial structure. Applying a descriptive and regression research technique, the finding suggested that financial structure measures (total debt

and debt to equity ratio) have negative effects on firms return on assets. Zeitun and Tain (2007) assessed the effect which financial structure has had on corporate performance using a panel data sample representing of 167 Jordanian companies during 1989-2003. The results showed that a firm's financial structure had a significantly negative impact on the firm's performance measures, in both the accounting and market's measures. Short term debt to total asset has a negative and significant effect on return on assets.

The impact of financial structure on firm performance of 63 companies listed on Karachi Stock Exchange was analysed by Javed, Younas and Imran (2014). Data comprised 5 years, 2007 to 2011. Balance Sheet Analysis issued by State Bank of Pakistan was used for data collection. Fixed Effects Model was used as pooled regression model and results revealed that financial structure has positive impact on firm return on assets. Mwangi and Birundu (2015) determined the effect of financial structure on the financial performance of small and medium enterprises in Thika sub-county, Kenya. The study was conducted on 40 small and medium enterprises which were in operation for the five years 2009 to 2013, using multiple linear regression. The findings were that there was no significant effect of financial structure, asset turnover and asset tangibility on the return on assets of small and medium enterprises.

Boroujeni, Noroozi, Nadem and Chadegani (2013) ascertained the effect of financial structure and ownership structure on Firm's performance using sample of 123 companies listed on Tehran Stock Exchange during eight-year period, 2001-2008. They adopted rate of return on assets as a measure of firm's performance. The research results depicts that financial structure and ownership structure have a positive impact on the performance of companies listed on Tehran Stock Exchange. Zaroki and Rouhi (2015) explored the nexus between financial structure and

performance of the listed banks in Tehran Stock Exchange for the 2008 to 2013 period. Three indicators of corporate performance: return on assets, return on equity and earnings per share as measures of bank performance. Their model was estimated with fixed effects method and the result implied that the financial structure has a positive impact on earnings per share and has a negative effect on return on assets, but no significant effect on return on equity. Manawaduge, Zoysa, Chowdhury and Chandarakumara (2011) tried to verify the impact of financial structure on firm performance in the context of an emerging market—Sri Lanka. The study applied both pooled and panel data regression models for a sample of 155 Sri Lankan-listed firms. The results demonstrates that most of the Sri Lankan firms finance their operations with short-term debt capital as against the long-term debt capital and provide strong evidence that the firm performance via return on assets is negatively affected by the use of debt capital.

Osuji and Odita (2012) looked into the impact of financial structure on financial performance of Nigerian firms using a sample of thirty non-financial firms listed on the Nigerian Stock Exchange during the seven year period, 2004 – 2010. Panel data for the selected firms were generated and analysed using ordinary least squares (OLS) as a method of estimation. The result shows that a firm's financial structure surrogated by debt ratio has a significantly negative impact on the firm's return on asset. Hassan, Ahsan, Rahaman and Alam (2014) studied the influence of financial structure on firm's performance. This investigation was performed on a sample of 36 Bangladeshi firms listed in Dhaka Stock Exchange during the period 2007–2012. The Researchers used three financial structure ratios; short-term debt, long-term debt and total debt ratios. Using pooling panel data regression method, they found that financial structure has negative impact on firm's return on assets.

Ebrati, Emadi, Balasang and Safari (2013) empirically investigated the impact of financial structure on firm performance. Multiple regression analysis was used in the study in estimating the relationship between the leverage level and firm's performance. A sample of 85 firms listed in Tehran Stock Exchange from 2006 to 2011. The results indicated that financial structure negatively affects firm performance measured by return on assets. Pouraghajan, Malekian, Emamgholipour, Lotfollahpour and Bagheri (2012) assessed the impact of financial structure on the financial performance of companies listed in the Tehran Stock Exchange. For this purpose, they tested a sample of 400 firm-years among companies Listed in the Tehran Stock Exchange in the form of 12 industrial groups during the years 2006 to 2010. Results suggest that debt ratio significantly influenced return on assets of listed companies.

2.3.2 Empirical Studies on Financial Structure and Return on Equity

Soumadi and Hayajneh (2015) examined the effect of financial structure on the performance of the public Jordanian firms listed in Amman stock market. The study used multiple regression model represented by ordinary least squares (OLS) as a technique to examine what is the effect of financial structure on the performance by applying on 76 firms (53 industrial firms and 23 service corporation) for the period (2001-2006). The results of the study concluded that financial structure associated negatively and statistically with firm's return on equity on the study sample generally. Taani (2013) assessed the impact of financial structure on performance of Jordanian banks. The annual financial statements of 12 commercial banks listed on Amman Stock Exchange were used for the study which covers a period of five (5) years from 2007-2011. Multiple regressions was applied on return on equity as well as total debt to total funds and total debt to total equity as capital structure variables. The results

show that financial structure measured by total debt is found to be insignificant in determining return on equity in the banking industry of Jordan.

Bandt, Camara, Pessarossi and Rose (2014) evaluated the effect of accounting and regulatory capitalization measures on banks' return on equity on a sample of large French banks over the period 1993-2012, controlling for risk-taking as well as a range of variables including the business model. Correcting for a pure accounting effect, they uncovered a positive effect of an increase in capital ratios on the return on equity. The method chosen by a bank to increase capitalization (i.e. raising equity) does not alter the result. Banks that are more constrained by the capital requirement regulation, as measured by a lower capital buffer, appear to experiment the same positive effect as other banks. This effect of capital on the ROE appears to be driven by an increase in bank efficiency.

Tauseef, Lohano and Khan (2015) ascertained the effect of debt financing on firm's financial performance, measured as return on equity, using panel data of 95 textile companies in Pakistan from 2002-03 to 2007-08. Empirical results show a nonlinear relationship between return on equity and debt-to-asset ratio. As the debt-to-asset ratio increases, initially the return on equity increases until an optimal debt level is reached, after that it starts decreasing. The optimal debt-to-asset ratio for Pakistan's textile firms is estimated as 56 percent. They also find that firm's sales growth has positive and significant impact on return on equity whereas the firm size has no significant impact on it. Oguna (2014) determined the effect of financial structure on financial performance of firms listed under manufacturing, construction and allied sector at the Nairobi Securities Exchange. Return on equity were used as the measure of firm performance while Short term Debt, Long-term Debt and Total Debt represented financial structure indicators. The study covered the firms listed under

manufacturing, construction and allied sector at the Nairobi Securities Exchange from 2010 to 2013. The data were then analysed using linear regression models and the outcome revealed that both current debt and long term debt negatively and significantly affect Return on equity and the thus the firm`s performance.

Mwangi, Makau and Kosimbei (2014) analysed the link between financial structure on the performance of non-financial companies listed in the Nairobi Securities Exchange (NSE), Kenya. The study employed an explanatory non-experimental research design. A census of 42 non-financial companies listed in the Nairobi Securities Exchange, Kenya were taken. The study used secondary panel data contained in the annual reports and financial statements of listed non-financial companies. The data were extracted from the Nairobi Securities Exchange hand books for the period 2006-2012. The study applied panel data models (random effects). Feasible Generalised Least Square (FGLS) regression results revealed that financial leverage had a statistically significant negative association with performance as measured return on equity. Arowoshegbe and Emeni (2014) explored the nexus between shareholders' wealth and debt-equity mix of quoted companies in Nigeria. The study was based on a panel data set from 1997 to 2011 comprising sixty non – financial companies. The results of the study conform to their a-priori expectation that debt-equity mix has a significant negative effect on shareholders' wealth of quoted companies in Nigeria. Fumani and Moghadam (2015) looked into the effects of financial structure on rate of return on equity of listed companies in Tehran Stock Exchange during the years 2010-2014. Due to limitations in total, 55 companies, for example, was selected. The data were obtained through library research and software Rahavard new collection. Financial leverage (debt ratio) was employed as the capital structure variable. In order to test the hypothesis, multiple regression analysis and

evaluation of the significance of values and model of 95% of F-statistics and t-test were used, the results suggest that the rate of return on equity has a negative impact significantly on financial leverage.

Moghaddam, Kashkoueyeh, Telezadeh, Aala, Ebrhahim and Tehranypour (2015) tried to verify the link between short-term debts, long-term debt with return on equity. The research was conducted in companies listed in Tehran Stock Exchange. Multiple linear regressions were used to test the hypothesis and sample of the study consisted of 50 participate in a 5-year period of 2008 to 2012. The findings suggest that short-term debt, long term debt and total debt negatively affects returns on equity. Shubita and Alsawalhah (2012) studied the effect of financial structure on profitability of the industrial companies listed on Amman Stock Exchange during a six-year period (2004-2009). The study sample consisted of 39 companies. Applying correlations and multiple regression analysis, the results reveal significantly negative effect of debt on return on equity. The findings also suggests that profitable firms depend more on equity as their main financing option.

2.3.3 Empirical Studies on Financial Structure and Net Profit Margin

Adesina, Nwibe and Adesina (2015) examined the impact of post consolidation financial structure on the financial performance of Nigeria quoted banks. The study used profit before tax as a dependent variable and two capital structure variables (equity and debt) as independent variables. The sample for the study consisted of ten (10) Nigerian banks quoted on the Nigerian Stock exchange (NSE) and period of eight (8) years from 2005 to 2012. The required data and information for the study were gathered from published annual reports. Ordinary least square regression analysis of secondary data shows that financial structure has a significant positive effect financial performance of Nigeria quoted banks. Chechet and Olayiwola (2014) assessed the effect of financial structure and profitability of the

Nigerian listed firms from the agency cost theory perspective with a sample of seventy (70) out of population of two hundred and forty-five firms listed on the Nigerian Stock Exchange (NSE) for a period of ten (10) years: 2000 - 2009 with the aid of the NSE Factbooks covering the period under review. Panel data for the firms are generated and analysed using fixed-effects, random-effects and Hausman Chi Square estimations. Two independent variables which served as surrogate for financial structure were used in the study: debt ratio, and equity while profitability as the only dependent variable. The result show that debt ratio is negatively related with profitability, the only dependent variable but equity is directly related with profitability.

Rajakumaran and Yogendrarajah (2015) empirically evaluated the impact of financial structure on profitability in trading companies in Sri Lanka. For this purpose the study investigated eight listed trading companies in Colombo Stock Exchange of Sri Lanka the past 5years period from 2008 to 2012. In this study, independent variable that is, financial structure of the company's is measured by leverage ratios of Debt to equity ratio and Debt to Assets ratio. The data were analysed by using descriptive statistics, correlation analysis and regression analysis to find out the association between the variables. The results suggest that 44% of the total assets in the trading companies of Sri Lanka are representing by debt and on the basis of correlation analysis Debt to equity ratio and Debt to total Assets ratio negatively and moderately correlated with net profit ratio. Norvaisiene (2012) ascertained the correlation analysis between the indicators of indebtedness level (long-term financial debt ratio, short-term financial debt ratio, financial debt ratio, non-financial debt ratio) and the net profit margin. In order to estimate the strength of the influence of indebtedness on net profit margin of the companies, the multivariate

regression analysis was performed. Correlation analysis result revealed that neither financial nor non-financial debt significantly affected profitability of Latvian listed companies during the research period. In Lithuanian companies, financial debt had a negative impact on net profit margin during the period of 2008-2011.

Norvaisiene and Stankeviciene (2012) explored the problem of impact of company's financial structure on its performance. The findings suggested that decisions of financial structure made a significant influence on the performance results of the Lithuanian listed food and beverage sector companies, since a significant link was established between ratios describing financial structure and all net profit margin. The net profit margin was influenced to the highest degree by the financial indebtedness level, which was represented by the debt to assets ratio. Iavorskyi (2013) hypothesised that financial leverage positively affects firm activity through disciplining managers, tax shield and signalling effects. Using the sample of 16.5 thousand Ukrainian firms over 2001-2010. They found that debt behaviour of Ukrainian enterprises does not follow the free cash flow theory of financial structure. In particular, leverage is found to negatively affect firm performance, measured as operating profit margin, or total factor productivity. The purported relationship between leverage and firm performance remains stable with a different leverage measure, long-term interest bearing debt instead of total interest bearing debt. Kimondo (2015) utilizing secondary data obtained from the financial statements of five companies in the construction and allied sector listed on the Nairobi Stock Exchange found that total equity has a strong positive effect on gross profit margin while debts have a negative effect on the same gross profit margin.

Ebaid (2009) studied the effect of financial structure choice on the performance of companies in Egypt. Gross profit margin was used to evaluate performance. Short-term liability to asset ratio, fixed liability to asset ratio, and total liability to total assets were used as financial structure. To establish the correlation between the leverage level and performance, multiple regression analysis was used. The study revealed that capital structure has little or no effect on an organization's performance. Oke and Afolabi (2011) determined the impact of financial structure on industrial performance in Nigeria taking five quoted firms into account with debt financing equity financing and debt/equity financing as proxies for capital structure while profit efficiency a surrogate for performance. They found that for equity and debt equity finances exert positive on performance but debt financing exert negative effect and performance. Yogendrarajah and Thanabalasingam (2010) evaluated the effect of financial structure on profit margins of listed manufacturing companies on Colombo Stock Exchange. The results indicated that company's profit margin was strongly related to financial structure. The finding affirmed that in manufacturing firms of Sri Lanka, profit margin of the companies was not significant in bringing about any changes in their financial structure. The financial structure of the companies was established by other factors such as equity financing, working capital and debt capital. The findings also showed that most companies that finance their investment activities by retained earnings are more profitable than those that finance their activities through borrowed capital.

2.3.4 Empirical Studies on Financial Structure and Revenue Growth

San and Heng (2011) investigated the relationship of financial structure and corporate performance of firm before and during crisis (2007). This study focuses on construction companies which are listed in Main Board of Bursa Malaysia from 2005 to 2008. All the 49 construction companies are divided into big, medium and small

sizes, based on the paid-up capital. The result shows that there is no relationship between financial structure and revenue growth for big and small. However, there is a positive relationship between revenue growth and financial structure of small companies. Pratheepkanth (2011) examined the impact of financial structure on financial performance during 2005 to 2009 financial year of Business companies in Sri Lanka. The results showed a weak positive relationship between two variables. The correlation is 0.360 and the significant level is 0.01. The co-efficient of determination is 0.1296 that is, only 12.96% of variance in the capital structure is accounted by the gross profit.

Javed, Younas and Imran (2014) analysed the impact of financial structure on firm performance of 63 companies listed on Karachi Stock Exchange. Data comprised of 5 years, 2007 to 2011. Balance Sheet Analysis issued by State Bank of Pakistan was used for data collection. Fixed Effects Model was used as pooled regression model to find the relationship between firm performance and financial structure. Results showed that there does exist a relationship but direction of the relationship was mixed. Financial structure showed positive impact on firm performance when return on assets was used as dependent variable. When return on equity was used as dependent variable then debt over assets ratio showed positive impact but equity over assets ratio and long term debts over assets ratio revealed negative impact over dependent variable and when return on sales was used as dependent variable then debt over assets ratio and equity over assets ratio showed negative link to return on sales but long term debts revealed positive impact over return on sales. Mohammadzadeh, Rahimi, Rahimi, Aarabi and Salamzadeh (2013) examined the relationship between the financial structure and the profitability of pharmaceutical companies in Iran. For this purpose, top 30 Iranian pharmaceutical companies defined as study samples and

their financial data were gathered for the period of 2001-2010. In this study, the gross profit and debts to asset ratio were used as indicators of profitability and financial structure, respectively and sales growth was used as a control variable. Results showed that there was significant negative relationship between the profitability and the financial structure which means that the pharmaceutical companies have established a pecking order theory and the internal financing has led to more profitability.

In this study by Mahnazmahdavi, Mokhtarbaseri, Zare and Zare (2013), a review of the most important factors in financial structure of listed companies in Tehran Stock Exchange for the period 1388-1384 in a sample of 60 companies listed in Tehran Stock Exchange was analysed. Variables studied in this paper were asset-exactness, firm size, sales growth, risk and the effective tax rate. The impact on sales growth between the super financial structures is also studied. The results showed that during the study period, real assets, firm size, sales growth, operational risk and the effective tax rates are significantly associated with the ratio of total debt. The replacement of long-term debt rather than total debt, excluding variable size, has the same relationship.

2.4 Critique of Literature

Adesina, Nwibe and Adesina (2015) examined the impact of post consolidation financial structure on the financial performance of Nigeria quoted banks. The study used profit before tax as a dependent variable and two financial structure variables (equity and debt) as independent variables. The sample for the study consisted of ten (10) Nigerian banks quoted on the Nigerian Stock exchange (NSE) and period of eight (8) years from 2005 to 2012. The required data and information for the study were gathered from published annual reports. Ordinary least square regression analysis of secondary data shows that financial structure has a

significant positive effect on financial performance of Nigeria quoted banks. The study used only profit before tax as measure of performance is poor and source of criticism. Profit before tax only looks at a firm's profits before the firm pays corporate income tax without reflecting the efficiency of using the firm's own capital.

Bokhari and Khan (2013) assessed the effect of financial structure on the firm performance of the firms from the non-financial sector of Pakistan. Short term debt, Long term debt and Leverage of the firm were variables for the capital structure. Controlled variables installed in the study were size of the firm, sales growth, assets growth and assets turnover or efficiency of the firm. The total firms were 441, due to incomplete data it came down to 380 firms. Ordinary Least Square (OLS) method was used to analyse the performance, data were taken from 2005 to 2011 i.e. 7 years. The findings disclosed that short term debt, long term debt and leverage of the firm have negatively affected return on assets. Size of the firm positively affected the performance overall while sales growth has a significantly negative impact on return on assets. Bokhari and Khan (2013) failed to understand that the time frame of the research draws into question the validity of the findings, as the result could be spurious. The theory of econometric suggests a minimum of time series data as a means of preventing spurious result in a study. Similarly, Mwangi and Birundu (2015) determined the effect of financial structure on the financial performance of small and medium enterprises in Thika sub-county, Kenya. The study was conducted on 40 small and medium enterprises which were in operation for the five years 2009 to 2013, using multiple linear regression. The findings were that there was no significant effect of financial structure, asset turnover and asset tangibility on the return on assets of small and medium enterprises. However, this study is criticised as the number of observation of the data points is obtain a statistical significant result.

Khanam, Nasreen and Pirzada (2014) evaluated the impact of financial structure on firm's financial performance in food sector. Four independent variables are taken for quantifying the financial structure like debt equity ratio, debt to total assets ratio, short term debt to total assets ratio and long term debt to total assets ratio. Quantitative data were gathered from annual reports of 49 firms in food sector listed at Karachi stock exchange in Pakistan over the six years from 2007-2012. Linear Regression analysis was used to discover the impact of financial structure on financial performance of firms. Results of their study indicated that capital structure has a significant negative impact on firm's return on assets. The study was useful in the use of more than one measure of corporate performance, however, does not take into consideration other variables which might impact of firm's performance. Control variables such as corporate tax and firm size are relevant in realization of higher corporate performance.

2.5 Summary of Literature

The link between financial structure and financial performance is one that received considerable attention in the finance literature. The theory of the financial structure is an important reference theory in enterprise's financing policy. Whether or not an optimal financial structure exists is one of the most important and complex issues in corporate finance. How an organization is financed is of paramount importance to both the managers of firms and providers of funds. This is because if a wrong mix of finance is employed; the performance and survival of the business enterprise may be seriously affected. A number of empirical studies showed that financial structure influences and negatively affects corporate performance of firms which is consistent with the proposition of the pecking order theory, while other contradicts such a relationship with the use of various financial structure proxies backed with financial structure theories.

The majority of the empirical researched reviewed were on the effect of financial structure on corporate performance of firms in different countries of the world. However, the findings from the studies established that financial structure negatively affects firm's corporate performance reflected by return on assets and return on equity. From the literature reviewed, the study has discussed the effect of financial structure on corporate performance with regards to return on assets, return on equity, net profit margin, growth in revenue and net income growth rate.

2.6 Gap in Literature

From the empirical literature reviewed on the effect of financial structure on corporate performance in the Nigeria environment, these works mainly proxied firm corporate performance by return on assets, return on equity and profit before tax. In David and Olorunfemi (2010) and Arowoshegbe and Emeni (2014) earnings per share was added variable as a corporate performance measure but were restricted to only the petroleum industry and sixty selected non-financial companies respectively. This study improved on existing studies by applying growth in revenue in addition to return on assets, return on equity and net profit margin and covered all non-financial service firms listed on Nigerian Stock Exchange that have operated on exchange for a least period of 10 years. This study included firm's related factors such as firm size, risk, tangibility, tax and growth opportunities capable of influencing financial performance-financial structure relationship as modulating variables. Furthermore, the study improved on the number of observation to twenty three years as against seven, eight, ten and fifteen years of David and Olorunfemi (2010), Adesina et al. (2015), Chechet and Olayiwola (2014) and Arowoshegbe and Emeni (2014) respectively.

CHAPTER THREE RESEARCH METHODOLOGY

3.1 Research Design

This research adopted an ex-post facto longitudinal/panel research design in the choice of its timeframe, hence it examined features of various non-financial service firms at more than one fiscal period. Panel data is a preferred method of longitudinal data analysis because it allows for a number of regression analyses in both spatial (units) and temporal (time) dimensions. The spatial aspect refers to a number of cross-sectional units of observation, which could be countries, states, firms (as used in this study), commodities, and so on while the temporal aspect refers to regular episodic observations of a set of variables in the cross-section units over a particular period of time (i.e.1993 – 2015). Gujarati (2004) noted that the combination of time series with cross-section data made possible by the use of panel data regression technique, usually improves the degree of freedom and quantity of data which may not be possible when using only one of them. The data were processed using e-views 8.0 version computer software.

3.2 Sources of Data

The secondary data used in this research were extracted from the financial statements of 103 non-financial service firms quoted on the Nigerian Stock Exchange and have operated on the exchange for a least period of ten years. The data were collected from the Nigerian Stock Exchange's Factsbook from 1993 to 2015. All the data are on annual basis as contained in the Nigerian Stock Exchange Annual factbooks of various issues.

3.3 Population and Sample Size

From the population of 194 firms quoted on the Nigerian Stock Exchange (NSE) market website, www.nse.com.ng, a sample of 103 non-financial service firms from 10 sectors were studied. The study excluded financial institutions and other financial

service firms because financial institutions and other financial service firms are regulated differently especially with regards to their capital adequacy requirements. Their leverage standard are substantially different from those of other firms. First, their leverage is strongly influenced by explicit investor insurance schemes such as deposit insurance and regulations such as the minimum capital requirements may directly affect their capital structure. Secondly, their debt like liabilities are not strictly comparable to the debt issued by non-financial firms. Thirdly, the balance sheets of the firms in the financial sectors (banks, insurance firms, mortgage firms, leasing, unit trust and funds, real estate, investment trust and other financial institutions) have a strikingly different structure from those of non-financial firms (Olokoyo, 2012). Non-financial service firms which have not operated on the Nigerian Stock Exchange for at least a period of ten years were excluded. As a result, the final sample set consisted of a balanced panel of one hundred and three (103) non-financial service firms out of a total of one hundred and thirty four (134) non-financial service firms quoted in ten (10) sectors of Nigerian Stock Exchange over a period of twenty three years. The one hundred and three (103) non-financial service firms represents 76.87% of the total non-financial service firms quoted on Nigerian Stock Exchange. The 103 firms are firms which have operated in Nigeria Stock Exchange for at least a period of 10 years.

Table 1 shows the sample distribution by sector classification.

Table 1: Sample Distribution of Firms by Sector Classification

S/N	Sectors	No. of Firms	Percentage of Firm (%)
1	Agriculture	5	4.85
2	Conglomerates	5	4.85
3	Construction and Real Estate	7	6.80
4	Consumer Goods	23	22.33
5	Healthcare	10	9.71
6	Information and Com. Technology	3	2.91
7	Industrial Goods	18	17.49
8	Natural Resources	5	4.85
9	Oil and Gas	10	9.71
10	Services	17	16.50
	Total	103	100

Source: Researcher Computation based on www.nse.com.ng

3.4 Variables in the Models

Return on Assets (ROA), Return on Equity (ROE), Net Profit Margin (NPM) and Revenue Growth (RVG) are the dependent variables which serve as proxies for firm's financial performance. Total Debt to Total Assets (TDTA), Total Debt to Total Equity (TDTE) and Short Term Debt to Total Assets (STDTA) are the independent variables which are proxies for firm's financial structure. The control variables are Tangibility (TANG), Firm Size (FMS), Tax (TAX), Growth Opportunities (GRT) and Risk (RISK) of the firms as firms' specific factors that impede on financial performance of firms. Furthermore, the inclusion of control variables helps to avoid simultaneous bias in a regression model (Gujarati, 2004).

3.5 Model Specification and Description of Variables

In an attempt to examine the effect of financial structure on corporate performance of listed non-financial service firms in Nigerian Stock Exchange, this research work adopted the model of Shubita and Alsawalhah (2012) with slight modifications. In their model, the researchers postulated financial performance as a function of short term debt to total assets, long term debt to total assets and total debt to total assets. They also included two control variables namely size and sales growth.

To examine the effect of financial structure on return on assets, return on equity, net profit margin as well as gross revenue of quoted non-financial service firms, the multivariate model below was estimated.

$$Y = \beta_0 + \beta_1 D_1 + \beta_2 Z_2 + E_{it} \text{ ----- } -3.1$$

Specifically, the model is adopted to incorporate the four financial performance measures (return on assets, return on equity, net profit margin and gross revenue) and the three financial structure proxies (total debt to total assets, total debt to total equities and short term debt to total assets) and taking into consideration that financial

performance measures will be regressed on the financial structure variables, equation

3.1 was re-casted as:

Model 1

$$ROA_{it} = \beta_0 + \beta_1 TDTA_{it} + \beta_2 TDTE_{it} + \beta_3 STDTA_{it} + \beta_4 TANG_{it} + \beta_5 FMS_{it} + \beta_6 GRT_{it} + \beta_7 RISK_{it} + \beta_8 TAX_{it} + E_{it}$$

----- -3.2

Model 2

$$ROE_{it} = \beta_0 + \beta_1 TDTA_{it} + \beta_2 TDTE_{it} + \beta_3 STDTA_{it} + \beta_4 TANG_{it} + \beta_5 FMS_{it} + \beta_6 GRT_{it} + \beta_7 RISK_{it} + \beta_8 TAX_{it} + E_{it}$$

----- -3.3

Model 3

$$NPM_{it} = \beta_0 + \beta_1 TDTA_{it} + \beta_2 TDTE_{it} + \beta_3 STDTA_{it} + \beta_4 TANG_{it} + \beta_5 FMS_{it} + \beta_6 GRT_{it} + \beta_7 RISK_{it} + \beta_8 TAX_{it} + E_{it}$$

----- -3.4

Model 4

$$GRV_{it} = \beta_0 + \beta_1 TDTA_{it} + \beta_2 TDTE_{it} + \beta_3 STDTA_{it} + \beta_4 TANG_{it} + \beta_5 FMS_{it} + \beta_6 GRT_{it} + \beta_7 RISK_{it} + \beta_8 TAX_{it} + E_{it}$$

----- -3.5

Where:

ROA is return on assets: It measures the overall effectiveness of management in generating profits with its available assets. This ratio is often referred to as return on investment. Financial structure affects the performance of an organization. On the standpoint of the pecking order theory, more profitable firms will have less debt because retained profits are available for financing growth opportunities. These firms build their equity relative to their debt. Return on assets as applied in this research work was calculated by dividing the firms' operating profit (earnings before interest and taxes) by total assets. Mwangi and Birundi (2015), Zaroki and Rouhi (2015) and Javed, Younas and Imran (2014) have applied this return on assets as a corporate performance measure.

ROE is return on equity: This refers to the return earned on the ordinary shareholders' investment in the firm. The return on equity points out the efficiency of using the own capital of the company; that is why its level is important primarily for

shareholders, who may thus determine whether the remuneration they get rewards the risk assumed. The actual cost of debt to the firm is the after-tax cost of debt, which is the market interest rate less the marginal tax rate proportion. The use of debt therefore reduces the amount of tax to be paid by a firm and increases the return to shareholders whilst the use of equity does not enjoy such a benefit. The return on equity used in this research was expressed as a percentage and calculated by dividing profit before interest and tax by owner's capital. Soumadi and Hayajneh (2015), Tauseef, Lohano and Khan (2015) and Fimani and Moghadam (2015) applied this measurement of firm performance.

NPM is net profit margin: This accounting based performance measure can be tagged as forward looking because profit for the period is measured against sales for the current period. Profit margin is calculated as profit after tax divided by turnover or net sales. The essence is that it provides information on the percentage of profit that sales are able to generate. San and Heng (2011), Pratheepkanth (2011) and Mohammadzadeh, Rahimi, Rahimi, Aarabi and Salamzadeh. (2013) have utilized profit before tax as an indicator for performance of firms.

GRV is gross revenue growth: Gross revenue is accounting measure that determines the total revenue of a firm before any deduction or allowances, as for rent, cost of goods sold, taxes, etc. are made. Firms with high sales due to economies of scale have high revenue and greater need for fund, internal fund via retained earnings are likely to exhausted, hence need for external fund. Revenue growth from sales is positively related with financial structure. Bevan and Danbolt (2002), Chen and Chen (2011) and Rajan and Zingales (1995) applied this indicator in determining the effect of financial structure on corporate performance.

TDTA is the ratio of total debt to total assets: This is a financial structure variable. It measures the proportion of total assets financed by a firm's creditors. The higher this ratio, the greater the amount of debt used to generate profits. Total debt to total assets ratio was calculated by dividing total debt by total assets. Khanam, Nasreen and Pirzada (2014), Bokhari and Khan (2013) and Ebrati, Emadi, Balasang and Safari (2013) utilised it in their works.

TDTE is the ratio of total debt to total equity: Debt to equity ratio represents the debt ability on the equity. If the debt increases than the equity then it will show that your firm is more risky. This ratio could be used as a control tool for managers to reduce waste of cash flows in inefficient activities. According to the company's commitment to pay interest at specified times and also repay the debt securities, managers try to increase efficiency and performance. Debt to equity ratio was adopted in the studies of Bandt, Camara, Pessarossi and Rose (2014), Oguna (2014) and Shubita and Alsawalhah (2012).

STDTA is the ratio of short term debt to total assets: Short term debt refers to liabilities that are due to be paid within one accounting year. In order to determine whether a firm will be able to meet its short-term debt obligation, accounting metric called a debt ratio is used. Myers (2001) noted that firms with high short term debt to total asset have a high growth rate and high performance as short- term debt is cheaper than the long-term debt. Short term debt to total assets was calculated by dividing short term liabilities by total assets. Hassan et al (2014) and Shubita and Alsawalhah (2012) used it in their research.

TANG is tangibility: Tangibility is critical for a firm to perform efficiently. A firm with more tangible assets can use them as collateral for debts and can reduce the lenders' risk. It is a control variable and is measured by dividing the total fixed assets

to total assets of the firms. Mwangi and Birundi (2015), Zaroki and Rouhi (2015) have utilized this index

FMS is firm size: Firm size as applied in this study is the natural logarithm of firm's total assets. The larger the firm size the greater the performance as the risk of bankruptcy is lesser in larger firms compared to smaller firms. Bandt, Camara, Pessarossi and Rose (2014) used this index.

GRT is growth opportunities: As the firms grow, their requirement of finance tends to increase. The capacity to finance the increasing demand depends on internal finance. If a firm entirely relies on internal fund, then the growth may be restricted. Managers may forgo some profitable projects. If a firm goes for external finance, then chances of risk increases. Myers (1977) argues that firms with growth potential will tend to have less capital structure. Growth is likely to put a strain on retained earnings and push the firm into borrowing. The growth opportunities was reflected by percentage changes in firm's turnover. Boroujeni, Noroozi, Nadem and Chadegani (2013) used this variable.

RISK is firm risk: It is the deviation of an actual outcome from the expected outcome in the presence of uncertainty. The possibility of suffering damage or loss in the face of uncertainty about the outcome of an action, future events or circumstances. The more risk a firm face the more it is prone to financial distress. Risk in this work is expressed as the ratio of net profit to total asset. This indicator has been applied by Bokhari and Khan (2013) and Ebrati, Emadi, Balasang and Safari (2013).

TAX is tax: This is the amount of profit paid as corporate tax by firms. If the tax rate is high firms' may retained earnings may be negatively affected which in turn impact on their performance. Bandt, Camara, Pessarossi and Rose (2014) and Shubita and Alsawalhah (2012) have applied this surrogate.

β_1 to β_8 are the coefficient of the explanatory and control variables and E_{it} is the error term. It has a zero means, constant variance and non-auto correlated.

3.6 Techniques for Data Analysis

The regression model estimation took the form of the fixed effects model, random effects model and the pooled ordinary least square model in order to establish the most appropriate regression with the highest explanatory power, that is better suited to the data set employed in the study i.e. a balanced panel. The pooled ordinary least square was used in the first instance. However, in view of the weaknesses associated with it, the fixed effects model and random effect model were applied to capture the performance of the firms considered in the study. The Hausman's Chi-square statistics for testing whether the fixed effects model estimator is an appropriate alternative to the random effects model was computed for each model. Furthermore, the following statistical criteria aimed at evaluating the parameter of the models were utilised.

3.6.1 Panel Unit Root Test

In an attempt to estimate the relationship between corporate performance and financial structure of quoted firms in Nigeria, the first task is to test for the presence of unit root. This is necessary in order to ensure that the parameters are estimated using stationary time series data. Thus, this study seeks to avert the occurrence of spurious results. To do this, both the Levin, Lin and Chu (LLC) Test and Breitung panel unit root tests were employed. The null hypothesis of the LLC test is that the variable is stationary. The null hypothesis of stationarity is accepted only when the p-value is less than 0.05. On the other hand, the Breitung panel unit root test method differs from LLC in two distinct ways. First, only the autoregressive portion (and not the exogenous components) is removed when constructing the standardized proxies. Second, the proxies are transformed and detrended.

3.6.2 Granger Causality Test

This statistical tool was employed to test the hypotheses of this study. The co-integration test deals with the relationship between the variable. To determine the causality or the direction of relationship in statistical term, the Granger Causality test was applied to examine the effect of the various financial structure variables on firm's performance. When financial performance helps in the prediction of financial structure, then financial structure is said to be Granger caused by financial performance. Alternatively, financial structure is said to be Granger caused by financial performance when the coefficients on the lagged of financial performance are statistically significant.

3.6.3 Kao Residual Co-integration Test

Kao panel Co-integration test is an Engle-Granger based co-integration for panel data. Kao (1999) noted that the null hypothesis of no co-integration for panel data exists in two test. The first is a Dickey-Fuller types test while the other is an Argumented Dickey-Fuller type test.

3.6.4 Johansen Fisher Panel Co-integration

This step seeks to identify the number of co-integrating relationships that exist among these variables. This study applied the Johansen Fisher panel co-integration methodology that was developed for testing co-integration relationship for panel data analysis. This test identifies the number of stationary long-run relationships that exist among the set of integrated variables. It offers two tests, the trace test and the eigenvalue test, with a view to identifying the number of co-integrating relationships.

3.7 Criteria for Result Interpretation

The criteria for judging interpretation of result and discussion of findings for this research were all based on three global statistics criteria namely, Adjusted R-Squared, F-Statistic and Durbin Watson test of autocorrelation. According to Ezirim (2016), a

model should satisfy these three global statistics as well as relative use of model without which the model is baseless and cannot be relied upon in econometric assumptions.

3.7.1 Coefficient of Determination (R^2): It measures the proportion of the total variation in the dependent variable that is jointly explained by the linear influence of the explanatory variable. The value of R^2 lies between zero and one, i.e., $0 < R^2 < 1$ with values close to 1 indicating a good degree of fit.

3.7.2 F^* Statistic: The F-statistic is used to test whether or not there is a significant relationship between the dependent and independent variable in the regression equation. If the probability at which the F- values significant is less than the chosen level of significance, then we accept that there is a significant relationship between the dependent and independent variables in the regression equation.

3.7.3 Durbin Watson Statistic: The Durbin-Watson test for autocorrelation compare the calculated d^* value from the regression residuals with the dL and du in the Durbin Watson tables and with their transforms $(4-dL)$ and $(4-du)$. The result of the serial correlation LM test overrides the Durbin Watson test of autocorrelation. The serial correlation LM test is superior and preferred to Durbin Watson in testing autocorrelation in any stated model (Ezirim, 2016).

3.8 A Priori Expectation

This refers to the supposed relationship between and or among the dependent or independent variables of the model as determined by the assumptions of the pecking order theory. The result or parameter estimates of the models were interpreted on the basis of the supposed signs of the parameters as established Pecking Order Theory and Trade-off Theory. According to pecking order theory, profitable firms with high earnings prefer to use more of retained earnings and less of debts in assets financing.

In this regards, financial structure expressed through total debt to total assets, total debt to total equity and short term debt to total assets are expected to negatively affect firm's financial performance but for the trade-off theory, a positive relationship is expected. Furthermore, relying on premises of Pecking Order Theory and Trade-off Theory, firm's growth opportunities, firm size and tangibility will have a positive effect on performance while tax and risk are expected to impact on performance negatively. Table 2 and 3 shows the expected signs of the independent variables in the models.

Table 2: Expected Signs of the Independent Variables on Pecking Theory

Symbol	Variable	Connotation	Expected Signs
TDTA	Total Debt to Total Assets	Financial Structure	-
TDTE	Total Debt to Total Equity	Financial Structure	-
STDTA	Short Term Debt to Total Assets	Financial Structure	-
TANG	Tangibility	Control Variable	+
FMS	Firm Size	Control Variable	+
GRT	Growth Opportunities	Control Variable	+
RISK	Risk	Control Variable	-
TAX	Tax	Control Variable	-

Source: Author's Compilation

Table 3: Expected Signs of the Independent Variables on Trade-off Theory

Symbol	Variable	Connotation	Expected Signs
TDTA	Total Debt to Total Assets	Financial Structure	+
TDTE	Total Debt to Total Equity	Financial Structure	+
STDTA	Short Term Debt to Total Assets	Financial Structure	+
TANG	Tangibility	Control Variable	+
FMS	Firm Size	Control Variable	+
GRT	Growth Opportunities	Control Variable	+
RISK	Risk	Control Variable	-
TAX	Tax	Control Variable	-

Source: Author's Compilation

CHAPTER FOUR DATA PRESENTATION AND ANALYSIS

4.1 Presentation of Data

This section present the average data of the relevant variables derived from the selected firms quoted on Nigerian Stock Exchange as computed by E-views 8.0 software (based Mean Plus SD Bound). The data were from Nigeria Stock Exchange factbooks and firms' annual reports. The panel data utilized in the analysis span from 1993 to 2015. Table 4 presents the average data for return on assets, return on equity, net profit margin, gross revenue, total debt to total assets and total debt to total equity of the 103 firms in the study. Short term debt to total assets, tangibility, firms' size, growth opportunity, risk and corresponding data on tax were summarized in Table 5.

Table 4: Return on Assets, Return on Equity, Net Profit Margin, Log of Gross Revenue, Total Debt to Total Assets Ratio and Total Debt to Total Assets Ratio from 1993-2015

Year	Return on Assets (%)	Return on Equity (%)	Net Profit Margin (%)	Log of Gross Revenue	Total Debt/Total Assets (%)	Total Debt/Total Equity (%)
1993	-0.21	-0.30	0.07	7.55	0.12	0.18
1994	0.18	0.17	0.08	1.13	0.20	3.16
1995	0.15	0.11	0.09	1.63	0.12	0.12
1996	0.20	-0.30	0.04	1.61	0.08	0.18
1997	0.30	-0.10	0.02	1.38	0.06	0.18
1998	0.90	0.30	0.01	1.61	0.12	0.06
1999	0.90	0.10	-0.76	1.79	0.16	0.12
2000	0.29	0.10	-0.23	1.76	0.20	0.18
2001	-0.80	0.28	-0.20	2.42	0.16	0.06
2002	-0.20	0.10	0.04	2.39	0.04	3.33
2003	-0.20	0.30	0.03	1.26	0.16	0.06
2004	0.30	0.30	-0.08	1.45	3.34	2.50
2005	0.90	0.50	-0.13	1.72	0.08	10.73
2006	-0.80	0.30	0.04	2.00	0.12	0.12
2007	0.77	0.50	0.14	2.32	1.48	23.39
2008	0.15	0.30	0.06	2.89	5.47	7.48
2009	-0.39	0.30	-0.04	2.15	0.18	0.18
2010	0.11	-0.17	-0.54	2.80	0.12	2.44
2011	-0.27	0.20	-2.82	7.76	0.20	0.12
2012	-0.20	0.50	-0.44	7.88	7.15	8.64
2013	0.90	0.30	-0.48	7.83	0.17	0.18
2014	0.30	0.60	-0.72	8.31	0.04	8.55
2015	0.30	0.30	-0.80	7.74	0.15	0.18

Source: Nigerian Stock Exchange (NSE) Factbooks and Firms' Annual Reports, 1993 to 2015; and output data from e-views 8.0 version.

Table 5: Short Term Debt to Total Assets Ratio, Tangibility, Firm Size, Growth Opportunity, Risk and Tax from 1993-2015

Year	Short Term Debt/Total Assets (%)	Tangibility (%)	Log of Firm Size (%)	Growth Opportunity (%)	Risk (%)	Log of Tax
1993	0.05	8.45	4.24	4.65	0.149	6.32
1994	6.00	0.05	6.98	6.20	0.173	6.09
1995	0.07	0.02	9.30	1.24	0.193	6.77
1996	0.05	0.05	1.09	1.09	0.085	8.12
1997	0.05	0.02	1.24	1.40	0.010	8.80
1998	0.07	0.08	1.32	1.52	0.107	8.48
1999	9.15	0.05	1.63	2.02	0.112	7.97
2000	1.69	0.05	1.71	2.33	0.006	1.34
2001	0.05	0.08	2.25	2.79	0.089	1.78
2002	0.02	0.02	2.79	3.36	0.093	2.21
2003	0.07	0.05	3.32	2.89	0.092	2.80
2004	0.12	0.05	4.26	5.72	-0.031	3.18
2005	0.05	0.08	5.04	6.77	0.028	3.59
2006	0.07	0.02	6.05	8.22	0.086	4.17
2007	0.12	0.02	7.21	9.20	0.144	5.59
2008	0.07	0.05	9.30	1.31	0.084	7.08
2009	0.05	0.02	1.13	1.39	0.176	8.14
2010	0.05	0.14	1.29	1.40	0.061	8.86
2011	0.07	0.08	1.50	1.68	0.076	8.59
2012	8.50	0.02	1.77	1.91	0.015	8.44
2013	0.02	2.72	2.04	1.65	0.042	7.65
2014	0.10	7.77	2.53	1.40	0.011	3.78
2015	0.07	7.83	2.47	1.21	-0.010	4.20

Source: Nigerian Stock Exchange (NSE) Factbooks and Firms' Annual Reports, 1993 to 2015; and output data from e-views 8.0 version.

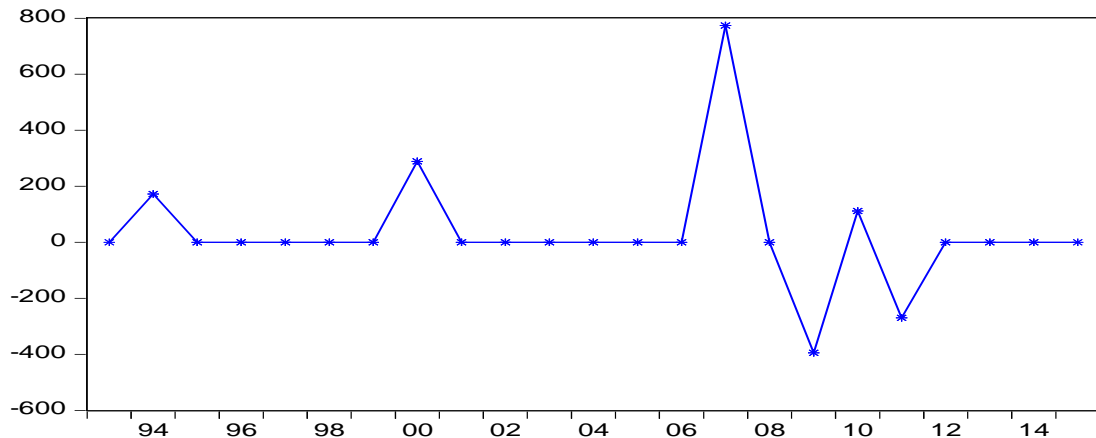
Return on Assets

The firms' mean return on assets was -0.20% in 1993, which had risen by 0.49% by the end of 2000 to settle at 0.29%. The return on assets continued to depreciate from 2001 to 2004. From 1993 to 2007, as shown in Table 4, Fig. 1 and 2 return on assets gradually rose from -0.20% in 1993 to 0.77% in 2007, an increase of over 250%. The major exception was in 2005 when it fell to -0.90% from previous year value of 0.30%. However, it has been on marginal rise from 2013 to 2015.

Return on Equity

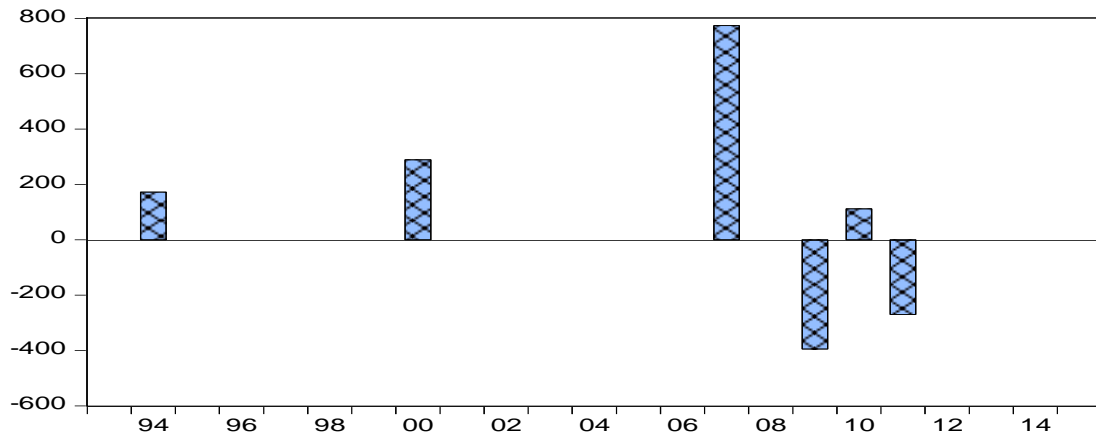
The average return on firms' shareholder wealth has experienced little volatile over the years compared return on assets. From -0.30% in 1993, it rose to reach 0.50% at the end of 2005 but fell marginally in 2008 and 2009 to 0.30%. Between 2010 and 2015 average return on equity rose from -0.17% to 0.30%. Fig. 3 and 4 illustrate the trend in return on equity over the period reviewed.

Fig. 1: Graphical Trend in Return on Assets 1993 to 2015
Mean of ROA



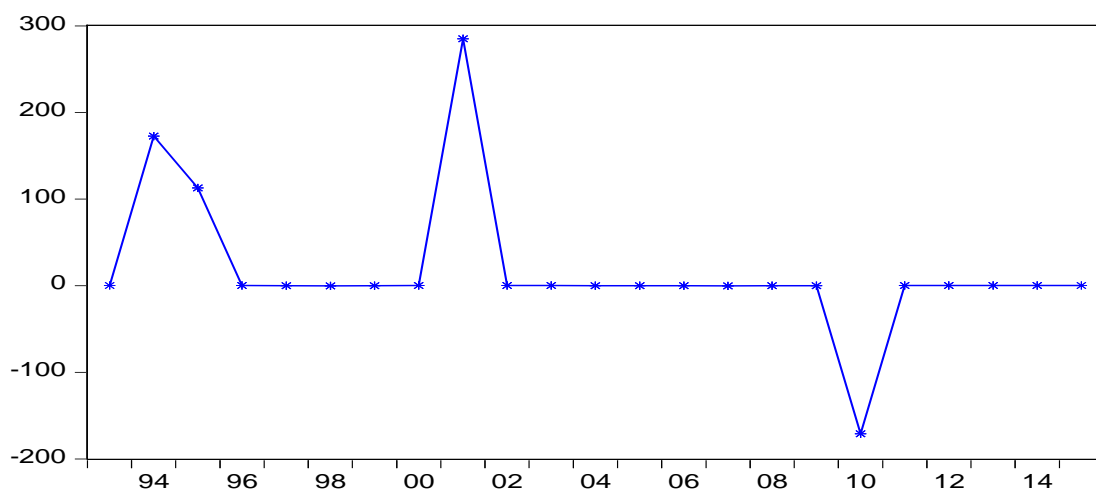
Source: Nigerian Stock Exchange and Firms' Annual Report, 1993 – 2015; and output data from e-views 8.0 version.

Fig. 2: Bar Chart Trend in Return on Assets 1993 to 2015
Mean of ROA



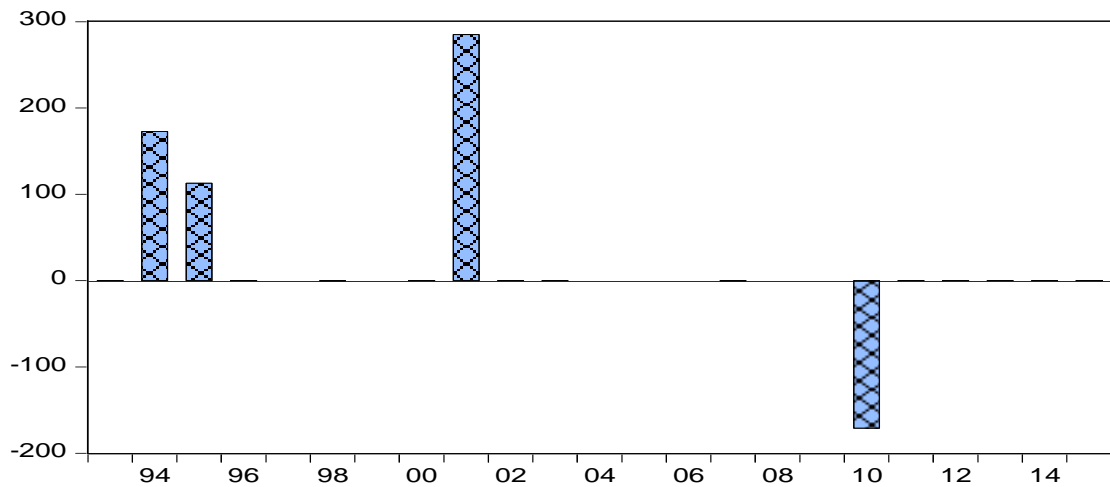
Source: Nigerian Stock Exchange and Firms' Annual Report, 1993 – 2015; and output data from e-views 8.0 version.

Fig. 3: Graphical Trend in Return on Equity 1993 to 2015
Mean of ROE



Source: Nigerian Stock Exchange and Firms' Annual Report, 1993 - 2015. and output data from e-views 8.0 version.

Fig. 4: Bar Chart Trend in Return on Equity 1993 to 2015
Mean of ROE

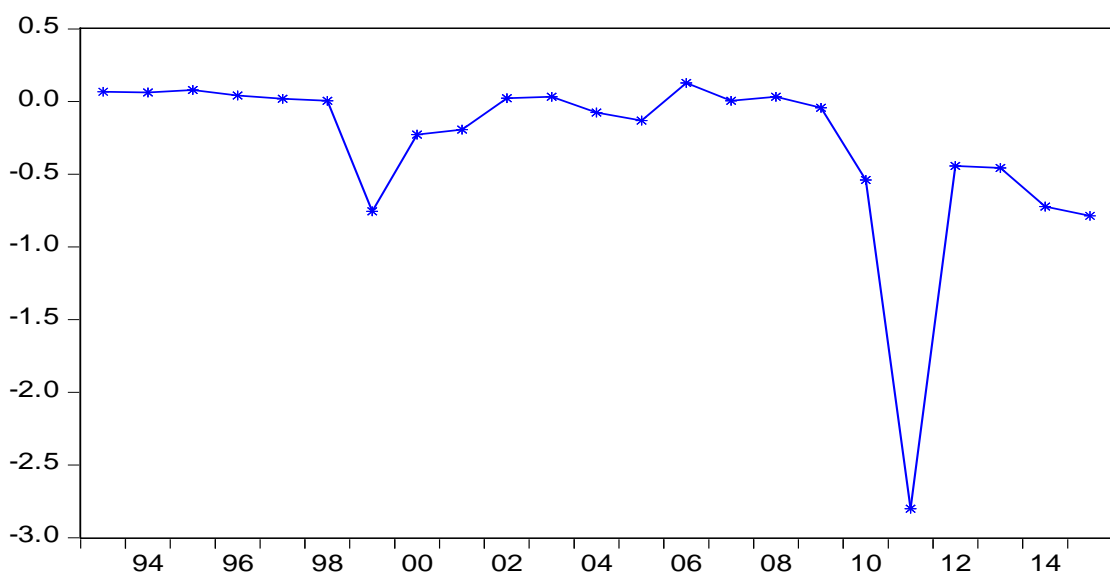


Source: Nigerian Stock Exchange and Firms' Annual Report, 1993 – 2015; and output data from e-views 8.0 version.

Net Profit Margin

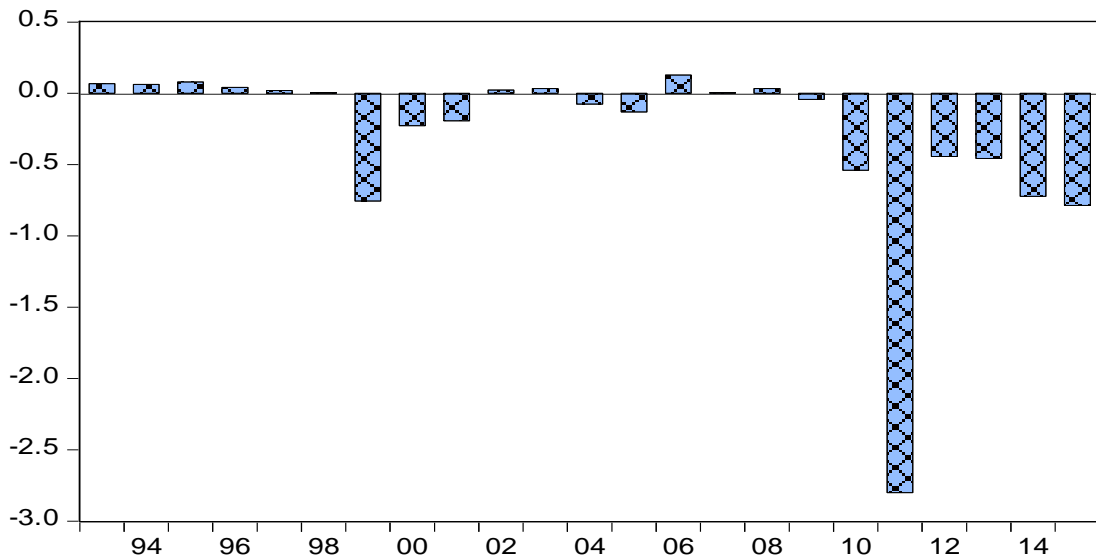
The mean net profit margin was 0.07% in 1993, which had declined by 0.06% at the end of 1998 to settle at 0.01%. The net profit margin of firms fluctuated marginally from 2010 to 2015, declining to -0.80% in 2015 compared to 0.54% in 2010. From 1993 to 2015, as shown in Table 4, Fig. 5 and 6, net profit margin gradually declined from 0.07% in 1993 to -0.80% in 2015.

Fig. 5: Graphical Trend in Net Profit Margin 1993 to 2015
Mean of NPM



Source: Nigerian Stock Exchange and Firms' Annual Report, 1993 – 2015; and output data from e-views 8.0 version.

Fig. 6: Bar Chart Trend in Net Profit Margin 1993 to 2015
Mean of NPM

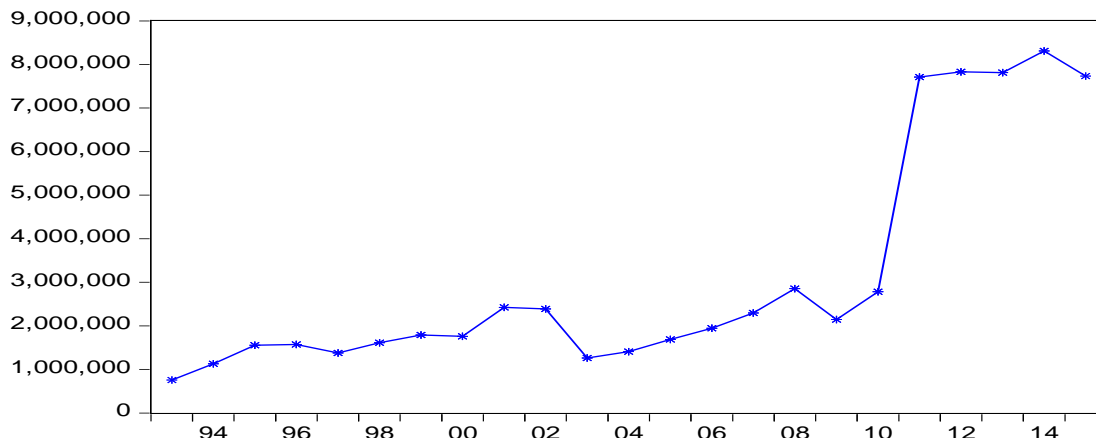


Source: Nigerian Stock Exchange and Firms' Annual Report, 1993 – 2015; and output data from e-views 8.0 version.

Gross Revenue

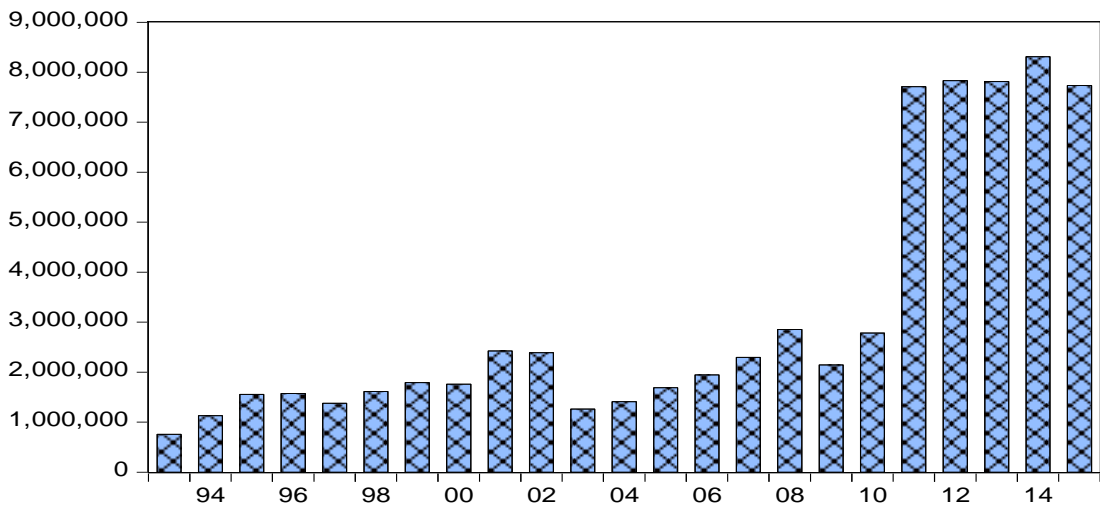
Table 4, Fig.7 and Fig. 8 show that the trend in mean gross revenue of selected quoted firms. During this period 1993 to 2015, it increased marginally by appreciating from 7.55 to 7.74, a rise of 0.19 based on the natural logarithm of gross revenue. The gross revenue at the end of the year 2015 declined to 7.74, a depreciation of 0.57 from 2014, when it was 8.31.

Fig. 7: Graphical Trend in Gross Revenue 1993 to 2015
Mean of GRV



Source: Nigerian Stock Exchange and Firms' Annual Report, 1993 – 2015; and output data from e-views 8.0 version.

Fig. 8: Bar Chart Trend in Gross Revenue 1993 to 2015
Mean of GRV

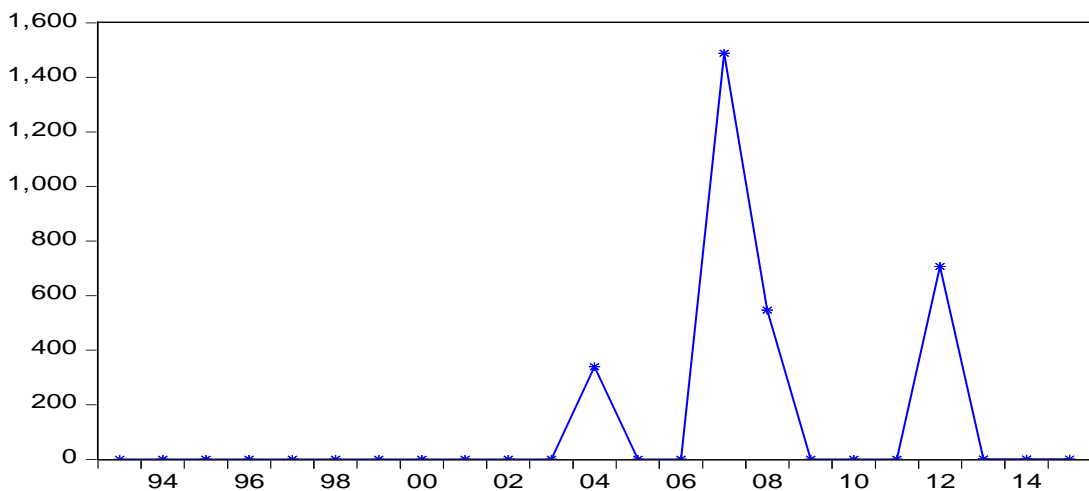


Source: Nigerian Stock Exchange and Firms' Annual Report, 1993 – 2015; and output data from e-views 8.0 version.

Total Debt to Total Assets Ratio

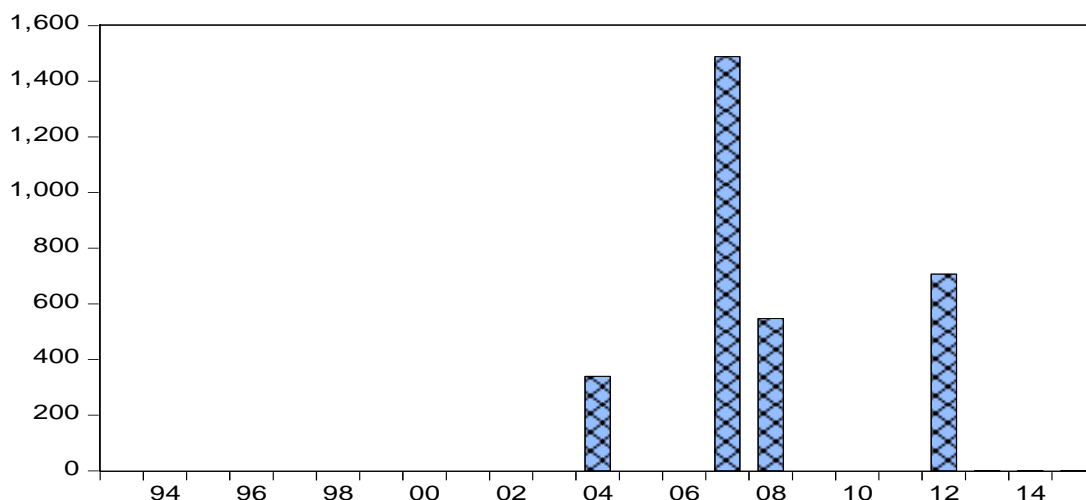
The mean total debt to total assets ratio in 2009 was 7.48%, a rise of over 8,419 magnitude from the 0.12% in 1993. In 2010, total debt to total assets ratio declines tremendously to 0.12%. As can be seen from Table 4, Fig. 9 and Fig. 10, between 1993 and 2012, total debt to total assets ratio was characterized by high volatility, however, stood at 7.15% by the end of 2012. In 2015, total debt to total assets ratio was 0.15% compared to 0.04% in 2014.

Fig. 9: Graphical Trend in Total Debt to Total Assets Ratio 1993 to 2015
Mean of TDTA



Source: Nigerian Stock Exchange and Firms' Annual Report, 1993 – 2015; and output data from e-views 8.0 version

Fig. 10: Bar Chart Trend in Total Debt to Total Assets Ratio 1993 to 2015
Mean of TDTA

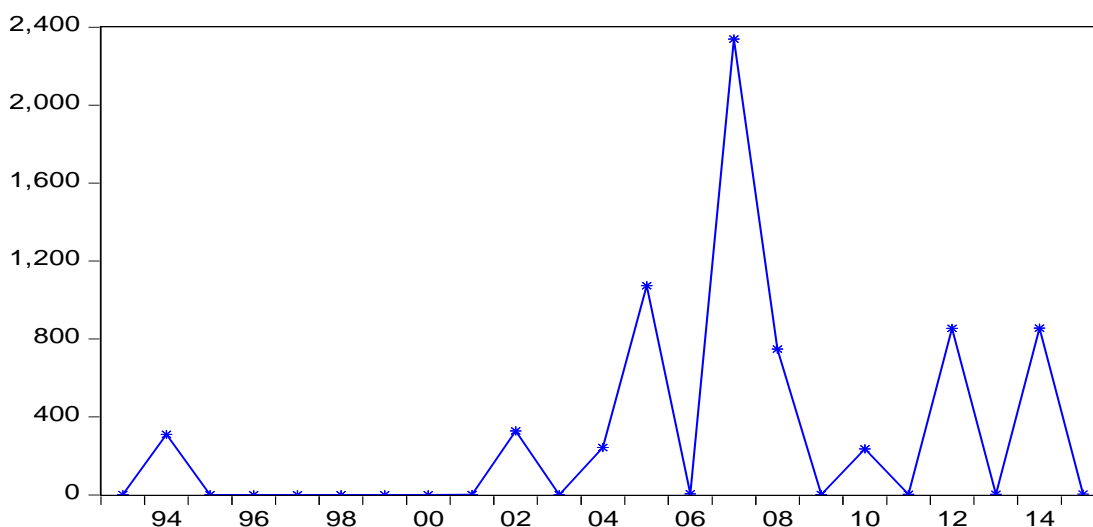


Source: Nigerian Stock Exchange and Firms' Annual Report, 1993 – 2015; and output data from e-views 8.0 version.

Total Debt to Total Equity Ratio

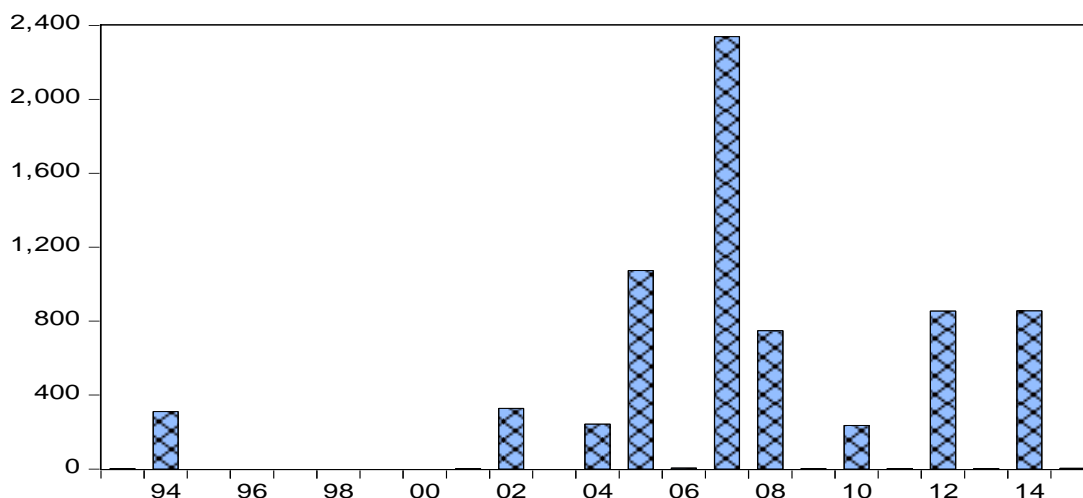
The firms' average total debt to total equity ratio in 2009 was 7.48%, a fall of more than 200% from 23.39% in the previous year. In 2011, total debt to total equity ratio rose to 2.44% from 0.18% in 2010. As can be seen from Table 4, Fig. 11 and Fig. 12, from 1993 to 2015 total debt to total equity ratio witnessed some distortions. There was never a steady rise for any three consecutive years. In 2015, total debt to total equity ratio declined heavily to 0.18% against 8.55% in 2014.

Fig. 11: Graphical Trend in Total Debt to Total Equity Ratio 1993 to 2015
Mean of TDTE



Source: Nigerian Stock Exchange and Firms' Annual Report, 1993 – 2015; and output data from e-views 8.0 version.

Fig. 12: Bar Chart Trend in Total Debt to Total Equity Ratio 1993 to 2015
Mean of TDTE

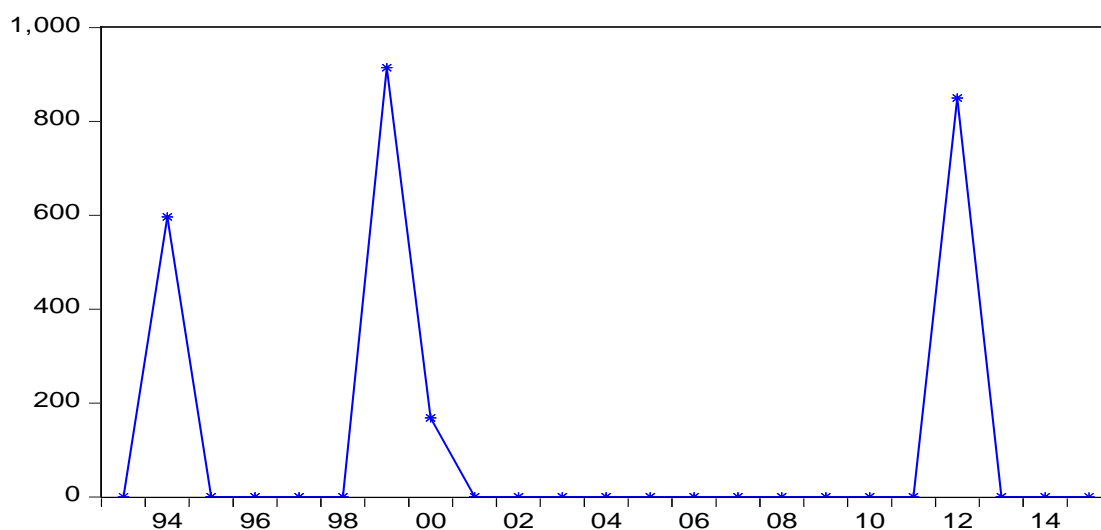


Source: Nigerian Stock Exchange and Firms' Annual Report, 1993 – 2015; and output data from e-views 8.0 version.

Short Term Debt to Total Assets Ratio

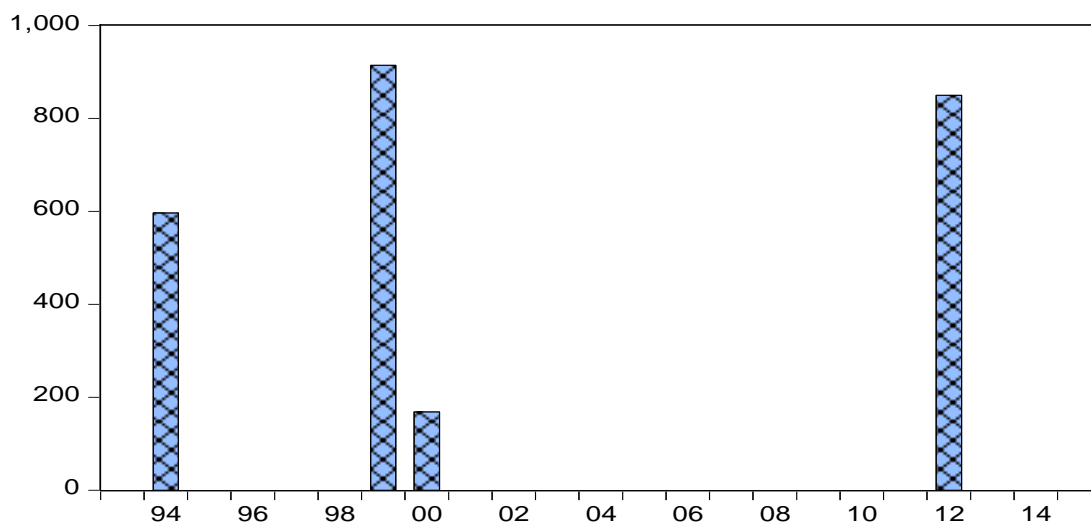
The firms' mean short term debt to total assets ratio was 0.05% in 1993, which had risen by 1.64% by the end of 2000 to settle at 1.69%. The short term debt to total assets ratio witnessed some distortion from 2001 to 2011 before it picked up to close at 8.50% in 2012. From 1993 to 2012, as shown in Table 5, Fig. 13 and 14, short term debt to total assets ratio rose from 0.05% in 1993 to 8.50% in 2012, an increase of over 1,000%. This was not sustained to 2015 as it stood at 0.07%.

Fig. 13: Graphical Trend in Short Term Debt to Total Assets Ratio 1993 to 2015
Mean of STDTA



Source: Nigerian Stock Exchange and Firms' Annual Report, 1993 – 2015; and output data from e-views 8.0 version.

Fig. 14: Bar Chart Trend in Short Term Debt to Total Assets Ratio 1993 to 2015
Mean of STDTA

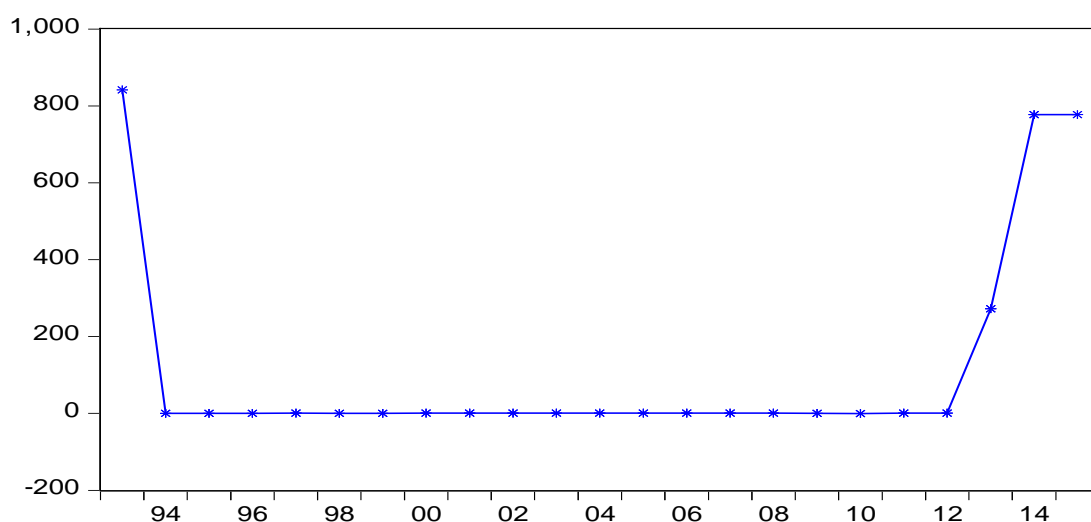


Source: Nigerian Stock Exchange and Firms' Annual Report, 1993 – 2015; and output data from e-views 8.0 version.

Tangibility

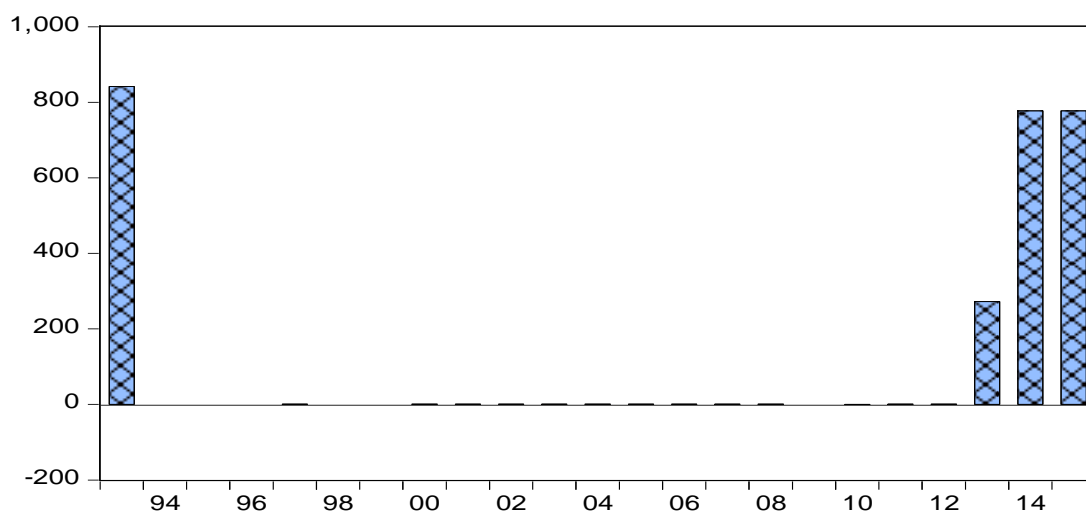
The average ratio of firms' fixed assets to total assets have been on low side over the years compared except from 2013 to 2015. From 8.45% in 1993, it declined to 0.08% at the end of 2005 and marginally decreased further to 0.02% in 2006 and 2006. In 2013, it rose to 2.72% and appreciation was maintained as it closed at 7.83% by December 31st, 2015. Fig. 15 and 16 illustrate the trend in firms' fixed assets to total assets ratio over the period studied.

Fig. 15: Graphical Trend in Fixed Assets to Total Assets Ratio 1993 to 2015
Mean of TANG



Source: Nigerian Stock Exchange and Firms' Annual Report, 1993 – 2015; and output data from e-views 8.0 version.

Fig. 16: Bar Chart Trend in Fixed Assets to Total Assets Ratio 1993 to 2015
Mean of TANG

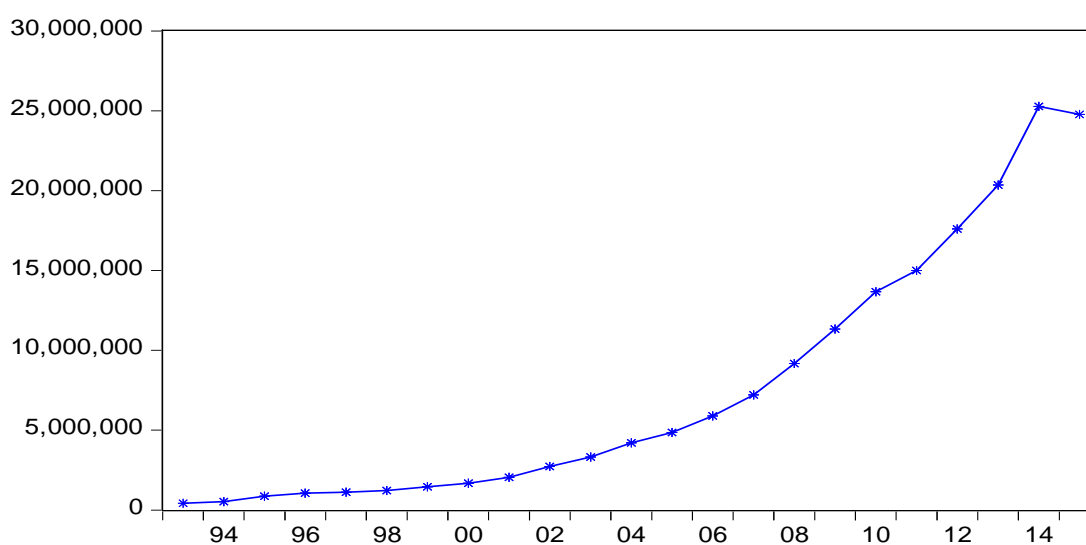


Source: Nigerian Stock Exchange and Firms' Annual Report, 1993 – 2015; and output data from e-views 8.0 version

Firms' Size

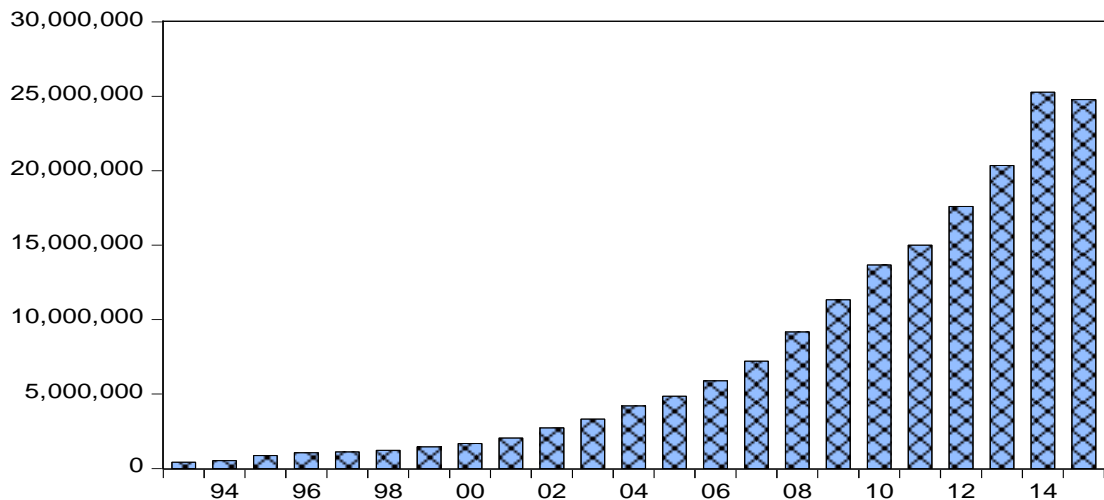
The mean size of firms was 4.24% in 1993, which had declined by 2.92% at the end of 1998 to settle at 1.34%. The net profit margin of firms fluctuated marginally from 2008 to 2015, declining to 2.47% in 2015 compared to 9.30% in 2008. From 1993 to 2015, as shown in Table 5, Fig. 17 and 18, firms' size marginally declined from 4.24% in 1993 to 2.47% in 2015.

Fig. 17: Graphical Trend in Firms' Size 1993 to 2015
Mean of FMS



Source: Nigerian Stock Exchange and Firms' Annual Report, 1993 – 2015; and output data from e-views 8.0 version.

Fig. 18: Bar Chart Trend in Firms' Size 1993 to 2015
Mean of FMS

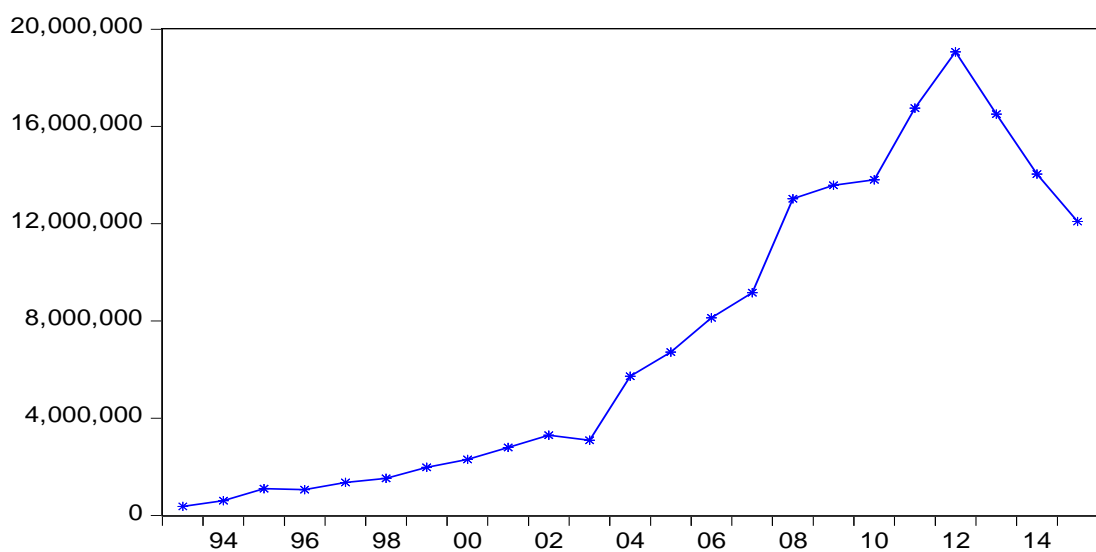


Source: Nigerian Stock Exchange and Firms' Annual Report, 1993 – 2015; and output data from e-views 8.0 version.

Growth Opportunity

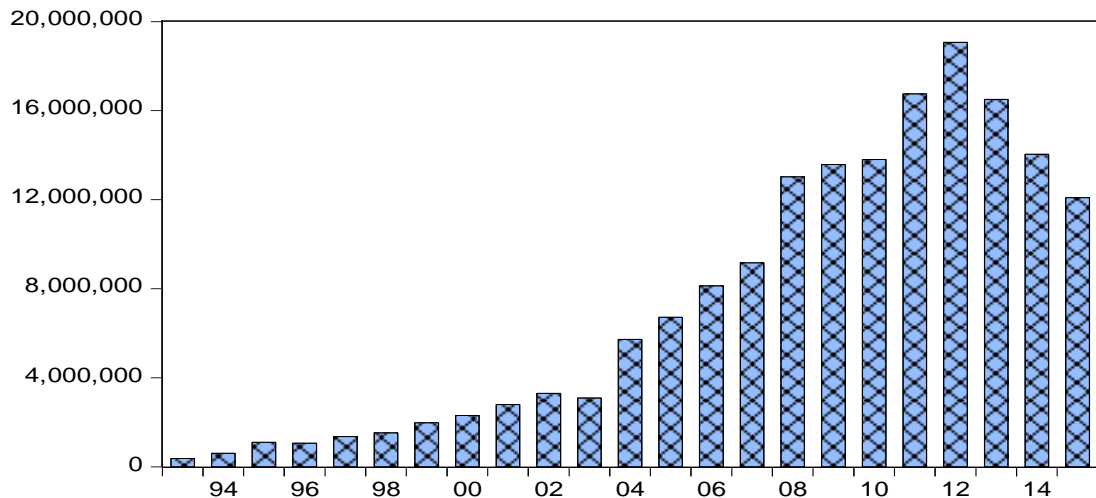
Table 5, Fig.19 and Fig. 20 show that the trend in mean growth opportunity of selected quoted firms expressed on the natural logarithm of firms' turnover. From 1993 to 2007, it increased marginally by appreciating from 4.65 to 9.20, a rise of 4.55. The growth opportunity at the end of the year 2015 declined to 121, a depreciation of 0.19 from 2014, when it was 1.40.

Fig. 19: Graphical Trend in Growth Opportunity 1993 to 2015
Mean of GRT



Source: Nigerian Stock Exchange and Firms' Annual Report, 1993 – 2015; and output data from e-views 8.0 version.

Fig. 20: Bar Chart Trend in Growth Opportunity 1993 to 2015
Mean of GRT

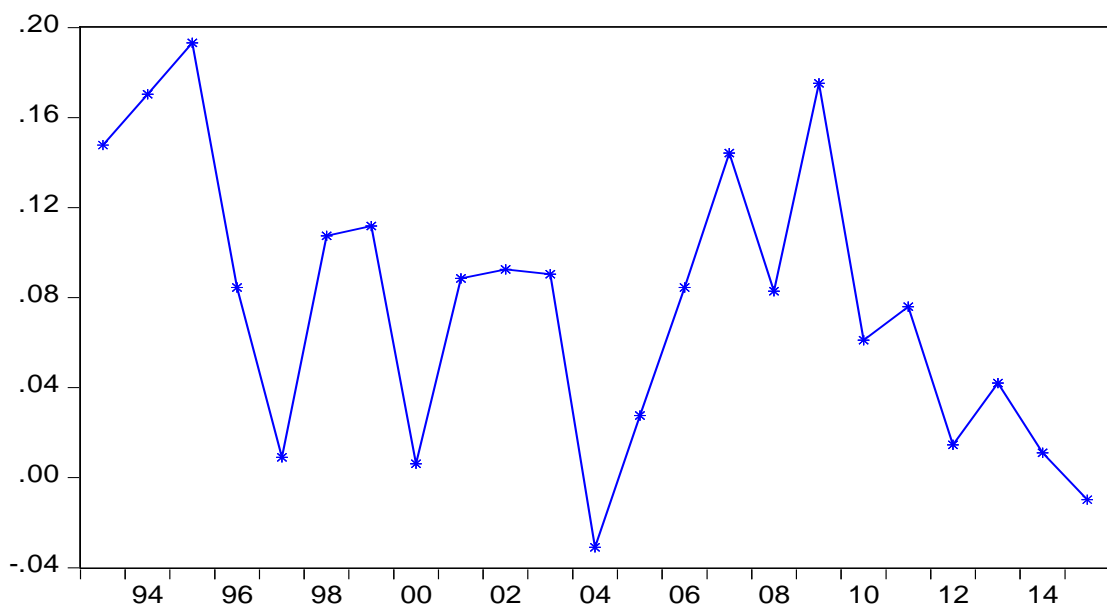


Source: Nigerian Stock Exchange and Firms' Annual Report, 1993 – 2015; and output data from e-views 8.0 version.

Risk

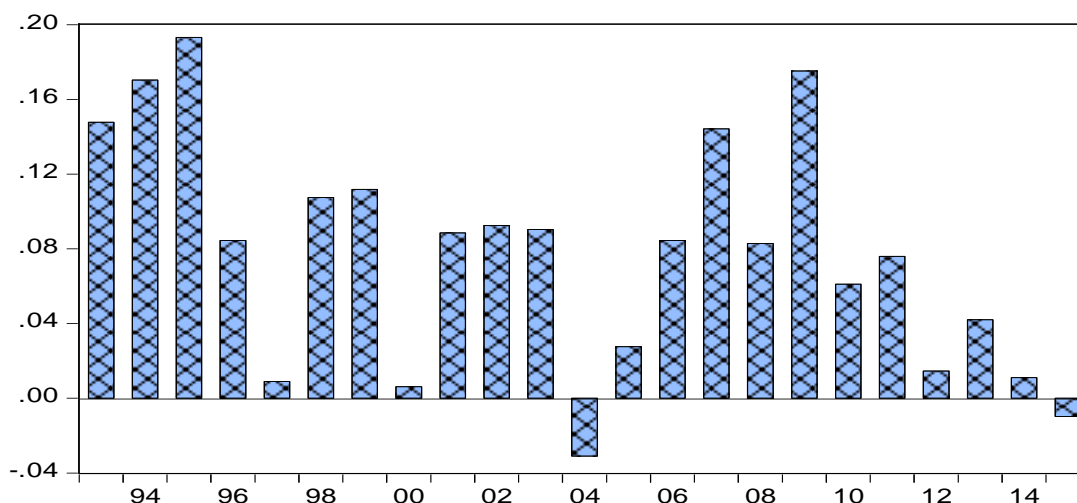
The risk of bankruptcy in 2009 was 0.176%, a rise of 0.027 magnitude from the 0.149% in 1993. In 2010, risk of bankruptcy declined tremendously to 0.061%. As can be seen from Table 5, Fig. 21 and Fig. 22, between 1993 and 2012, there has been fluctuation in risk of bankruptcy as it stood at 0.015% by the end of 2012. In 2015, risk of bankruptcy went down further to -0.010% compared to 0.011% in 2014.

Fig. 21: Graphical Trend in Risk of Bankruptcy 1993 to 2015
Mean of RISK



Source: Nigerian Stock Exchange and Firms' Annual Report, 1993 – 2015; and output data from e-views 8.0 version.

Fig. 22: Bar Chart Trend in Risk of Bankruptcy 1993 to 2015
Mean of RISK

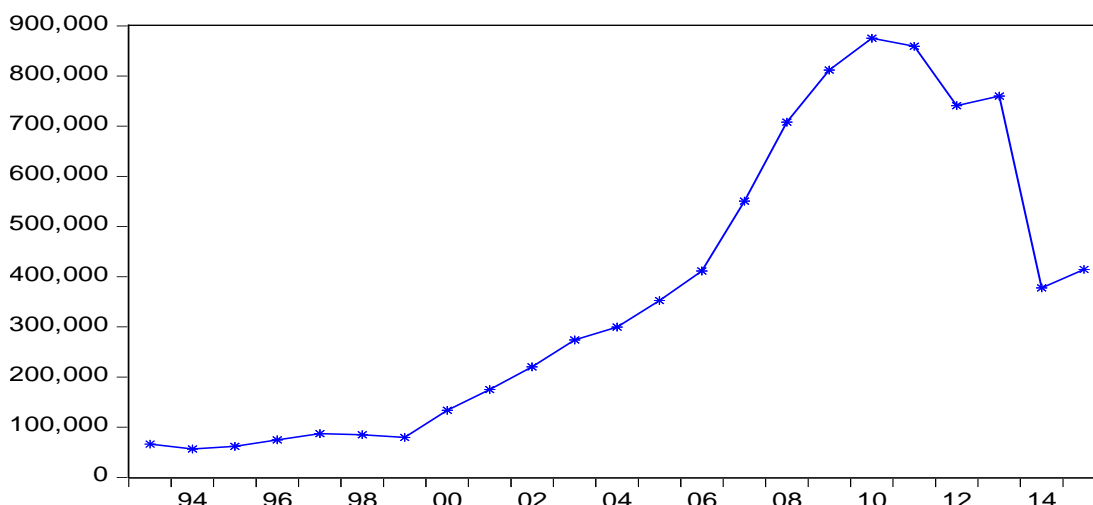


Source: Nigerian Stock Exchange and Firms' Annual Report, 1993 – 2015; and output data from e-views 8.0 version.

Taxation

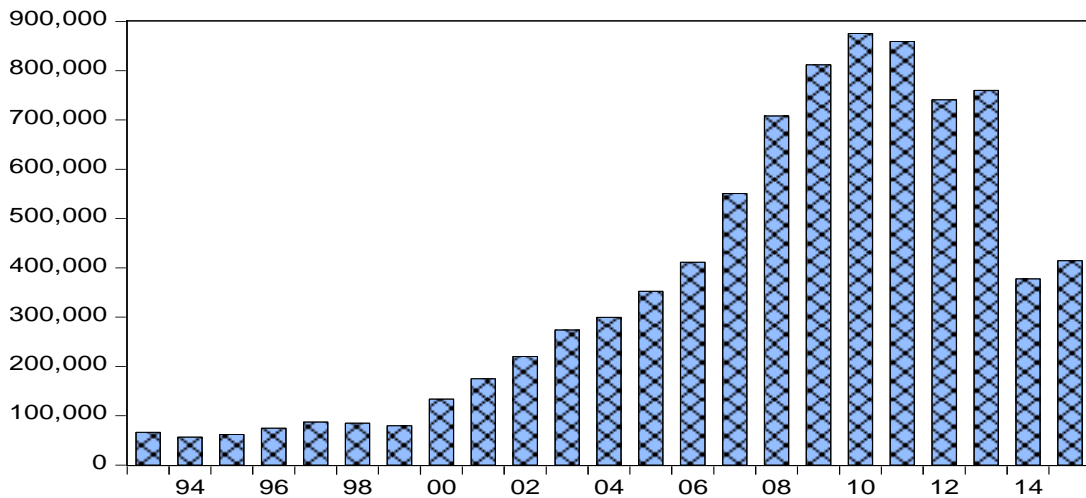
The firms' average tax in 2009 was 8.14 based on natural logarithm of tax paid, a rise of 1.06 from 7.08 in the previous year. In 2011, tax weight rose to 8.89 from 8.86 in 2010. As can be seen from Table 5, Fig. 23 and Fig. 24, from 1993 to 2015 taxation has been on the increase as there tends to three consecutive years steady rise in tax. In 2015, tax weight rose marginally to 4.20 against 3.78 in 2014.

Fig. 23: Graphical Trend in Taxation 1993 to 2015
Mean of TAX



Source: Nigerian Stock Exchange and Firms' Annual Report, 1993 – 2015; and output data from e-views 8.0 version.

Fig. 24: Bar Chart Trend in Taxation 1993 to 2015
Mean of TAX



Source: Nigerian Stock Exchange and Firms' Annual Report, 1993 – 2015; and output data from e-views 8.0 version

4.2 Summary of Descriptive Statistics

The descriptive characteristics of the variables are presented in Table 6 and Table 7.

The mean values of the ROA, ROE, NPM, GRV, TDTA, TDTE, STDTA, TANG, FMS, GRT, RISK and TAX are 29.92, 17.52, -0.29, 3145638, 134.74, 306.50, 110.79, 117.07, 7642893, 7222332, 0.08 and 369077.9 while their median are 0.07, 0.11, 0.03, 45825, 0.29, 0.41, 0.07, 0.061, 873490, 55936, 0.06 and 12772 respectively. The series depicts the maximum values of 55331 for ROA, 29333 for ROE, 21.34 for NPM, 5.08 for GRV, 73752 for TDTA, 240772 for TDTE, 94178 for STDTA, 79986 for TANG, 3.81 for FMS, 6.51 for GRT, 13.52 for RISK and 19159968 for TAX. The minimum values are -40637.00 for ROA, -17624.00 for ROE, -240.8300 for NPM, -64925182 for GRV, 0.00 for TDTA, 0.00 for TDTE, 0.00 for STDTA, -80.20 for TANG, 0.00 for FMS, -561.65 for GRT, -7.98 for RISK and -3400000 for TAX. The series standard deviation are -1721.052 for ROA, 829.25 for ROE, 5.91 for NPM, 25464697 for GRV, 2774.38 for TDTA, 5915.42 for TDTE, 2955.17 for STDTA, 2731.266 for TANG, 24270521 for FMS, 32457136 for GRT, 0.52 for RISK and 1417609 for TAX.

Table 6: Summary of Descriptive Statistics

	ROA	ROE	NPM	GRV	TDTA	TDTE
Mean	29.92001	17.52061	-0.291413	3145638.	134.7390	306.4961
Median	0.071010	0.113850	0.030210	45825.00	0.293640	0.413730
Maximum	55331.00	29333.00	21.23670	5.08E+08	73752.00	240772.0
Minimum	-40637.00	-17624.00	-240.8300	-64925182	0.000000	0.000000
Std. Dev.	1721.052	829.2518	5.911530	25464697	2774.378	5915.419
Skewness	9.055975	19.98063	-31.33117	16.33209	22.15466	31.67107
Kurtosis	642.0711	855.2492	1192.132	304.9732	519.1969	1197.466
Jarque-Bera	40141671	71488357	1.39E+08	9060187.	26361329	1.41E+08
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	70521.47	41296.08	-686.8602	7.41E+09	317579.8	722411.3
Sum Sq. Dev.	6.98E+09	1.62E+09	82333.21	1.53E+18	1.81E+10	8.24E+10
Observations	2357	2357	2357	2357	2357	2357

Source: Computer output data using E-views 8.0

From the standard deviation of the series, it is observed that there was high fluctuation in the firm return on assets compared to return on equity. There was low volatility in firm's net profit margin. However, the fluctuation in firm's gross revenue was highest among the financial performance indicators of quoted firms. All the variables are positively skewed towards normality as evidenced by the positive sign of the skewness except for net profit margin.

Table 7: Summary of Descriptive Statistics

	STDTA	TANG	FMS	GRT	RISK	TAX
Mean	110.7908	117.0746	7642893.	7222332.	0.077340	369077.9
Median	0.067350	0.605660	873490.0	55936.00	0.055400	12772.00
Maximum	94178.00	79986.00	3.81E+08	6.51E+08	13.51818	19159968
Minimum	0.000000	-80.19780	0.000000	-561.6453	-7.976800	-3400000.
Std. Dev.	2955.172	2731.266	24270521	32457136	0.528599	1417609.
Skewness	28.55606	25.78376	7.774559	10.08809	4.613123	7.806871
Kurtosis	840.1692	702.4538	89.89476	145.3131	236.7117	79.59753
Jarque-Bera	69149863	48308176	765285.9	2028994.	5372614.	600148.2
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	261134.0	275944.9	1.80E+10	1.70E+10	182.2898	8.70E+08
Sum Sq. Dev.	2.06E+10	1.76E+10	1.39E+18	2.48E+18	658.3074	4.73E+15
Observations	2357	2357	2357	2357	2357	2357

Source: Computer output data using E-views 8.0

The Kurtosis that measures the peakedness of the distribution of each of the variables are 642.07 for ROA, 855.25 for ROE, 1192.13 for NPM, 304.97 for GRV, 519.20 for TDTA, 1197.47 for TDTE, 840.17 for STDTA, 702.45 for TANG, 89.89 for

FMS, 145.31 for GRT, 236.71 for RISK and 79.60 for TAX. These values are greater than 3, indicating that all the variables are leptokurtic in nature. The Jarque-Bera suggests that all the variables are normally distributed as the p-values are significant at 5% level of significance.

4.3 Diagnostic/Sensitivity Analysis

Arellano-Bond Serial Correlation Test

In panel data analysis, performing the Arellano-Bond serial correlation test is a way of detecting serial correlation in a model. The test is actually two separate statistics, one for first order correlation and one for second. The first order statistic is expected to be significant (with a negative auto-correlation coefficient), and the second order statistic to be insignificant. The result of the Arellano-Bond serial correlation test in Table 8 reveals that the p-values of the second order statistic are insignificant which is what is expect if the model error terms are serial uncorrelated in levels, hence the error terms of the variables in the panel models are not serially correlated.

Table 8: Arellano-Bond Serial Correlation Test

Models	Test order	m-Statistic	rho	SE(rho)	Prob.
Model 1	AR(2)	0.997464	2237223041.55	2242911130.34	0.3185
Model 2	AR(2)	-0.742311	-1728587.973363	2328656.86	0.4579
Model 3	AR(2)	-0.053853	-317.751942	5900.315187	0.9571
Model 4	AR(2)	-1.673992	-14058709269595584	8398315615675660.0	0.0941

Source: Computer output data using E-views 8.0

Breusch-Pagan Test for Heteroskedasticity

This is Language Multiplier (LM) test for autoregressive conditional heteroskedasticity in the residuals. The rationale behind choosing this heteroskedasticity specification was based on the fact that in many financial time series, the magnitude of residuals appears to be related to the magnitude of recent residuals. The probability of the Chq. statistic for the models is insignificant at 5% level of significance, suggesting that there is no existence of heteroskedasticity in all the model. This is in line with econometric assumption that a model should be free

from problem of heteroskedasticity. Table 9 presents the Breusch-Pagan test of heteroscedasticity for the models.

Table 9: Breusch-Pagan Heteroskedasticity

Models	Test statistic	Probability
Model 1	4.422050	0.817180
Model 2	0.393910	0.999946
Model 3	0.448276	0.999912
Model 4	0.533533	0.102569

Source: Computer Output data using Gretl

Ramsey RESET Test

The Ramsey RESET test examines whether the model is correctly specified/fitted or not. The rationale behind the test is that if non-linear combinations of the independent variables have any power in explaining the dependent variable, the model is not well specified. The p-values as depicted T-statistic in Table 10 are insignificant at 5% level of significance. The alternate hypothesis that the models are well specified could not be rejected.

Table 10: Ramsey RESET Test

Model	Test-Statistic	df	P-value
1	1.455669	(2,2349)	0.233
2	0.121272	(2,2349)	0.886
3	2.210395	(2,2349)	0.110
4	0.238691	(2,2349)	0.370

Source: Computer output data using Gretl

Normality of Residual Test

This determines if the errors in residual are normally distributed or not. The p-values of the Chi-square statistic are significant at 5% level of significance hence, the null hypothesis that error is normally distributed could not be rejected. Table 11 shows that the errors in residuals of the variables are normally distributed.

Table 11: Normality Test

Model	Chi-Square(2)	P-value
1	79386.404	0.00000
2	43254.721	0.00000
3	959568.449	0.00000
4	289042.774	0.00000

Source: Computer output data using E-views 8.0

Test for Multicollinearity

Gujarati (2004) suggested a priori correlation analysis of the independent variables a way of detecting multicollinearity in a model. The correlation matrix in Table 12 and 13 for the variables indicates that all the variables are correlated with ROA, ROE, NPM and GRV. The correlation between the independent variables in each of the model has a maximum of 0.61 observed for firm size and tax. Consequently, the explanatory variables in the model are devoid of multicollinearity defects.

Table 12: Correlation Matrix

	ROA	ROE	NPM	GRV	TDTA	TDTE
ROA	1.000000	0.093423	0.003076	0.000395	-0.000847	-0.000885
ROE	0.093423	1.000000	0.001428	-0.001624	-0.001010	-0.001036
NPM	0.003076	0.001428	1.000000	0.011298	0.002183	0.003085
GRV	0.000395	-0.001624	0.011298	1.000000	-0.002764	0.150327
TDTA	-0.000847	-0.001010	0.002183	-0.002764	1.000000	-0.002498
TDTE	-0.000885	-0.001036	0.003085	0.150327	-0.002498	1.000000
STDTA	-0.000652	-0.000766	0.002905	-0.004431	-0.001812	-0.001931
TANG	-0.000734	-0.000890	0.003008	-0.004387	-0.002070	-0.002197
FMS	-0.004000	-0.001864	0.021907	0.104495	0.011654	0.013075
GRT	0.027996	0.007983	0.017725	0.023735	0.023327	-0.008026
RISK	0.016203	0.002293	0.047736	0.029604	0.003571	0.003801
TAX	0.002945	-0.001927	0.017570	0.112368	0.012551	0.025074

Source: Computer output data using E-views 8.0

Table 13: Correlation Matrix

	STDTA	TANG	FMS	GRT	RISK	TAX
ROA	-0.000652	-0.000734	-0.004000	0.027996	0.016203	0.002945
ROE	-0.000766	-0.000890	-0.001864	0.007983	0.002293	-0.001927
NPM	0.002905	0.003008	0.021907	0.017725	0.047736	0.017570
GRV	-0.004431	-0.004387	0.104495	0.023735	0.029604	0.112368
TDTA	-0.001812	-0.002070	0.011654	0.023327	0.003571	0.012551
TDTE	-0.001931	-0.002197	0.013075	-0.008026	0.003801	0.025074
STDTA	1.000000	-0.001599	-0.007942	-0.008315	0.011798	-0.008716
TANG	-0.001599	1.000000	-0.006726	-0.008108	0.004739	-0.006134
FMS	-0.007942	-0.006726	1.000000	0.465787	0.024058	0.617118
GRT	-0.008315	-0.008108	0.465787	1.000000	0.012662	0.250145
RISK	0.011798	0.004739	0.024058	0.012662	1.000000	0.066141
TAX	-0.008716	-0.006134	0.617118	0.250145	0.066141	1.000000

Source: Computer output data using E-views 8.0

4.4 Panel Unit Root Test

4.4.1 Levin, Lin and Chu (LLC) Test

The LLC test was performed at level and first difference at individual intercept and individual intercept and trend. The null hypothesis of the LLC test is that the variable

is stationary. The null hypothesis of stationarity is accepted only when the p-value is less than 0.05. The result of the LLC test in Tables 14 and 15 performed in level form at individual intercept and individual intercept and trend disclose that all the variables have no unit root except gross revenue, firm's size and growth opportunity. This is expected due to the nature of secondary data generation by relevant agencies involved.

Table 14: LLC Test Result at Level: Individual Intercept

Variables	LLC Test Statistic	Pooled Coefficient	Pooled t-Stat.	Remark
ROA	-15.0545 (0.00)*	-0.52871	-29.351	Stationary
ROE	-16.4412 (0.00)*	-0.52943	-28.453	Stationary
NPM	-24.2145 (0.00)*	-0.71487	-37.861	Stationary
GRV	0.27385 (0.39)	-0.18127	-11.734	Not Stationary
TDTA	-7.86309 (0.00)*	-0.32023	-19.673	Stationary
TDTE	-9.54319 (0.00)*	-0.36606	-20.962	Stationary
STDTA	-8.45228 (0.00)*	-0.37437	-20.362	Stationary
TANG	-7.35178 (0.00)*	-0.30419	-19.616	Stationary
FMS	10.3661 (1.00)	0.00438	0.506	Not Stationary
GRT	-0.52843 (0.30)	-0.07814	-7.813	Not Stationary
RISK	-15.8537 (0.00)*	-0.53379	-27.996	Stationary
TAX	-3.20068 (0.00)*	-0.30297	-16.479	Stationary

Source: Computer Output using E-view 8.0.

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

Table 15: LLC Test Result at Level: Individual Intercept and Trend

Variables	LLC Test Statistic	Pooled Coefficient	Pooled t-Stat.	Remark
ROA	-14.8577 (0.00)*	-0.73650	-36.527	Stationary
ROE	-16.7562 (0.00)*	-0.74548	-35.707	Stationary
NPM	-7.42513 (0.00)*	-0.72128	-29.691	Stationary
GRV	-2.03973 (0.02)*	-0.57408	-24.869	Stationary
TDTA	-8.52675 (0.00)*	-0.55523	-27.831	Stationary
TDTE	-11.9024 (0.00)*	-0.60750	-30.243	Stationary
STDTA	-11.0683 (0.00)*	-0.59737	-28.874	Stationary
TANG	-8.63250 (0.00)*	-0.51385	-27.635	Stationary
FMS	2.32262 (0.98)	-0.28244	-16.997	Not Stationary
GRT	-7.05310 (0.00)*	-0.45218	-24.879	Stationary
RISK	-13.9361 (0.00)*	-0.70255	-33.761	Stationary
TAX	-0.67117 (0.25)	-0.55112	-22.171	Not Stationary

Source: Computer Output using E-view 8.0.

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

The LLC unit root result in Tables 16 and 17 at individual intercept and individual intercept and trend of first difference shows that the p-values of LLC test statistic for all the variables were significant at 5% level of significance. The null hypothesis that

the variables have unit root at first difference is accepted. Hence, all the variables are stationary at first difference at the 5% level of significance and integrated of order one i.e. 1(1).

Table 16: LLC Test Result at First Difference: Individual Intercept

Variables	LLC Test Statistic	Pooled Coefficient	Pooled t-Stat.	Remark
ROA	-50.0287 (0.00)*	-1.38504	-64.877	Stationary
ROE	-29048.5 (0.00)*	-0.99997	-26701.546	Stationary
NPM	-37.5943 (0.00)*	-1.44710	-53.219	Stationary
GRV	-26.5752 (0.00)*	-1.36503	-44.585	Stationary
TDTA	-47.6654 (0.00)*	-1.33655	-57.790	Stationary
TDTE	-382.599 (0.00)*	-1.00610	-359.237	Stationary
STDTA	-30.0883 (0.00)*	-1.33407	-57.962	Stationary
TANG	-45.3571 (0.00)*	-1.23605	-55.030	Stationary
FMS	-25.4081 (0.00)*	-1.04472	-38.787	Stationary
GRT	-31.6436 (0.00)*	-1.23740	-46.412	Stationary
RISK	-45.9039 (0.00)*	-1.41585	-58.991	Stationary
TAX	-31.9131 (0.00)*	-1.29027	-45.275	Stationary

Source: Computer Output using E-view 8.0.

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

Table 17: LLC Test Result at First Difference: Individual Intercept and Trend

Variables	LLC Test Statistic	Pooled Coefficient	Pooled t-Stat.	Remark
ROA	-39.0542 (0.00)*	-1.43194	-63.920	Stationary
ROE	-44.6040 (0.00)*	-1.51386	-65.286	Stationary
NPM	-29.4463 (0.00)*	-1.49693	-52.939	Stationary
GRV	-17.3117 (0.00)*	-1.45284	-43.383	Stationary
TDTA	-38.7848 (0.00)*	-1.38763	-57.329	Stationary
TDTE	-284.195 (0.00)*	-1.00871	-295.456	Stationary
STDTA	-10.3997 (0.00)*	-1.39599	-55.613	Stationary
TANG	-36.1661 (0.00)*	-1.29122	-54.310	Stationary
FMS	-19.6232 (0.00)*	-1.22700	-41.039	Stationary
GRT	-26.7884 (0.00)*	-1.37461	-49.073	Stationary
RISK	-38.9343 (0.00)*	-1.52874	-61.652	Stationary
TAX	-23.9693 (0.00)*	-1.34798	-44.747	Stationary

Source: Computer Output using E-view 8.0.

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

4.4.2 Breitung Unit Root Test

The Breitung method differs from LLC in two distinct ways. First, only the autoregressive portion (and not the exogenous components) is removed when constructing the standardized proxies. Second, the proxies are transformed and detrended. Consequently, the test was only performed level and first difference at individual intercept and trend only. The null hypothesis of the Breitung unit root test

is that the variable is stationary which must be accepted if the p-value is less than a specified level of significance but not more than 10% level of significance. However, 5% level of significance was utilized for the financial structure and financial surrogates. Table 18 depicts the result of the level form test at individual intercept and trend while Table 19 that of first difference at individual intercept and trend.

Table 18: Breitung Unit Root Test at Level: Individual Intercept and Trend

Variables	Breitung t-Statistic	Pooled Coefficient	Pooled t-Stat.	Remark
ROA	-8.87697 (0.00)*	-0.11762	-8.877	Stationary
ROE	-11.2033 (0.00)*	-0.17160	-11.203	Stationary
NPM	3.27701 (0.99)	0.03939	3.277	Not Stationary
GRV	8.33174 (1.00)	0.05522	8.332	Not Stationary
TDTA	-9.54528 (0.00)*	-0.15217	-9.545	Stationary
TDTE	1.41000 (0.92)	0.01199	1.410	Not Stationary
STDTA	-3.98485 (0.00)*	-0.04873	-3.985	Stationary
TANG	-7.41688 (0.00)*	-0.10631	-7.417	Stationary
FMS	9.53221 (1.00)	0.04637	9.532	Not Stationary
GRT	4.28444 (1.00)	0.02812	4.284	Not Stationary
RISK	-9.30707 (0.00)*	-0.13748	-9.307	Stationary
TAX	6.47067 (1.00)	0.04433	6.471	Not Stationary

Source: Computer Output using E-view 8.0.

Note: The optimal lag for LLC test is selected based on the Schwarz Info Criteria (SIC), No spectral estimation method for Breitung unit root test, p-values are in parentheses where (*) and (**) denote significance at 1% and 5% respectively.

Table 19: Breitung Test at First Difference: Individual Intercept and Trend

Variables	Breitung t-Statistic	Pooled Coefficient	Pooled t-Stat.	Remark
ROA	-19.4913 (0.00)*	-0.48546	-19.491	Stationary
ROE	-16.8855 (0.00)*	-0.37697	-16.885	Stationary
NPM	-2.84396 (0.00)*	-0.04832	-2.844	Stationary
GRV	-2.02784 (0.00)*	-0.03415	-2.028	Stationary
TDTA	-20.8300 (0.00)*	-0.52335	-20.830	Stationary
TDTE	-17.6529 (0.00)*	-0.44889	-17.653	Stationary
STDTA	-20.7744 (0.00)*	-0.53798	-20.774	Stationary
TANG	-26.0996 (0.00)*	-0.69689	-26.100	Stationary
FMS	-12.65973 (0.00)*	-0.02564	-22.660	Stationary
GRT	-2.54578 (0.01)*	-0.03906	-2.546	Stationary
RISK	-22.8865 (0.00)*	-0.63897	-22.886	Stationary
TAX	-1.78511 (0.04)**	-0.03426	-1.785	Stationary

Source: Computer Output using E-view 8.0.

Note: The optimal lag for LLC test is selected based on the Schwarz Info Criteria (SIC), No spectral estimation method for Breitung unit root test, p-values are in parentheses where (*) and (**) denote significance at 1% and 5% respectively.

The panel unit root test in Tables 16, 17 and 19 illustrate that all the variable are stationary at first difference. The result of the panel unit root test through LLC and Breitung show that all the variables are stationary at first difference and free from

stationarity defect associated with most time series data, hence permitting for the testing of the long run co-integration relationship between the variables.

4.5 Panel Co-integration Test

According to the result of LLC and Breitung unit root test in Tables 16, 17 and 19 all the variables were confirmed to be integrated of order one i.e. 1(1), then the long run analysis, that is to use panel test to examining the relationship between financial structure and firms 'financial performance. Despite considering the diagnostic analysis and robustness, two types of panel co-integration test were employed that is, Kao's and Johansen Fisher panel co-integration.

4.5.1 Kao Residual Co-integration Test

Kao panel Co-integration test is an Engle-Granger based. Kao (1999) noted that the null hypothesis of no co-integration for panel data exists in two test. The first is a Dickey-Fuller types test while the other is an Argumented Dickey-Fuller type test. Table 20 reports the Kao's co-integration test for financial structure and financial performance of quoted firms in Nigeria, which rejected the null hypothesis of no co-integration for firms' financial structure and financial performance variables at the 1% significance level, so that there is existence of co-integration/long run relationship between return on assets, return on equity, net profit margin, gross revenue and financial structure of quoted firms in Nigeria stock exchange.

Table 20: Kao Residual Co-integration Test

Models	Argumented Dickey-Fuller	
	t-Statistic	Prob.
Model 1	-3.341248*	0.0004
Model 2	-20.43601*	0.0000
Model 3	-17.23634*	0.0000
Model 4	-1.982620**	0.0237

Source: Computer output data using E-views 8.0

Notes: The ADF is the residual-based ADF statistic. The null hypothesis is no co-integration. (*) and (**) indicate that the estimated parameters are significant at the 1% and 5% level respectively.

4.5.2 Johansen Fisher Panel Co-integration

Johansen (1988) postulated two different methods in determining the presence of co-integration in non-stationary time series, one of them is the likelihood ratio trace statistics and the other one is maximum eigenvalue statistics. Johansen Fisher panel co-integration was advanced based on the Johansen's time-series co-integration test, which allows using a mixture of I(1) and I(0) variables in the test. As a result, it may be inferred that conducting the panel co-integration test, using a set of panel data variables which have different orders of integration, would not create biased results. The result of the Johansen's Fisher panel co-integration test as presented in Tables 21-24 for the four models are vehemently conclusive: Fisher's tests, no matter with the Trace test statistics or Max-eigen test statistics, support the presence of a cointegrated relation among the variables concerned at the 1% significant level. Therefore, this research can conclude from those results of panel co-integration tests that there is a panel long-run equilibrium relationship between financial structure (represented by total debt to total assets, total debt to total equity and short term debt to total assets) and firms' financial performance (return on assets, return on equity, net profit margin and gross revenue) when controlled with tangibility, firms' size, growth opportunity, risk and taxation.

Table 21: Johansen Fisher Panel Co-integration Result for Model 1

Unrestricted Co-integration Rank Test (Trace and Maximum Eigen Value)				
Hypothesized Number of CE(s)	Fisher's Stat. (from Trace Test)	Prob.**	Fisher's Stat. (from Maximum Eigen Test)	Prob.**
None	98.43	0.9979	98.43	0.9979
At most 1	98.43	0.9979	98.43	0.9979
At most 2	91.50	0.9977	183.6***	0.0100
At most 3	42.98	1.0000	779.8***	0.0000
At most 4	6.931	1.0000	1223.0***	0.0000
At most 5	18.42	1.0000	1308.0***	0.0000
At most 6	1271.0***	0.0000	1308.0***	0.0000
At most 7	989.5***	0.0000	854.1***	0.0000
At most 8	425.5***	0.0000	425.5***	0.0000

Source: Computer output data using E-views 8.0

Notes: P-values are computed using asymptotic Chi-square distribution. *** indicate that the test statistics are significant at the 1% level. Fisher's test applies regardless of the dependent variable.

Table 22: Johansen Fisher Panel Co-integration Result for Model 2

Unrestricted Co-integration Rank Test (Trace and Maximum Eigen Value)				
Hypothesized Number of CE(s)	Fisher's Stat. (from Trace Test)	Prob.**	Fisher's Stat. (from Maximum Eigen Test)	Prob.**
None	98.43	0.9979	98.43	0.9977
At most 1	98.43	0.9979	98.43	0.9977
At most 2	92.88	0.9995	166.6	0.0778
At most 3	49.91	1.0000	694.6***	0.0000
At most 4	2.773	1.0000	1274.0***	0.0000
At most 5	18.42	1.0000	1308.0***	0.0000
At most 6	1271.0***	0.0000	1308.0***	0.0000
At most 7	1091.0***	0.0000	985.1***	0.0000
At most 8	416.9***	0.0000	416.9***	0.0000

Source: Computer output data using E-views 8.0

Notes: P-values are computed using asymptotic Chi-square distribution. *** indicate that the test statistics are significant at the 1% level. Fisher's test applies regardless of the dependent variable.

Table 23: Johansen Fisher Panel Co-integration Result for Model 3

Unrestricted Co-integration Rank Test (Trace and Maximum Eigen Value)				
Hypothesized Number of CE(s)	Fisher's Stat. (from Trace Test)	Prob.**	Fisher's Stat. (from Maximum Eigen Test)	Prob.**
None	98.43	0.9979	98.43	0.9977
At most 1	97.04	0.9985	115.5	0.9500
At most 2	91.50	0.9977	183.6***	0.0100
At most 3	49.91	1.0000	694.6***	0.0000
At most 4	6.931	1.0000	1223.0***	0.0000
At most 5	18.42	1.0000	1308.0***	0.0000
At most 6	1271.0***	0.0000	1308.0***	0.0000
At most 7	1067.0***	0.0000	930.2***	0.0000
At most 8	454.8***	0.0000	454.8***	0.0000

Source: Computer output data using E-views 8.0

Notes: P-values are computed using asymptotic Chi-square distribution. *** indicate that the test statistics are significant at the 1% level. Fisher's test applies regardless of the dependent variable.

Table 24: Johansen Fisher Panel Co-integration Result for Model 4

Unrestricted Co-integration Rank Test (Trace and Maximum Eigen Value)				
Hypothesized Number of CE(s)	Fisher's Stat. (from Trace Test)	Prob.**	Fisher's Stat. (from Maximum Eigen Test)	Prob.**
None	95.65	0.9977	95.65	0.9977
At most 1	95.65	0.9977	95.65	0.9977
At most 2	95.65	0.9977	95.65	0.9977
At most 3	58.22	1.0000	555.6***	0.0000
At most 4	8.318	1.0000	1169.0***	0.0000
At most 5	18.42	1.0000	1271.0***	0.0000
At most 6	1234.0***	0.0000	1271.0***	0.0000
At most 7	1054.0***	0.0000	915.3***	0.0000
At most 8	513.5***	0.0000	513.5***	0.0000

Source: Computer output data using E-views 8.0

Notes: P-values are computed using asymptotic Chi-square distribution. *** indicate that the test statistics are significant at the 1% level. Fisher's test applies regardless of the dependent variable.

4.6 Sectorial Analysis of Panel OLS Relationship

This section shows the sector by sector analysis of the relationship between financial structure and financial performance of quoted non-service financial firms. The estimation was performed with pooled OLS, fixed and random effect estimation technique where return on assets was lagged by one year. Due to the weaknesses associated with the pooled OLS, the fixed and random effect were evaluated. The hausman specification test was conducted in order to choose between the fixed and random effect results. The random effect estimation is chosen if the p-value of the Chi-square statistic in hausman test is insignificant at 5% level. On the other hand, the fixed effect estimation is used if the -value of the Chi-square statistic in hausman test is significant at 5% level of significance. Interpretations were based on relative utility of the models for variables found to be significant at 5% level of significance.

4.6.1 Agricultural Sector

Tables 25, 26, 27 and 28 summarize the pooled OLS, fixed and random effect estimations for the specific objectives of the study. From the regression results Table 25-28, total debt to total assets and total debt to total equity have negative relationship with return on assets and return on equity of agricultural while short term debt to total assets positively relates with return on assets and return on equity. Total debt to total equity and short term debt to total assets have negative relationship net profit margin and gross revenue. The relationship between net profit margin, return on equity and short term debt to total; return on equity and total debt to total assets are significant at 5% level. Growth opportunities and firms' size significantly and negatively influence net profit margin and gross revenue respectively.

Table 25: Return on Assets and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	-0.017007	0.9336	-0.068684	0.7620	-0.026244	0.9015
TDTA	-0.346826	0.1802	-0.397013	0.1460	-0.356137	0.1655
TDTE	-0.013759	0.9162	-0.098159	0.4949	-0.029423	0.8219
STDTA	0.257243	0.2059	0.260048	0.2294	0.256835	0.2032
TANG	0.073532	0.6815	0.186031	0.3664	0.093372	0.6050
FMS	-3.12E-09	0.8841	3.23E-09	0.9009	-1.84E-09	0.9327
GRT	0.004053	0.1732	0.006762	0.0325	0.004585	0.1212
RISK	0.431828	0.5890	0.492495	0.5739	0.449509	0.5729
TAX	1.89E-07	0.7969	-1.48E-08	0.9852	1.47E-07	0.8409
R-squared	0.172399		0.374521		0.181488	
Adjusted R-squared	0.097915		0.136998		0.107822	
S.E. of regression	1.157539		1.132186		1.126790	
Sum squared resid	133.9897		101.2658		126.9656	
Log likelihood	-166.9338		-151.5330			
F-statistic	2.314570		1.576776		2.463665	
Prob(F-statistic)	0.020771		0.056334		0.014003	
Durbin-Watson stat	1.824747		1.921270		1.837728	
Hausman Specification Test						
	Chi-Sq. Statistic		8.04913			
	Probability		0.52920			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 5, Total Number of Observations: 115

Table 26: Return on Equity and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	0.047947	0.7091	-0.023412	0.8644	0.047947	0.6919
TDTA	-0.565819	0.0011	-0.639886	0.0004	-0.565819	0.0005
TDTE	-0.000900	0.9913	-0.066953	0.4408	-0.000900	0.9907
STDTA	0.451717	0.0012	0.494132	0.0008	0.451717	0.0006
TANG	0.110836	0.3272	0.188956	0.1314	0.110836	0.2980
FMS	-1.73E-08	0.1991	-7.28E-09	0.6438	-1.73E-08	0.1727
GRT	0.003798	0.0435	0.006450	0.0009	0.003798	0.0322
RISK	0.453460	0.3688	0.571028	0.2822	0.453460	0.3398
TAX	7.26E-07	0.1163	5.52E-07	0.2495	7.26E-07	0.0954
R-squared	0.291967		0.504514		0.291967	
Adjusted R-squared	0.228244		0.316354		0.228244	
S.E. of regression	0.727105		0.684342		0.727105	
Sum squared resid	52.86823		36.99757		52.86823	
Log likelihood	-115.7860		-96.15369			
F-statistic	4.581824		2.681310		4.581824	
Prob(F-statistic)	0.000045		0.000258		0.000045	
Durbin-Watson stat	2.040150		2.017950		2.040150	
Hausman Specification Test						
	Chi-Sq. Statistic		25.8990			
	Probability		0.0021			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 5, Total Number of Observations: 115

Table 27: Net Profit Margin and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	0.288255	0.9423	-0.459246	0.9187	0.288255	0.9413
TDTA	6.463987	0.1948	7.960559	0.1337	6.463987	0.1871
TDTE	0.460564	0.8562	-0.214127	0.9391	0.460564	0.8537
STDTA	-8.907857	0.0238	-10.03382	0.0190	-8.907857	0.0215
TANG	-1.928213	0.5798	-1.415303	0.7237	-1.928213	0.5731
FMS	-2.67E-07	0.5215	-6.85E-07	0.1948	-2.67E-07	0.5142
GRT	-0.172352	0.0033	-0.157206	0.0114	-0.172352	0.0028
RISK	21.82759	0.1655	30.02489	0.0852	21.82759	0.1583
TAX	1.17E-05	0.4094	2.93E-05	0.0655	1.17E-05	0.4012
R-squared	0.119614		0.328477		0.119614	
Adjusted R-squared	0.040379		0.073468		0.040379	
S.E. of regression	22.49989		22.10858		22.49989	
Sum squared resid	50624.51		38614.36		-2.184074	
Log likelihood	-493.3273		-478.4327			
F-statistic	1.509617		1.288099		1.509617	
Prob(F-statistic)	0.154773		0.186418		0.154773	
Durbin-Watson stat	2.149455		2.199456		2.149455	
Hausman Specification Test						
	Chi-Sq. Statistic		17.5582			
	Probability		0.0407			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 5, Total Number of Observations: 115

Table 28: Gross Revenue and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	996140.2	0.4940	2650717.	0.1041	996140.2	0.4705
TDTA	816592.1	0.6517	1425100.	0.4430	816592.1	0.6339
TDTE	-69189.38	0.9400	-477739.0	0.6253	-69189.38	0.9367
STDTA	-773502.6	0.5895	-2267500.	0.1237	-773502.6	0.5692
TANG	472523.6	0.7079	311437.9	0.8236	472523.6	0.6926
FMS	-0.072192	0.6322	-0.521938	0.0042	-0.072192	0.6135
GRT	27064.84	0.1952	30031.58	0.1597	27064.84	0.1719
RISK	-1155733.	0.8375	3808233.	0.5226	-1155733.	0.8286
TAX	2.798823	0.5872	10.45040	0.0551	2.798823	0.5668
R-squared	0.604153		0.719116		0.604153	
Adjusted R-squared	0.568527		0.612451		0.568527	
S.E. of regression	8142075.		7716527.		8142075.	
Sum squared resid	6.63E+15		4.70E+15		6.63E+15	
Log likelihood	-1901.222		-1882.353			
F-statistic	16.95811		6.741816		16.95811	
Prob(F-statistic)	0.000000		0.000000		0.000000	
Durbin-Watson stat	2.152088		2.156797		2.152088	
Hausman Specification Test						
	Chi-Sq. Statistic		24.0979			
	Probability		0.0041			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 5, Total Number of Observations: 115

4.6.2 Conglomerate Sector

Tables 29, 30, 31 and 32 indicate the regression outcome for firms in the conglomerate sector of Nigeria Stock Exchange. Total debt to total assets negatively relates with return and assets but positively with return on equity and net profit margin. Return on equity, net profit margin and gross revenue have negative relationship with total debt to total equity but positive and significant relationship with return on assets. Short term debt to total assets negatively relates with return on assets, return on equity and net profit margin but has positive influence on gross revenue. Risk and taxation significantly influence return on assets, return on equity negatively influenced by risk and firms' size, net profit margin positively related with firms' size as growth opportunity has inverse relationship with net profit margin

Table 29: Return on Assets and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	-0.144079	0.2531	-0.185766	0.1727	-0.144079	0.2489
TDTA	-3.78E-06	0.7515	-4.78E-06	0.7151	-3.78E-06	0.7493
TDTE	0.143577	0.0191	0.107440	0.1362	0.143577	0.0180
STDTA	-0.050591	0.7684	-0.221105	0.2295	-0.050591	0.7664
TANG	0.141471	0.4493	0.430926	0.0598	0.141471	0.4452
FMS	2.72E-09	0.6409	9.89E-09	0.1407	2.72E-09	0.6379
GRT	-6.46E-09	0.4325	-1.81E-08	0.0675	-6.46E-09	0.4284
RISK	2.097115	0.0000	2.009509	0.0000	2.097115	0.0000
TAX	5.66E-08	0.0006	4.55E-08	0.0135	5.66E-08	0.0006
R-squared	0.708175		0.773532		0.708175	
Adjusted R-squared	0.681911		0.687531		0.681911	
S.E. of regression	0.423243		0.419487		0.423243	
Sum squared resid	17.91347		13.90159		17.91347	
Log likelihood	-56.26223		-42.31700			
F-statistic	26.96347		8.994497		26.96347	
Prob(F-statistic)	0.000000		0.000000		0.000000	
Durbin-Watson stat	1.475092		1.487432		1.475092	
Hausman Specification Test						
	Chi-Sq. Statistic		15.3520			
	Probability		0.0817			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 5, Total Number of Observations: 115

Table 30: Return on Equity and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	0.913314	0.0000	1.024428	0.0000	0.913314	0.0000
TDTA	2.77E-06	0.8819	-9.68E-06	0.6391	2.77E-06	0.8819
TDTE	-0.243965	0.0113	-0.275940	0.0164	-0.243965	0.0113
STDTA	-0.440603	0.1026	-0.261761	0.3635	-0.440603	0.1026
TANG	-0.677130	0.0217	-0.942654	0.0095	-0.677130	0.0217
FMS	-1.85E-09	0.8395	-8.02E-09	0.4497	-1.85E-09	0.8395
GRT	4.82E-09	0.7088	1.23E-08	0.4310	4.82E-09	0.7088
RISK	-4.392788	0.0000	-4.321350	0.0000	-4.392788	0.0000
TAX	7.51E-08	0.0022	8.21E-08	0.0026	7.51E-08	0.0022
R-squared	0.775020		0.822252		0.775020	
Adjusted R-squared	0.754772		0.754752		0.754772	
S.E. of regression	0.660134		0.660160		0.660134	
Sum squared resid	43.57770		34.42908		43.57770	
Log likelihood	-105.1568		-92.19641			
F-statistic	38.27598		12.18163		38.27598	
Prob(F-statistic)	0.000000		0.000000		0.000000	
Durbin-Watson stat	1.781712		1.777828		1.781712	
Hausman Specification Test						
	Chi-Sq. Statistic		10.7457			
	Probability		0.2935			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 5, Total Number of Observations: 115

Table 31: Net Profit Margin and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	0.135695	0.2119	0.060867	0.6109	0.135695	0.2147
TDTA	-2.44E-05	0.0201	-2.96E-05	0.0115	-2.44E-05	0.0208
TDTE	-0.063915	0.2177	-0.068597	0.2686	-0.063915	0.2205
STDTA	-0.065295	0.6552	-0.110895	0.4821	-0.065295	0.6572
TANG	-0.119916	0.4544	0.009496	0.9623	-0.119916	0.4571
FMS	2.88E-08	0.0000	2.80E-08	0.0000	2.88E-08	0.0000
GRT	-1.71E-08	0.0171	-1.60E-08	0.0605	-1.71E-08	0.0178
RISK	-0.039587	0.7649	-0.055769	0.7094	-0.039587	0.7663
TAX	-7.60E-09	0.5627	-7.79E-09	0.5915	-7.60E-09	0.5651
R-squared	0.853476		0.882830		0.853476	
Adjusted R-squared	0.840288		0.838336		0.840288	
S.E. of regression	0.360529		0.362726		0.360529	
Sum squared resid	12.99811		10.39406		1.582260	
Log likelihood	-38.62103		-26.32471			
F-statistic	64.71999		19.84120		64.71999	
Prob(F-statistic)	0.000000		0.000000		0.000000	
Durbin-Watson stat	1.582260		1.651527			
Hausman Specification Test						
	Chi-Sq. Statistic		9.62899			
	Probability		0.3813			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 5, Total Number of Observations: 115

Table 32: Gross Revenue and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	-194290.2	0.5296	-304392.9	0.3441	-194290.2	0.5114
TDTA	26.01903	0.3909	9.985433	0.7537	26.01903	0.3701
TDTE	-259050.6	0.0888	-167942.2	0.3290	-259050.6	0.0756
STDTA	633408.3	0.1697	472997.7	0.3117	633408.3	0.1516
TANG	-30706.39	0.9469	308060.6	0.5668	-30706.39	0.9445
FMS	0.020297	0.2701	0.039881	0.0443	0.020297	0.2493
GRT	0.027540	0.1753	0.010036	0.6650	0.027540	0.1570
RISK	190951.2	0.6176	347443.2	0.3987	190951.2	0.6020
TAX	0.081214	0.0327	0.037148	0.3538	0.081214	0.0258
R-squared	0.817832		0.868146		0.817832	
Adjusted R-squared	0.801437		0.818075		0.801437	
S.E. of regression	1042773.		998129.6		1042773.	
Sum squared resid	1.09E+14		7.87E+13		1.09E+14	
Log likelihood	-1675.155		-1657.377			
F-statistic	49.88265		17.33825		49.88265	
Prob(F-statistic)	0.000000		0.000000		0.000000	
Durbin-Watson stat	1.431944		1.574452		1.431944	
Hausman Specification Test						
	Chi-Sq. Statistic		24.3446			
	Probability		0.0038			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 5, Total Number of Observations: 115

4.6.3 Construction and Real Estate Sector

From the construction and real estate sector outcome in Tables 33, 34, 35 and 36, total debt to total assets has a significant positive relationship with gross revenue but insignificant negative relationship with return on assets, return on equity and net profit margin. Total debt to total equity insignificantly and negatively relates with return on assets, return on equity and gross revenue but is linked positively with net profit margin. Short term debt to total assets has positive relationship with return on equity and gross revenue but discloses a negative relationship with return on assets and net profit margin. Firms' size, growth opportunity and tax positively affect gross revenue while net profit margin is affected by risk.

Table 33: Return on Assets and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	77.30749	0.8736	426.7968	0.4232	77.30749	0.8755
TDTA	-311.7529	0.5585	-637.0194	0.2786	-311.7529	0.5646
TDTE	-0.893517	0.9722	6.867882	0.8016	-0.893517	0.9727
STDTA	27.10526	0.9589	131.4825	0.8154	27.10526	0.9595
TANG	767.1601	0.2257	359.0590	0.6118	767.1601	0.2328
FMS	-4.07E-06	0.7605	-4.76E-06	0.7391	-4.07E-06	0.7641
GRT	-1.47E-06	0.9150	-9.01E-07	0.9512	-1.47E-06	0.9163
RISK	1539.334	0.1974	764.8623	0.5583	1539.334	0.2043
TAX	3.70E-05	0.9284	7.39E-05	0.8708	3.70E-05	0.9295
R-squared	0.028440		0.143997		0.028440	
Adjusted R-squared	-0.032282		-0.064784		-0.032282	
S.E. of regression	2590.880		2631.351		2590.880	
Sum squared resid	9.67E+08		8.52E+08		9.67E+08	
Log likelihood	-1423.749		-1413.998			
F-statistic	0.468368		0.689705		0.468368	
Prob(F-statistic)	0.893848		0.880548		0.893848	
Durbin-Watson stat	2.033154		2.064412		2.033154	
Hausman Specification Test						
	Chi-Sq. Statistic		11.4163			
	Probability		0.2482			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 7, Total Number of Observations: 161

Table 34: Return on Equity and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	180.4112	0.3139	151.1001	0.4322	176.0952	0.3392
TDTA	-83.16939	0.6731	-110.7338	0.6057	-87.07956	0.6633
TDTE	-0.628933	0.9472	-0.523755	0.9582	-0.623918	0.9481
STDTA	-130.3622	0.5040	-112.0305	0.5872	-127.5940	0.5178
TANG	15.86599	0.9457	56.03537	0.8272	21.76898	0.9267
FMS	-1.66E-06	0.7362	-2.80E-07	0.9573	-1.47E-06	0.7676
GRT	4.85E-07	0.9245	5.56E-07	0.9178	4.98E-07	0.9232
RISK	-89.30142	0.8395	-339.6636	0.4777	-122.7122	0.7838
TAX	7.32E-06	0.9617	5.49E-06	0.9736	7.01E-06	0.9638
R-squared	0.008961		0.147046		0.008849	
Adjusted R-squared	-0.052978		-0.060991		-0.053098	
S.E. of regression	959.0994		962.7417		949.1813	
Sum squared resid	1.32E+08		1.14E+08		1.30E+08	
Log likelihood	-1270.710		-1259.156			
F-statistic	0.144679		0.706825		0.142854	
Prob(F-statistic)	0.998235		0.864143		0.998322	
Durbin-Watson stat	2.091127		2.088816		2.090680	
Hausman Specification Test						
	Chi-Sq. Statistic		4.9720			
	Probability		0.8367			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 7, Total Number of Observations: 161

Table 35: Net Profit Margin and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	0.030916	0.8938	0.044023	0.8610	0.031521	0.8937
TDTA	-0.193764	0.4502	-0.250632	0.3737	-0.195795	0.4520
TDTE	0.007638	0.5359	0.008095	0.5365	0.007668	0.5398
STDTA	0.214023	0.3983	0.163827	0.5460	0.212018	0.4092
TANG	-0.341998	0.2630	-0.269408	0.4268	-0.339636	0.2733
FMS	5.48E-09	0.3950	3.93E-09	0.5667	5.43E-09	0.4057
GRT	-1.90E-09	0.7744	-1.25E-09	0.8595	-1.88E-09	0.7801
RISK	1.314762	0.0229	1.444296	0.0223	1.319125	0.0244
TAX	8.52E-09	0.9656	4.26E-09	0.9844	8.32E-09	0.9669
R-squared	0.088539		0.202822		0.088192	
Adjusted R-squared	0.031572		0.008389		0.031204	
S.E. of regression	1.245572		1.260393		1.242557	
Sum squared resid	223.4088		195.3967		222.3286	
Log likelihood	-247.1644		-236.8486			
F-statistic	1.554225		1.043144		1.547556	
Prob(F-statistic)	0.134573		0.418708		0.136750	
Durbin-Watson stat	2.114971		2.114513		2.114976	
Hausman Specification Test						
	Chi-Sq. Statistic		4.9533			
	Probability		0.8384			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 7, Total Number of Observations: 161

Table 36: Gross Revenue and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	-98268.00	0.3560	-176821.2	0.1326	-98268.00	0.3661
TDTA	251904.0	0.0343	307438.3	0.0212	251904.0	0.0382
TDTE	-2999.309	0.5980	-7715.279	0.2080	-2999.309	0.6057
STDTA	-97639.06	0.4028	-99855.60	0.4278	-97639.06	0.4128
TANG	-108788.5	0.4355	1659.234	0.9915	-108788.5	0.4451
FMS	0.039165	0.0000	0.040568	0.0000	0.039165	0.0000
GRT	0.027856	0.0000	0.030147	0.0000	0.027856	0.0000
RISK	-286593.4	0.2766	-352883.8	0.2250	-286593.4	0.2868
TAX	0.730956	0.0000	0.693836	0.0000	0.730956	0.0000
R-squared	0.948457		0.954066		0.948457	
Adjusted R-squared	0.945235		0.942863		0.945235	
S.E. of regression	572083.4		584344.1		572083.4	
Sum squared resid	4.71E+13		4.20E+13		4.71E+13	
Log likelihood	-2254.931		-2246.059			
F-statistic	294.4193		85.15886		294.4193	
Prob(F-statistic)	0.000000		0.000000		0.000000	
Durbin-Watson stat	1.485171		1.482567		1.485171	
Hausman Specification Test						
	Chi-Sq. Statistic		12.8337			
	Probability		0.1703			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 7, Total Number of Observations: 161

4.6.4 Consumer Goods Sector

Tables 37, 38, 39 and 40 summarise the result of consumer goods sector. Financial managers and investors in this sector will find the results of this study useful because it enables adjusting portfolios. It was observed that financial structure variables: total debt to total assets, total debt to total equity and short term debt to total assets positive relationship with firms' financial return on assets, return on equity, gross revenue and net profit margin except in one instance where gross revenue relates negatively with short term debt to total assets. Risk and tax significantly associate positively with gross revenue as return on equity is positively and significantly linked with risk.

Table 37: Return on Assets and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	-147.4097	0.1507	-155.4250	0.1334	-147.5146	0.1533
TDTA	0.002526	0.9149	0.000675	0.9781	0.002498	0.9159
TDTE	0.000606	0.9429	-0.000291	0.9731	0.000593	0.9442
STDTA	0.001716	0.9102	0.000323	0.9834	0.001696	0.9113
TANG	0.004395	0.9487	0.000172	0.9980	0.004338	0.9494
FMS	-3.16E-07	0.9518	-1.59E-06	0.7810	-3.35E-07	0.9490
GRT	5.22E-05	0.9673	-6.14E-05	0.9623	5.05E-05	0.9684
RISK	15.03235	0.9184	-13.14020	0.9300	14.64257	0.9206
TAX	2.26E-05	0.7644	6.06E-05	0.4455	2.32E-05	0.7591
R-squared	0.000520		0.041950		0.000532	
Adjusted R-squared	-0.014916		-0.015996		-0.014904	
S.E. of regression	2159.236		2160.385		2158.567	
Sum squared resid	2.42E+09		2.31E+09		2.41E+09	
Log likelihood	-4789.289		-4778.134			
F-statistic	0.033704		0.723950		0.034453	
Prob(F-statistic)	0.999987		0.859404		0.999986	
Durbin-Watson stat	2.015715		2.012850		2.015644	
Hausman Specification Test						
	Chi-Sq. Statistic		7.1296			
	Probability		0.5227			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 23, Total Number of Observations: 529

Table 38: Return on Equity and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	0.004258	0.9536	0.000968	0.9895	0.002050	0.9813
TDTA	2.31E-06	0.8877	1.27E-05	0.4514	5.61E-06	0.7328
TDTE	3.35E-06	0.5672	5.86E-06	0.3249	4.13E-06	0.4806
STDTA	1.01E-06	0.9235	2.47E-06	0.8164	1.50E-06	0.8867
TANG	-0.033204	0.0580	-0.033144	0.0625	-0.033187	0.0583
FMS	1.17E-09	0.7466	2.77E-10	0.9439	9.25E-10	0.8027
GRT	2.98E-07	0.7358	4.53E-07	0.6135	3.51E-07	0.6917
RISK	0.271025	0.0080	0.286188	0.0057	0.275782	0.0069
TAX	2.54E-08	0.6275	3.57E-08	0.5147	2.83E-08	0.5931
R-squared	0.065142		0.117361		0.064343	
Adjusted R-squared	0.048110		0.061380		0.047297	
S.E. of regression	1.491522		1.481089		1.477464	
Sum squared resid	1098.971		1037.585		1078.352	
Log likelihood	-911.5925		-897.1078			
F-statistic	3.824694		2.096434		3.774598	
Prob(F-statistic)	0.000109		0.000742		0.000129	
Durbin-Watson stat	2.128636		2.134198		2.116849	
Hausman Specification Test						
	Chi-Sq. Statistic		6.5237			
	Probability		0.6866			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 23, Total Number of Observations: 529

Table 39: Net Profit Margin and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	-0.234191	0.1544	-0.233668	0.1591	-0.234191	0.1545
TDTA	2.63E-06	0.9446	1.96E-07	0.9960	2.63E-06	0.9446
TDTE	1.11E-06	0.9348	3.41E-07	0.9804	1.11E-06	0.9348
STDTA	5.20E-06	0.8310	1.79E-05	0.4715	5.20E-06	0.8310
TANG	1.30E-05	0.9056	1.03E-06	0.9927	1.30E-05	0.9056
FMS	1.65E-09	0.8441	1.86E-09	0.8392	1.65E-09	0.8441
GRT	1.85E-07	0.9279	2.16E-07	0.9177	1.85E-07	0.9279
RISK	-0.110635	0.6381	-0.019229	0.9361	-0.110635	0.6382
TAX	3.20E-08	0.7913	9.67E-09	0.9394	3.20E-08	0.7914
R-squared	0.001697		0.043691		0.001697	
Adjusted R-squared	-0.013721		-0.014150		-0.013721	
S.E. of regression	3.461242		3.461975		3.461242	
Sum squared resid	6205.741		5944.696		6205.741	
Log likelihood	-1397.579		-1386.255			
F-statistic	0.110077		0.755357		0.110077	
Prob(F-statistic)	0.998876		0.824269		0.998876	
Durbin-Watson stat	1.932663		1.934434		1.932663	
Hausman Specification Test						
	Chi-Sq. Statistic		10.1944			
	Probability		0.2516			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 23, Total Number of Observations: 529

Table 40: Gross Revenue and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	105344.3	0.2777	137990.1	0.1550	105344.3	0.2733
TDTA	11.60764	0.5900	16.99674	0.4433	11.60764	0.5866
TDTE	-3.658902	0.6354	3.205536	0.6817	-3.658902	0.6323
STDTA	0.053629	0.9969	2.341016	0.8672	0.053629	0.9969
TANG	-11055.45	0.6315	-5907.601	0.8003	-11055.45	0.6284
FMS	-0.004976	0.3992	-0.011341	0.0625	-0.004976	0.3949
GRT	0.223199	0.8473	0.482236	0.6815	0.223199	0.8460
RISK	434600.5	0.0013	443737.9	0.0011	434600.5	0.0012
TAX	1.186300	0.0000	1.231106	0.0000	1.186300	0.0000
R-squared	0.941088		0.944622		0.941088	
Adjusted R-squared	0.940010		0.941095		0.940010	
S.E. of regression	1966026.		1948174.		1966026.	
Sum squared resid	1.90E+15		1.79E+15		1.90E+15	
Log likelihood	-7982.002		-7966.474			
F-statistic	873.2694		267.8062		873.2694	
Prob(F-statistic)	0.000000		0.000000		0.000000	
Durbin-Watson stat	1.818378		1.806287		1.818378	
Hausman Specification Test						
	Chi-Sq. Statistic		23.0759			
	Probability		0.0060			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 23, Total Number of Observations: 529

4.6.5 Healthcare Sector

For firms in the healthcare sector, short term debt to total assets and total debt to total equity have positive relationship with return on assets, return on equity and gross revenue but an insignificant negative relationship with net profit margin. Conversely, total debt to total assets has negative relation with return on assets but exhibit a positive relationship with return on equity, gross revenue and net profit margin. Growth opportunities and tax were found to relate positively with return on assets return on assets and return on equity. The size of the firms and risk of bankruptcy negatively influence net profit margin. This analysis was presented in Tables 41, 42, 43 and 44.

Table 41: Return on Assets and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	0.054256	0.0023	0.053430	0.0027	0.054409	0.0054
TDTA	-0.049766	0.1282	-0.044281	0.1686	-0.047414	0.1354
TDTE	2.52E-07	0.8514	1.38E-07	0.9195	1.89E-07	0.8867
STDTA	7.27E-05	0.0000	7.46E-05	0.0000	7.34E-05	0.0000
TANG	2.26E-08	0.9873	-7.02E-07	0.6246	-2.78E-07	0.8414
FMS	-7.68E-09	0.2006	-5.53E-09	0.4375	-7.28E-09	0.2398
GRT	0.001686	0.0000	0.001411	0.0004	0.001581	0.0000
RISK	-0.017979	0.0848	-0.014833	0.1576	-0.016696	0.1024
TAX	2.17E-07	0.0504	2.30E-07	0.0543	2.27E-07	0.0400
R-squared	0.443419		0.536870		0.434255	
Adjusted R-squared	0.419336		0.462571		0.409776	
S.E. of regression	0.157716		0.151731		0.152142	
Sum squared resid	5.173871		4.305170		4.814637	
Log likelihood	98.42665		118.4614			
F-statistic	18.41223		7.225802		17.73964	
Prob(F-statistic)	0.000000		0.000000		0.000000	
Durbin-Watson stat	1.822092		1.750419		1.795125	
Hausman Specification Test						
	Chi-Sq. Statistic		10.0627			
	Probability		0.3454			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 10, Total Number of Observations: 230

Table 42: Return on Equity and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	0.131721	0.0066	0.098181	0.0520	0.129676	0.0078
TDTA	0.106088	0.2623	0.152838	0.1103	0.109776	0.2376
TDTE	9.40E-07	0.8194	1.73E-06	0.6846	9.72E-07	0.8104
STDTA	0.000318	0.0000	0.000338	0.0000	0.000320	0.0000
TANG	5.60E-07	0.8971	5.74E-07	0.8976	5.28E-07	0.9012
FMS	-4.15E-08	0.0241	-2.60E-08	0.2393	-4.09E-08	0.0253
GRT	0.003937	0.0005	0.003017	0.0133	0.003879	0.0005
RISK	-0.903658	0.0000	-0.904431	0.0000	-0.903619	0.0000
TAX	8.41E-07	0.0126	7.14E-07	0.0548	8.38E-07	0.0117
R-squared	0.834596		0.857349		0.834793	
Adjusted R-squared	0.827439		0.834464		0.827644	
S.E. of regression	0.481876		0.471966		0.479087	
Sum squared resid	48.29858		41.65454		47.74112	
Log likelihood	-145.0555		-128.9244			
F-statistic	116.6137		37.46302		116.7805	
Prob(F-statistic)	0.000000		0.000000		0.000000	
Durbin-Watson stat	1.542943		1.522685		1.541037	
Hausman Specification Test						
	Chi-Sq. Statistic		15.3247			
	Probability		0.0824			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 10, Total Number of Observations: 230

Table 43: Net Profit Margin and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	0.065753	0.6357	0.107866	0.4708	0.073005	0.6301
TDTA	0.011403	0.9668	0.004128	0.9884	0.010990	0.9683
TDTE	-8.51E-07	0.9453	1.20E-06	0.9269	-2.45E-07	0.9844
STDTA	-6.69E-06	0.9367	-1.80E-06	0.9838	-5.65E-06	0.9472
TANG	1.18E-06	0.9277	-2.33E-07	0.9864	1.02E-06	0.9385
FMS	-1.55E-08	0.7768	-5.12E-08	0.4468	-2.15E-08	0.7044
GRT	0.007841	0.0200	0.008362	0.0255	0.007899	0.0219
RISK	-0.006647	0.9445	-0.033722	0.7362	-0.013338	0.8901
TAX	1.21E-07	0.9040	6.19E-07	0.5833	2.08E-07	0.8383
R-squared	0.025602		0.122871		0.025777	
Adjusted R-squared	-0.009993		-0.010702		-0.009811	
S.E. of regression	1.452849		1.453359		1.434641	
Sum squared resid	462.2588		416.1138		450.7446	
Log likelihood	-404.0908		-392.1019			
F-statistic	0.719259		0.919880		0.724328	
Prob(F-statistic)	0.674416		0.590613		0.669940	
Durbin-Watson stat	2.413762		2.423839		2.415391	
Hausman Specification Test						
	Chi-Sq. Statistic		2.4072			
	Probability		0.9659			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 10, Total Number of Observations: 230

Table 44: Gross Revenue and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	-487973.5	0.8847	2020926.	0.5799	-487973.5	0.8851
TDTA	10187324	0.1146	6069285.	0.3661	10187324	0.1158
TDTE	133.4852	0.6670	132.8024	0.6851	133.4852	0.6680
STDTA	-99.85696	0.9593	-132.0250	0.9491	-99.85696	0.9595
TANG	22.34734	0.9413	2.935133	0.9927	22.34734	0.9415
FMS	-0.575633	0.6537	-1.670846	0.2940	-0.575633	0.6548
GRT	38046.57	0.6258	50593.94	0.5605	38046.57	0.6270
RISK	-1055567.	0.6348	-171871.9	0.9414	-1055567.	0.6359
TAX	3.999973	0.8644	17.25381	0.5158	3.999973	0.8648
R-squared	0.828272		0.844583		0.828272	
Adjusted R-squared	0.820842		0.819650		0.820842	
S.E. of regression	33767926		33880058		33767926	
Sum squared resid	2.37E+17		2.15E+17		2.37E+17	
Log likelihood	-4083.245		-4072.367			
F-statistic	111.4688		33.87384		111.4688	
Prob(F-statistic)	0.000000		0.000000		0.000000	
Durbin-Watson stat	2.044676		2.059498		2.044676	
Hausman Specification Test						
	Chi-Sq. Statistic		10.9335			
	Probability		0.2803			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 10, Total Number of Observations: 230

4.6.6 Information and Communication Technology Sector

Tables 45, 46, 47 and 48 depict the regression output for firms in information and communication technology sector. Total debt to total assets has a negative relationship with all the financial performance indicators of firms in ICT sector. Short term debt to total assets and total debt to total equity have positive relationship with return on assets, gross revenue and gross revenue but negative relationship with net profit margin. Tangibility, growth opportunity and risk positively influence return on assets, return on equity, gross revenue and net profit margin. Similarly, firms' size negatively affect gross revenue, return on equity, return on assets and net profit margin.

Table 45: Return on Assets and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	-0.064666	0.5780	0.020411	0.8921	-0.064666	0.5791
TDTA	-0.337450	0.0163	-0.498698	0.0038	-0.337450	0.0166
TDTE	-0.032384	0.0124	-0.020063	0.1835	-0.032384	0.0126
STDTA	0.040624	0.8331	0.071601	0.7721	0.040624	0.8336
TANG	0.428979	0.0167	0.405246	0.0372	0.428979	0.0171
FMS	-9.77E-08	0.0037	-8.95E-08	0.0435	-9.77E-08	0.0038
GRT	2.45E-07	0.0002	2.08E-07	0.0100	2.45E-07	0.0002
RISK	0.992391	0.0000	0.979717	0.0000	0.992391	0.0000
TAX	5.27E-07	0.4055	6.81E-07	0.4099	5.27E-07	0.4069
R-squared	0.798527		0.871647		0.798527	
Adjusted R-squared	0.771664		0.770316		0.771664	
S.E. of regression	0.454425		0.455764		0.454425	
Sum squared resid	12.39013		7.893399		12.39013	
Log likelihood	-38.66315		-23.10801			
F-statistic	29.72583		8.601974		29.72583	
Prob(F-statistic)	0.000000		0.000000		0.000000	
Durbin-Watson stat	1.904496		1.962980		1.904496	
Hausman Specification Test						
	Chi-Sq. Statistic		14.1813			
	Probability		0.0772			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 3, Total Number of Observations: 69

Table 46: Return on Equity and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	0.218833	0.0645	0.223719	0.1615	0.218833	0.0761
TDTA	-0.350673	0.0111	-0.394950	0.0221	-0.350673	0.0147
TDTE	0.226947	0.0000	0.220273	0.0000	0.226947	0.0000
STDTA	-0.453325	0.0338	-0.136129	0.6181	-0.453325	0.0416
TANG	-0.016053	0.9260	-0.008189	0.9665	-0.016053	0.9291
FMS	-9.64E-08	0.0033	-1.23E-07	0.0071	-9.64E-08	0.0047
GRT	1.32E-07	0.0392	1.42E-07	0.0916	1.32E-07	0.0478
RISK	0.342798	0.0000	0.353974	0.0002	0.342798	0.0000
TAX	4.48E-07	0.4637	1.02E-06	0.2238	4.48E-07	0.4825
R-squared	0.924233		0.948439		0.924233	
Adjusted R-squared	0.912056		0.904244		0.912056	
S.E. of regression	0.439074		0.458160		0.439074	
Sum squared resid	10.79600		7.346857		10.79600	
Log likelihood	-33.90413		-21.20233			
F-statistic	75.90048		21.46027		75.90048	
Prob(F-statistic)	0.000000		0.000000		0.000000	
Durbin-Watson stat	1.685134		1.519776		1.685134	
Hausman Specification Test						
	Chi-Sq. Statistic		10.1590			
	Probability		0.3378			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 3, Total Number of Observations: 69

Table 47: Net Profit Margin and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	-0.081744	0.4575	-0.068406	0.5953	-0.082843	0.4208
TDTA	-0.019685	0.8753	-0.059245	0.6656	-0.027663	0.8099
TDTE	0.002225	0.8461	-0.015780	0.1989	-0.000287	0.9782
STDTA	0.141509	0.4208	0.246555	0.2229	0.155992	0.3359
TANG	0.172659	0.2901	0.201889	0.2033	0.178375	0.2271
FMS	-1.58E-07	0.0000	-1.89E-07	0.0000	-1.61E-07	0.0000
GRT	8.71E-08	0.1318	1.08E-07	0.0912	9.20E-08	0.0827
RISK	0.126347	0.0572	0.129849	0.0732	0.127099	0.0380
TAX	1.67E-06	0.0066	2.40E-06	0.0010	1.73E-06	0.0024
R-squared	0.463833		0.732066		0.477596	
Adjusted R-squared	0.377664		0.502408		0.393638	
S.E. of regression	0.412236		0.368613		0.396327	
Sum squared resid	9.516575		4.755637		8.796189	
Log likelihood	-29.74149		-6.849250			
F-statistic	5.382795		3.187640		5.688526	
Prob(F-statistic)	0.000027		0.000600		0.000014	
Durbin-Watson stat	1.843449		1.814122		1.832091	
Hausman Specification Test						
	Chi-Sq. Statistic		17.73720			
	Probability		0.0383			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 3, Total Number of Observations: 69

Table 48: Gross Revenue and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	-24144.97	0.8537	28111.84	0.8684	-24144.97	0.8541
TDTA	-224870.0	0.1493	-251366.7	0.1767	-224870.0	0.1504
TDTE	-27211.62	0.0594	-37746.02	0.0296	-27211.62	0.0600
STDTA	154291.4	0.4788	291533.2	0.2988	154291.4	0.4799
TANG	218209.2	0.2714	214679.1	0.3167	218209.2	0.2726
FMS	-0.170386	0.0000	-0.208132	0.0001	-0.170386	0.0000
GRT	0.234154	0.0015	0.212894	0.0183	0.234154	0.0015
RISK	-17313.04	0.8300	-12906.06	0.8939	-17313.04	0.8304
TAX	1.452627	0.0449	2.520329	0.0094	1.452627	0.0454
R-squared	0.341365		0.580702		0.341365	
Adjusted R-squared	0.253547		0.249678		0.253547	
S.E. of regression	512473.1		513799.7		512473.1	
Sum squared resid	1.58E+13		1.00E+13		1.58E+13	
Log likelihood	-1000.228		-984.6484			
F-statistic	3.887194		1.754258		3.887194	
Prob(F-statistic)	0.000952		0.050905		0.000952	
Durbin-Watson stat	2.186709		2.364106		2.186709	
Hausman Specification Test						
	Chi-Sq. Statistic		8.363290			
	Probability		0.3988			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 3, Total Number of Observations: 69

4.6.7 Industrial Goods Sector

In industrial goods sector which is summed up in Tables 49, 50, 51 and 52, short term debt to total assets has significant negative relationship with return on assets, return on equity and net profit margin but discloses a positive insignificant relationship with gross revenue. In one hand, total debt to total assets and total debt to total equity have envisage negative relationship with return on assets and positive insignificant relationship with return on equity and gross revenue in the other hand. Tangibility impacts negatively on return on assets, growth opportunity and tax positively impact gross revenue while risk vehemently determine return on assets and return on equity.

Table 49: Return on Assets and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	0.144405	0.0001	0.149504	0.0001	0.144405	0.0001
TDTA	-0.001103	0.8309	-0.002995	0.5660	-0.001103	0.8274
TDTE	4.66E-06	0.4502	-1.97E-06	0.7511	4.66E-06	0.4408
STDTA	-0.088805	0.0258	-0.106943	0.0080	-0.088805	0.0229
TANG	-0.123961	0.0150	-0.109892	0.0364	-0.123961	0.0130
FMS	-1.12E-10	0.9388	3.11E-10	0.8316	-1.12E-10	0.9375
GRT	1.52E-10	0.9750	-1.55E-09	0.7501	1.52E-10	0.9744
RISK	0.272970	0.0000	0.277229	0.0000	0.272970	0.0000
TAX	6.14E-09	0.8829	6.50E-09	0.8763	6.14E-09	0.8804
R-squared	0.457167		0.507562		0.457167	
Adjusted R-squared	0.444444		0.466864		0.444444	
S.E. of regression	0.304804		0.298590		0.304804	
Sum squared resid	35.67560		32.36359		35.67560	
Log likelihood	-85.89065		-66.69633			
F-statistic	35.93325		12.47160		35.93325	
Prob(F-statistic)	0.000000		0.000000		0.000000	
Durbin-Watson stat	2.029035		2.060822		2.029035	
Hausman Specification Test						
	Chi-Sq. Statistic		27.4839			
	Probability		0.0012			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 18, Total Number of Observations: 414

Table 50: Return on Equity and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	0.280401	0.0095	0.297463	0.0074	0.283817	0.0101
TDTA	0.005437	0.7270	-0.002811	0.8585	0.003760	0.8070
TDTE	5.46E-06	0.7689	-9.65E-06	0.6069	2.10E-06	0.9088
STDTA	-0.311192	0.0099	-0.369316	0.0026	-0.323027	0.0068
TANG	-0.219304	0.1530	-0.170828	0.2810	-0.209309	0.1698
FMS	4.06E-10	0.9268	1.20E-09	0.7870	5.80E-10	0.8942
GRT	-2.83E-09	0.8460	-8.23E-09	0.5764	-3.95E-09	0.7842
RISK	0.660567	0.0002	0.691431	0.0001	0.667761	0.0002
TAX	3.57E-08	0.7763	3.96E-08	0.7537	3.59E-08	0.7723
R-squared	0.163247		0.236906		0.166194	
Adjusted R-squared	0.143636		0.173841		0.146651	
S.E. of regression	0.918971		0.902619		0.909359	
Sum squared resid	324.2909		295.7437		317.5428	
Log likelihood	-520.7039		-502.5508			
F-statistic	8.324102		3.756502		8.504281	
Prob(F-statistic)	0.000000		0.000000		0.000000	
Durbin-Watson stat	2.187063		2.190043		2.185238	
Hausman Specification Test						
	Chi-Sq. Statistic		14.7604			
	Probability		0.0977			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 18, Total Number of Observations: 414

Table 51: Net Profit Margin and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	0.331669	0.2673	0.245113	0.4320	0.331669	0.2661
TDTA	-0.006248	0.8870	-0.018016	0.6910	-0.006248	0.8867
TDTE	-7.19E-07	0.9891	-1.87E-05	0.7282	-7.19E-07	0.9890
STDTA	-1.902299	0.0000	-1.930883	0.0000	-1.902299	0.0000
TANG	0.079679	0.8535	0.324770	0.4781	0.079679	0.8532
FMS	-4.57E-09	0.7143	-2.17E-09	0.8640	-4.57E-09	0.7136
GRT	1.71E-08	0.6777	2.86E-09	0.9462	1.71E-08	0.6769
RISK	0.131789	0.7993	0.058732	0.9108	0.131789	0.7987
TAX	-1.91E-07	0.5898	-4.43E-08	0.9027	-1.91E-07	0.5889
R-squared	0.846042		0.855220		0.846042	
Adjusted R-squared	0.842433		0.843255		0.842433	
S.E. of regression	2.595080		2.588305		2.595080	
Sum squared resid	2586.026		2431.854		2586.026	
Log likelihood	-929.7225		-917.6133			
F-statistic	234.4649		71.47530		234.4649	
Prob(F-statistic)	0.000000		0.000000		0.000000	
Durbin-Watson stat	2.115466		2.109184		2.115466	
Hausman Specification Test						
	Chi-Sq. Statistic		14.6466			
	Probability		0.1011			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 18, Total Number of Observations: 414

Table 52: Gross Revenue and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	6010.928	0.9686	-25767.65	0.8737	6010.928	0.9690
TDTA	-17643.15	0.4325	-24792.54	0.2915	-17643.15	0.4390
TDTE	97.54355	0.0007	87.97270	0.0033	97.54355	0.0008
STDTA	35101.27	0.8382	38866.97	0.8283	35101.27	0.8404
TANG	-271498.7	0.2173	-195618.0	0.4061	-271498.7	0.2238
FMS	0.011606	0.0884	0.012129	0.0850	0.011606	0.0929
GRT	0.089934	0.0000	0.088550	0.0001	0.089934	0.0000
RISK	285343.8	0.2642	312439.3	0.2344	285343.8	0.2709
TAX	0.770218	0.0000	0.750828	0.0001	0.770218	0.0000
R-squared	0.871142		0.874706		0.871142	
Adjusted R-squared	0.868122		0.864351		0.868122	
S.E. of regression	1324744.		1343551.		1324744.	
Sum squared resid	6.74E+14		6.55E+14		6.74E+14	
Log likelihood	-6108.109		-6102.584			
F-statistic	288.4469		84.47250		288.4469	
Prob(F-statistic)	0.000000		0.000000		0.000000	
Durbin-Watson stat	1.628491		1.619918		1.628491	
Hausman Specification Test						
	Chi-Sq. Statistic		6.3468			
	Probability		0.7048			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 18, Total Number of Observations: 414

4.6.8 Natural Resources Sector

The natural resources sector evidences that short term debt to total assets has significant negative relationship with return on assets, return on equity and net profit margin but discloses a positive insignificant relationship with gross revenue. Similarly, total debt to total assets and total debt to total equity have envisage negative relationship with return on equity and positive insignificant relationship with return on equity, return on assets and gross revenue. Risk positively influence return on assets, return on equity and gross revenue. Growth opportunity positively impacts on net profit margin and gross revenue as firms size influences net profit margin negatively as gross revenue is positively affected by tax. These inferences of financial structure on financial performance of natural resources firms are illustrated in Tables 53, 54, 55 and 56.

Table 53: Return on Assets and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	0.009118	0.6995	-0.010402	0.6831	0.009118	0.6970
TDTA	2.05E-07	0.9186	9.57E-07	0.6692	2.05E-07	0.9179
TDTE	-0.001528	0.4582	-0.001031	0.6713	-0.001528	0.4543
STDTA	-0.101677	0.0128	-0.069760	0.1602	-0.101677	0.0121
TANG	0.027966	0.4835	0.040749	0.3476	0.027966	0.4798
FMS	1.99E-08	0.0578	2.04E-08	0.1043	1.99E-08	0.0557
GRT	-9.81E-09	0.6699	-6.44E-09	0.8020	-9.81E-09	0.6672
RISK	0.575745	0.0000	0.534788	0.0000	0.575745	0.0000
TAX	5.22E-07	0.2002	4.86E-07	0.2428	5.22E-07	0.1964
R-squared	0.790563		0.837360		0.790563	
Adjusted R-squared	0.771714		0.775598		0.771714	
S.E. of regression	0.111784		0.110829		0.111784	
Sum squared resid	1.249559		0.970356		1.249559	
Log likelihood	90.18969		104.0983			
F-statistic	41.94121		13.55785		41.94121	
Prob(F-statistic)	0.000000		0.000000		0.000000	
Durbin-Watson stat	1.959567		1.926935		1.959567	
Hausman Specification Test						
	Chi-Sq. Statistic		10.9597			
	Probability		0.2785			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 5, Total Number of Observations: 115

Table 54: Return on Equity and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	0.026842	0.8203	-0.072222	0.5759	0.026842	0.8201
TDTA	-2.12E-06	0.8383	-3.49E-06	0.7646	-2.12E-06	0.8381
TDTE	-0.008101	0.4463	-0.009406	0.4574	-0.008101	0.4458
STDTA	-0.434264	0.0330	-0.269990	0.2920	-0.434264	0.0328
TANG	0.240123	0.2347	0.431563	0.0531	0.240123	0.2342
FMS	2.66E-08	0.6210	-1.40E-08	0.8283	2.66E-08	0.6205
GRT	-5.86E-08	0.6202	-1.12E-07	0.4007	-5.86E-08	0.6198
RISK	1.130666	0.0000	1.286058	0.0000	1.130666	0.0000
TAX	-4.11E-07	0.8413	-6.12E-07	0.7727	-4.11E-07	0.8411
R-squared	0.247407		0.405020	1.833649	0.247407	
Adjusted R-squared	0.190608		0.192527		0.190608	
S.E. of regression	0.578697		0.578010		0.578697	
Sum squared resid	35.49831		28.06403		35.49831	
Log likelihood	-95.58973		-82.07744			
F-statistic	4.355809		1.906041		4.355809	
Prob(F-statistic)	0.000143		0.011343		0.000143	
Durbin-Watson stat	1.884893				1.884893	
Hausman Specification Test						
	Chi-Sq. Statistic		10.94673			
	Probability		0.2047			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 5, Total Number of Observations: 115

Table 55: Net Profit Margin and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	0.068425	0.7408	0.120146	0.6021	0.068425	0.7461
TDTA	4.39E-06	0.8030	2.76E-07	0.9891	4.39E-06	0.8071
TDTE	0.007402	0.6816	0.012294	0.5759	0.007402	0.6880
STDTA	-0.429331	0.2171	-0.617863	0.1718	-0.429331	0.2270
TANG	-0.148205	0.6693	-0.254418	0.5153	-0.148205	0.6759
FMS	-3.61E-07	0.0003	-3.02E-07	0.0108	-3.61E-07	0.0004
GRT	5.41E-07	0.0103	5.32E-07	0.0296	5.41E-07	0.0120
RISK	0.086234	0.8461	0.032924	0.9485	0.086234	0.8493
TAX	-3.62E-06	0.3002	-3.23E-06	0.3840	-3.62E-06	0.3105
R-squared	0.485398		0.575595		0.485398	
Adjusted R-squared	0.439084		0.414428		0.439084	
S.E. of regression	0.979550		1.000847		0.979550	
Sum squared resid	95.95181		79.13391		95.95181	
Log likelihood	-148.5684		-137.9696			
F-statistic	10.48055		3.571426		10.48055	
Prob(F-statistic)	0.000000		0.000003		0.000000	
Durbin-Watson stat	2.060221		2.055739		2.060221	
Hausman Specification Test						
	Chi-Sq. Statistic		7.0692			
	Probability		0.6299			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 5, Total Number of Observations: 115

Table 56: Gross Revenue and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	4789.544	16903.04	8732.164	0.6318	4789.544	0.7748
TDTA	0.557944	1.435952	0.814666	0.6109	0.557944	0.6949
TDTE	324.7441	1481.436	205.6939	0.9070	324.7441	0.8248
STDTA	2085.123	28039.93	-14566.29	0.6793	2085.123	0.9401
TANG	-50994.16	28383.70	-62808.49	0.0454	-50994.16	0.0720
FMS	-0.014316	0.007435	-0.007017	0.4293	-0.014316	0.0541
GRT	0.076965	0.018017	0.083193	0.0001	0.076965	0.0000
RISK	73161.43	36353.23	68827.76	0.0916	73161.43	0.0443
TAX	1.800239	0.324085	1.719023	0.0000	1.800239	0.0000
R-squared	0.712831		0.778612		0.712831	
Adjusted R-squared	0.686985		0.694540		0.686985	
S.E. of regression	80196.31		79222.62		80196.31	
Sum squared resid	6.43E+11		4.96E+11		6.43E+11	
Log likelihood	-1392.987		-1378.678			
F-statistic	27.58073		9.261299		27.58073	
Prob(F-statistic)	0.000000		0.000000		0.000000	
Durbin-Watson stat	1.696348		1.732825		1.696348	
Hausman Specification Test						
	Chi-Sq. Statistic		11.4920			
	Probability		0.2435			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 5, Total Number of Observations: 115

4.6.9 Oil and Gas Sector

For oil and gas sector firms, Tables 57, 58, 59 and 60 show short term debt to total assets has positive relationship with return on assets, return on equity, net profit margin and gross revenue. In the same manner, total debt to total assets and total debt to total equity depict a negative relationship with return on assets and return on equity but a positive relationship with net profit margin and gross revenue. Growth opportunity and risk was observed to significantly determine net profit margin and gross revenue of oil and gas firms. The size of the firms vial natural logarithm of total assets negatively significantly determine net profit margin and gross revenue firms in this sector.

Table 57: Return on Assets and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	-135.4710	0.8339	166.0571	0.8117	-94.52661	0.8871
TDTA	-0.002993	0.9570	9.89E-05	0.9987	-0.002578	0.9633
TDTE	-0.016957	0.9207	0.007984	0.9645	-0.012495	0.9421
STDTA	12.85677	0.9724	168.8572	0.6663	36.46815	0.9227
TANG	773.7675	0.3651	129.8534	0.8930	692.2762	0.4264
FMS	-7.27E-06	0.5956	-4.88E-06	0.7582	-7.19E-06	0.6076
GRT	1.83E-06	0.7955	3.94E-07	0.9598	1.70E-06	0.8129
RISK	313.2543	0.6131	594.9207	0.3812	353.9945	0.5737
TAX	5.26E-05	0.9016	9.75E-05	0.8273	5.80E-05	0.8924
R-squared	0.009649		0.106503		0.008644	
Adjusted R-squared	-0.026364		-0.028876		-0.027405	
S.E. of regression	3975.062		3979.922		3942.942	
Sum squared resid	3.48E+09		3.14E+09		3.42E+09	
Log likelihood	-2218.251		-2206.467			
F-statistic	0.267920		0.786704		0.239782	
Prob(F-statistic)	0.975640		0.779255		0.982915	
Durbin-Watson stat	2.017952		1.995315		2.013786	
Hausman Specification Test						
	Chi-Sq. Statistic		3.7843			
	Probability		0.8760			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 10, Total Number of Observations: 230

Table 58: Return on Equity and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	303.6532	0.4170	334.9360	0.4077	304.9708	0.4200
TDTA	-0.002685	0.9334	0.000491	0.9885	-0.002617	0.9355
TDTE	-0.009437	0.9237	-0.001642	0.9874	-0.009064	0.9271
STDTA	40.88939	0.8494	-119.3738	0.5990	33.60837	0.8767
TANG	-110.8186	0.8225	-131.5030	0.8143	-110.3611	0.8246
FMS	-1.54E-06	0.8459	1.01E-06	0.9125	-1.48E-06	0.8535
GRT	-3.22E-07	0.9370	1.43E-06	0.7530	-2.52E-07	0.9511
RISK	30.16905	0.9329	-242.2176	0.5384	18.82782	0.9584
TAX	-1.59E-05	0.9485	-0.000100	0.6982	-1.91E-05	0.9385
R-squared	0.001656		0.096045		0.001499	
Adjusted R-squared	-0.034648		-0.040917		-0.034811	
S.E. of regression	2300.279		2307.238		2294.765	
Sum squared resid	1.16E+09		1.05E+09		1.16E+09	
Log likelihood	-2092.986		-2081.614			
F-statistic	0.045604		0.701251		0.041272	
Prob(F-statistic)	0.999958		0.875722		0.999971	
Durbin-Watson stat	2.030202		2.012447		2.029035	
Hausman Specification Test						
	Chi-Sq. Statistic		5.6314			
	Probability		0.6884			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 10, Total Number of Observations: 230

Table 59: Net Profit Margin and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	-0.138815	0.0295	-0.138926	0.0481	-0.138815	0.0331
TDTA	3.74E-07	0.9435	1.50E-06	0.7915	3.74E-07	0.9447
TDTE	1.76E-06	0.9135	4.14E-06	0.8118	1.76E-06	0.9153
STDTA	0.051184	0.1513	0.042194	0.2701	0.051184	0.1600
TANG	0.087849	0.2922	0.092208	0.3399	0.087849	0.3024
FMS	-6.54E-09	0.0000	-6.01E-09	0.0002	-6.54E-09	0.0000
GRT	2.65E-09	0.0001	2.81E-09	0.0003	2.65E-09	0.0002
RISK	0.201921	0.0008	0.182254	0.0064	0.201921	0.0010
TAX	-4.79E-08	0.2373	-7.09E-08	0.1032	-4.79E-08	0.2472
R-squared	0.655375		0.676639		0.655375	
Adjusted R-squared	0.640535		0.625038		0.640535	
S.E. of regression	0.377534		0.385585		0.377534	
Sum squared resid	29.78910		27.95108		29.78910	
Log likelihood	-92.30281		-85.32909			
F-statistic	44.16178		13.11310		44.16178	
Prob(F-statistic)	0.000000		0.000000		0.000000	
Durbin-Watson stat	1.508056		1.485340		1.508056	
Hausman Specification Test						
	Chi-Sq. Statistic		5.4241			
	Probability		0.7959			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 10, Total Number of Observations: 230

Table 60: Gross Revenue and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	-1692519.	0.0486	-1715201.	0.0679	-1692519.	0.0523
TDTA	6.907608	0.9227	37.50437	0.6226	6.907608	0.9239
TDTE	19.44021	0.9289	59.30601	0.8003	19.44021	0.9301
STDTA	468008.2	0.3333	513653.6	0.3206	468008.2	0.3412
TANG	1569250.	0.1635	1583118.	0.2223	1569250.	0.1703
FMS	-0.049113	0.0067	-0.046534	0.0272	-0.049113	0.0076
GRT	0.031568	0.0009	0.034096	0.0012	0.031568	0.0010
RISK	3881190.	0.0000	3986091.	0.0000	3881190.	0.0000
TAX	-0.440871	0.4236	-0.839888	0.1545	-0.440871	0.4311
R-squared	0.492885		0.529273		0.492885	
Adjusted R-squared	0.470837		0.453349		0.470837	
S.E. of regression	5087060.		5170436.		5087060.	
Sum squared resid	5.36E+15		4.97E+15		5.36E+15	
Log likelihood	-3653.751		-3645.672			
F-statistic	22.35464		6.971110		22.35464	
Prob(F-statistic)	0.000000		0.000000		0.000000	
Durbin-Watson stat	1.584682		1.608796		1.584682	
Hausman Specification Test						
	Chi-Sq. Statistic		11.1428			
	Probability		0.2660			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 10, Total Number of Observations: 230

4.6.10 Service Sector

The service sector analysis in Tables 61, 62, 63 and 64 reveal that short term debt to total assets relates positively with return on assets, return on equity, net profit margin and gross revenue. In addition, total debt to total assets and total debt to total equity relate negatively with return on assets and return on equity but a positive relationship with net profit margin and gross revenue. Growth opportunity and risk positively and significantly affect net profit margin and gross revenue while firms' size negatively influence net profit margin and gross revenue.

Table 61: Return on Assets and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	-135.4710	0.8339	166.0571	0.8117	-94.52661	0.8871
TDTA	-0.002993	0.9570	9.89E-05	0.9987	-0.002578	0.9633
TDTE	-0.016957	0.9207	0.007984	0.9645	-0.012495	0.9421
STDTA	12.85677	0.9724	168.8572	0.6663	36.46815	0.9227
TANG	773.7675	0.3651	129.8534	0.8930	692.2762	0.4264
FMS	-7.27E-06	0.5956	-4.88E-06	0.7582	-7.19E-06	0.6076
GRT	1.83E-06	0.7955	3.94E-07	0.9598	1.70E-06	0.8129
RISK	313.2543	0.6131	594.9207	0.3812	353.9945	0.5737
TAX	5.26E-05	0.9016	9.75E-05	0.8273	5.80E-05	0.8924
R-squared	0.009649		0.106503		0.008644	
Adjusted R-squared	-0.026364		-0.028876		-0.027405	
S.E. of regression	3975.062		3979.922		3942.942	
Sum squared resid	3.48E+09		3.14E+09		3.42E+09	
Log likelihood	-2218.251		-2206.467			
F-statistic	0.267920		0.786704		0.239782	
Prob(F-statistic)	0.975640		0.779255		0.982915	
Durbin-Watson stat	2.017952		1.995315		2.013786	
Hausman Specification Test						
	Chi-Sq. Statistic		3.7842			
	Probability		0.8760			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 17, Total Number of Observations: 391

Table 62: Return on Equity and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	303.6532	0.4170	334.9360	0.4077	304.9708	0.4200
TDTA	-0.002685	0.9334	0.000491	0.9885	-0.002617	0.9355
TDTE	-0.009437	0.9237	-0.001642	0.9874	-0.009064	0.9271
STDTA	40.88939	0.8494	-119.3738	0.5990	33.60837	0.8767
TANG	-110.8186	0.8225	-131.5030	0.8143	-110.3611	0.8246
FMS	-1.54E-06	0.8459	1.01E-06	0.9125	-1.48E-06	0.8535
GRT	-3.22E-07	0.9370	1.43E-06	0.7530	-2.52E-07	0.9511
RISK	30.16905	0.9329	-242.2176	0.5384	18.82782	0.9584
TAX	-1.59E-05	0.9485	-0.000100	0.6982	-1.91E-05	0.9385
R-squared	0.001656		0.096045		0.001499	
Adjusted R-squared	-0.034648		-0.040917		-0.034811	
S.E. of regression	2300.279		2307.238		2294.765	
Sum squared resid	1.16E+09		1.05E+09		1.16E+09	
Log likelihood	-2092.986		-2081.614			
F-statistic	0.045604		0.701251		0.041272	
Prob(F-statistic)	0.999958		0.875722		0.999971	
Durbin-Watson stat	2.030202		2.012447		2.029035	
Hausman Specification Test						
	Chi-Sq. Statistic		5.6314			
	Probability		0.6884			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 17, Total Number of Observations: 391

Table 63: Net Profit Margin and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	-0.138815	0.0295	-0.138926	0.0481	-0.138815	0.0331
TDTA	3.74E-07	0.9435	1.50E-06	0.7915	3.74E-07	0.9447
TDTE	1.76E-06	0.9135	4.14E-06	0.8118	1.76E-06	0.9153
STDTA	0.051184	0.1513	0.042194	0.2701	0.051184	0.1600
TANG	0.087849	0.2922	0.092208	0.3399	0.087849	0.3024
FMS	-6.54E-09	0.0000	-6.01E-09	0.0002	-6.54E-09	0.0000
GRT	2.65E-09	0.0001	2.81E-09	0.0003	2.65E-09	0.0002
RISK	0.201921	0.0008	0.182254	0.0064	0.201921	0.0010
TAX	-4.79E-08	0.2373	-7.09E-08	0.1032	-4.79E-08	0.2472
R-squared	0.655375		0.676639		0.655375	
Adjusted R-squared	0.640535		0.625038		0.640535	
S.E. of regression	0.377534		0.385585		0.377534	
Sum squared resid	29.78910		27.95108		29.78910	
Log likelihood	-92.30281		-85.32909			
F-statistic	44.16178		13.11310		44.16178	
Prob(F-statistic)	0.000000		0.000000		0.000000	
Durbin-Watson stat	1.508056		1.485340		1.508056	
Hausman Specification Test						
	Chi-Sq. Statistic		5.4241			
	Probability		0.7959			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 17, Total Number of Observations: 391

Table 64: Gross Revenue and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	-1692519.	0.0486	-1715201.	0.0679	-1692519.	0.0523
TDTA	6.907608	0.9227	37.50437	0.6226	6.907608	0.9239
TDTE	19.44021	0.9289	59.30601	0.8003	19.44021	0.9301
STDTA	468008.2	0.3333	513653.6	0.3206	468008.2	0.3412
TANG	1569250.	0.1635	1583118.	0.2223	1569250.	0.1703
FMS	-0.049113	0.0067	-0.046534	0.0272	-0.049113	0.0076
GRT	0.031568	0.0009	0.034096	0.0012	0.031568	0.0010
RISK	3881190.	0.0000	3986091.	0.0000	3881190.	0.0000
TAX	-0.440871	0.4236	-0.839888	0.1545	-0.440871	0.4311
R-squared	0.492885		0.529273		0.492885	
Adjusted R-squared	0.470837		0.453349		0.470837	
S.E. of regression	5087060.		5170436.		5087060.	
Sum squared resid	5.36E+15		4.97E+15		5.36E+15	
Log likelihood	-3653.751		-3645.672			
F-statistic	22.35464		6.971110		22.35464	
Prob(F-statistic)	0.000000		0.000000		0.000000	
Durbin-Watson stat	1.584682		1.608796		1.584682	
Hausman Specification Test						
	Chi-Sq. Statistic		11.1428			
	Probability		0.2660			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 17, Total Number of Observations: 391

4.7 Panel OLS Analysis of Financial Structure and Financial Performance of Quoted Firms in Nigeria Stock Exchange.

In this section the panel OLS relationship between financial structure and financial performance surrogates of one hundred and three (103) firms cutting across the ten (10) sectors of Nigeria Stock Exchange was analysed. The estimation was carried in pooled OLS, fixed and random effect approach. The fixed and random effect estimations, the cross-sectional fixed and random effect specification was utilized. This is because, all the firms are quoted in Nigeria Stock Exchange and operate in the same country but differs in industry attributed specific conditions and ratios. Tables 65, 66, 67 and 68 summarise the regression outcome for financial structure-firms' financial performance model. The interpretation of the findings were based on the global and relative utility of the models.

4.7.1 Return on Assets and Financial Structure

Relative Utility

The hausman test in Table 65 suggest the random effect estimation is preferred to fixed effect due to insignificant p-value of the Chi-square. The result in Table 65 reveals that all financial structure surrogated by total debt to total assets, total debt to total equity and short term debt to total assets has negative but insignificant relationship with return on assets of firms quoted on Nigeria Stock Exchange. Tangibility and size of firms is negatively related with return on assets while growth opportunity, risk and tax positively relate with return on assets. The coefficient of the constant 22.67207 indicates that if financial structure variables incorporated with tangibility, firm size, growth opportunity, risk and tax are held constant, quoted firms' return on assets would be 22.67%. A unit increase in total debt to total assets, total debt to total equity and short term debt to total assets would result in a corresponding decrease in return on assets by 0.06%, 0.01% and 0.03% respectively.

Table 65: Return on Assets and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	22.35261	0.5548	23.83896	0.5404	22.67207	0.6406
TDTA	-0.000988	0.9384	-0.000165	0.9898	-0.000642	0.9598
TDTE	-0.000150	0.9801	-2.23E-05	0.9971	-0.000108	0.9856
STDTA	-0.000385	0.9744	-0.000143	0.9908	-0.000307	0.9797
TANG	-0.000397	0.9756	-0.000139	0.9917	-0.000299	0.9817
FMS	-2.00E-06	0.3247	-1.58E-06	0.4907	-1.86E-06	0.3804
GRT	2.04E-06	0.0993	1.25E-06	0.4340	1.79E-06	0.1823
RISK	51.24141	0.4463	55.75743	0.4258	53.15721	0.4334
TAX	1.18E-05	0.7107	1.29E-05	0.7508	1.19E-05	0.7307
R-squared	0.001474		0.070131		0.001100	
Adjusted R-squared	-0.001924		0.024650		-0.002299	
S.E. of regression	1721.612		1698.627		1695.852	
Sum squared resid	6.97E+09		6.49E+09		6.76E+09	
Log likelihood	-20928.58		-20844.53			
F-statistic	0.433701		1.541995		0.323640	
Prob(F-statistic)	0.901392		0.000347		0.957353	
Durbin-Watson stat	2.007881		2.162740		2.069705	
Hausman Specification Test						
	Chi-Sq. Statistic		0.4708			
	Probability		0.9999			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 103, Total Number of Observations: 2369

A percentage increase in the ratio of fixed assets to total assets results to 0.02% decline in return on equity. The size of the firm affects its performance as a unit decrease in firms total assets would lead to reduction in return on assets by a factor of 1.86. In a similar manner, a unit rise in growth opportunity, risk of bankruptcy and taxation increase return on assets by a magnitude of 1.79, 53.16 and 1.19 respectively.

Global Utility

The adjusted R-square value of -0.002299 shows that the explanatory variables jointly accounted for -0.23% variations in return on assets of quoted firms within the period of the study. Put differently, financial structure has not in any way impacted positively on return on assets of quoted firms. The F-statistic which determine the overall significance joint effect of the independent variables shows that financial structure variables controlled with tangibility, firm size, growth opportunity, risk and tax did not significantly explained the variations in return on assets as the p-value is insignificant at 5% level. The Durbin Watson statistic which is the traditional test of autocorrelation in a model met the bench mark of 2.0 suggesting that the variables in the model are not serially correlated. This is further confirm by the Arellano-Bond serial correlation test in Table 8 which denotes the absence of perfect autocorrelation.

4.7.2 Return on Equity and Financial Structure

Relative Utility of the Model

From the hausman test in Table 66, the fixed effect is favoured as the p-value of the Chi-square is significant at 5% level. The result discloses also financial structure reflected by total debt to total assets, total debt to total equity and short term debt to total assets has negative relationship with return on equity of quoted firms. Among firm's specific controlled variables, only firms' size was found to relate positively with shareholders wealth. According to the constant coefficient of 42.49692, keeping total debt to total assets, total debt to total equity, short term debt to total assets,

tangibility, firm size, growth opportunity, risk and tax constant, return on shareholders wealth would be 42.50%. Increasing the ratio of total debt to total assets by a unit leads to 0.06% depreciation in shareholders wealth. Subsequently, increasing the total debt to total equity and short term debt to total assets by one percent, return on equity would be down by factor of 4.55 and 2.05 respectively. High risk of bankruptcy, taxation, fixed assets to total assets ratio and growth opportunity lowers firms return on equity by 3.05, 7.01, 0.0004 and 3.21 respectively. However, the size of the firms positively influence shareholders wealth as a unit increase in firms total assets would result to 1.43 factor appreciation in return on equity.

Table 66: Return on Equity and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	17.17657	0.3466	42.49692	0.0248	17.17657	0.3439
TDTA	-0.000357	0.9538	-0.000574	0.9269	-0.000357	0.9535
TDTE	-0.000120	0.9670	-4.55E-05	0.9877	-0.000120	0.9668
STDTA	-0.000214	0.9704	-2.05E-05	0.9973	-0.000214	0.9703
TANG	-0.000262	0.9666	-0.000352	0.9566	-0.000262	0.9664
FMS	-2.27E-07	0.8168	1.43E-07	0.8980	-2.27E-07	0.8158
GRT	2.86E-07	0.6310	-3.21E-06	0.0000	2.86E-07	0.6291
RISK	3.712767	0.9089	-3.050281	0.9286	3.712767	0.9084
TAX	-4.43E-07	0.9770	-7.01E-06	0.7225	-4.43E-07	0.9769
R-squared	0.000112		0.053993		0.000112	
Adjusted R-squared	-0.003291		0.007723		-0.003291	
S.E. of regression	830.0869		825.5183		830.0869	
Sum squared resid	1.62E+09		1.53E+09		1.62E+09	
Log likelihood	-19207.00		-19141.63			
F-statistic	0.032872		1.166907		0.032872	
Prob(F-statistic)	0.999989		0.117943		0.999989	
Durbin-Watson stat	2.007176		2.129172		2.007176	
Hausman Specification Test						
	Chi-Sq. Statistic		55.8702			
	Probability		0.0000			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 103, Total Number of Observations: 2369

Global Utility of the Model

The F-statistic values of 1.166907 with a p-value of 0.11 show that the financial structure variables jointly and insignificant explained the changes in return on equity of quoted firms. Going by the adjusted R-squared of 0.007723, it is crystal clear that

the explanatory variables accounted for only 0.77% changes in return on equity. It is also observed from the Durbin Watson statistic that the variables in the model are free from autocorrelation problem and inference deduced is reliable in statistical terms. Nevertheless, the Arellano-Bond serial correlation test in Table 8 also depicts that the dependent and independent variables in the model are not serially correlated.

4.7.3 Net Profit Margin and Financial Structure

Relative Utility of the Model

The Hausman test in Table 67 suggests the acceptability of the fixed effect estimation as a result of significant p-value of the Chi-square. The result in Table 67 discloses that two financial structure variables: total debt to total equity and short term debt to total assets have positive but insignificant relationships with net profit margin of firms quoted on Nigeria Stock Exchange while total debt to total assets reveals a negative relationship. Tangibility is positively related with net profit margin as growth opportunity, risk, size of firms and tax are positively related with net profit margin. The coefficient of the constant -0.319870 means that if financial structure variables incorporated with tangibility, firm size, growth opportunity, risk and tax are held constant, quoted firms' net profit margin would decline by 0.32%. A unit increase in total debt to total equity and short term debt to total assets would result in a corresponding increase in net profit margin by a factor of 2.74 and 6.21 respectively. On the other hand, increasing the total debt to total assets ratio by a unit would result in 1.14 factor depreciation in net profit margin. A percentage increase in the ratio of fixed assets to total assets results to 5.50 factor fall in net profit margin. A unit increase in firm's total assets would lead to upsurge in net profit margin by a factor of 1.86. In a similar manner, a unit rise in growth opportunity, risk of bankruptcy and taxation increase return on assets by a magnitude of 1.79, 53.16 and 1.19 respectively.

Table 67: Net Profit Margin and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	-0.330685	0.0134	-0.319870	0.0206	-0.330685	0.0123
TDTA	3.77E-06	0.9319	-1.14E-06	0.9795	3.77E-06	0.9310
TDTE	2.36E-06	0.9092	2.74E-07	0.9895	2.36E-06	0.9080
STDTA	4.61E-06	0.9114	6.21E-06	0.8842	4.61E-06	0.9102
TANG	4.19E-06	0.9344	-5.50E-07	0.9917	4.19E-06	0.9335
FMS	2.80E-09	0.6903	1.54E-10	0.9846	2.80E-09	0.6864
GRT	1.56E-09	0.7141	2.46E-09	0.6622	1.56E-09	0.7105
RISK	0.457934	0.0491	0.312693	0.1971	0.457934	0.0462
TAX	1.35E-08	0.9026	1.19E-09	0.9933	1.35E-08	0.9013
R-squared	0.039093		0.106517		0.039093	
Adjusted R-squared	0.035244		0.060281		0.035244	
S.E. of regression	5.933181		5.855688		5.933181	
Sum squared resid	79100.33		73550.09		79100.33	
Log likelihood	-7216.258		-7134.160			
F-statistic	10.15726		2.303755		10.15726	
Prob(F-statistic)	0.000000		0.000000		0.000000	
Durbin-Watson stat	2.125110		2.102066		2.125110	
Hausman Specification Test						
	Chi-Sq. Statistic		159.9146			
	Probability		0.0000			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 103, Total Number of Observations: 2369

Global Utility of the Model

The adjusted R-square value of 0.060281 shows that the explanatory variables jointly accounted for only 6.03% variations in net profit margin of quoted firms within the period of the study. The F-statistic which determine the overall significance joint effect of the independent variables shows that financial structure variables controlled with tangibility, firm size, growth opportunity, risk and tax significantly explained the variations in net profit margin as the p-value of F-statistic is significant at 5% level. It could be deduced from the Durbin Watson statistic in Table 8 that the model is free from autocorrelation.

4.7.4 Gross Revenue and Financial Structure

Relative Utility of the Model

From the hausman test in Table 68, the fixed effect is favoured as the p-value of the Chi-square is significant at 5% level. The result discloses that total debt to total equity and short term debt to total assets have positive but insignificant relationship with

gross revenue of firms quoted on Nigeria Stock Exchange while total debt to total assets reveals a negative relationship. Tangibility and firms' size are negatively related with gross revenue while growth opportunity, risk and tax are positively related with gross revenue. The coefficient of the constant 470588.0 unveils that if financial structure variables incorporated with tangibility, firm size, growth opportunity, risk and tax are held constant, quoted firms' gross revenue would decline by ₦470588.0. A unit increase in total debt to total equity and short term debt to total equity would result in a corresponding increase in gross revenue by a factor of 56.52 and 0.34 respectively.

Table 68: Gross Revenue and Financial Structure

Variables	Pooled OLS		Fixed Effect		Random Effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	275886.0	0.2560	470588.0	0.0594	275886.0	0.2464
TDTA	0.923694	0.9908	-4.780253	0.9524	0.923694	0.9906
TDTE	22.56467	0.5522	56.52498	0.1384	22.56467	0.5441
STDTA	-1.161611	0.9876	0.340851	0.9965	-1.161611	0.9874
TANG	-6.302250	0.9456	-1.562733	0.9868	-6.302250	0.9445
FMS	-0.010742	0.4003	-0.004951	0.7312	-0.010742	0.3907
GRT	-0.001252	0.8719	0.008102	0.4238	-0.001252	0.8693
RISK	498644.0	0.2371	410077.2	0.3472	498644.0	0.2276
TAX	0.326516	0.1023	0.617662	0.0161	0.326516	0.0955
R-squared	0.829743		0.843963		0.829743	
Adjusted R-squared	0.829059		0.835866		0.829059	
S.E. of regression	10755876		10539553		10755876	
Sum squared resid	2.59E+17		2.38E+17		2.59E+17	
Log likelihood	-39634.88		-39536.71			
F-statistic	1213.492		104.2279		1213.492	
Prob(F-statistic)	0.000000		0.000000		0.000000	
Durbin-Watson stat	2.080508		1.968793		2.080508	
Hausman Specification Test						
	Chi-Sq. Statistic		193.0880			
	Probability		0.0000			

Source: Computer output data using E-views 8.0

Note: Periods included: 23, Cross-sections included: 103, Total Number of Observations: 2369

Furthermore, increasing the total debt to total assets ratio by a unit would lead to 4.7 factor depreciation in gross revenue. A percentage increase in the ratio of fixed assets to total assets results to 5.50 factor fall in net profit margin. A unit increase in firm's total assets would decrease gross revenue by a factor of 1.56. Similarly, a unit rise in

growth opportunity, risk of bankruptcy and taxation increase gross revenue by a magnitude of 0.008, 410077.2 and 0.62 respectively.

Global Utility of the Model

The F-statistic values of 104.2279 with a p-value of 0.00 show that the financial structure variables jointly and significant explained the changes in gross revenue of quoted firms. Judging by the adjusted R-squared of 0.835866, it is crystal clear that the explanatory variables accounted for only 83.59% changes in gross revenue. It is also observe from the Durbin Watson statistic of 1.97 that the variables in the model are free from autocorrelation problem and inference deduced is reliable in statistical terms. Nevertheless, the Arellano-Bond serial correlation test in Table 8 also depicts that the dependent and independent variables in the model are not serially correlated.

4.8 Vector Error Correction Model

This study having established the presence of a long run relationship between financial structure and financial performance of quoted firms in Nigeria, the short run dynamics was tested with the aid of the Vector Error Correction Model (VECM) and result shown in Table 69, 70, 71 and 72. This test was conducted to ascertain if or not all the variations in dependent variable were as a result of the co-integrating vectors trying to return to equilibrium and the error correction term that captures this variation.

Table 69: VECM Result: ROA, TDTA, TDTE, STDTA, TANG, FMS, GRT, RISK and TAX

Variables	Coefficient	Standard Error	T-Statistic
C	12.53521	45.6735	0.27445
D(ROA(-1))	-0.713410	0.02137	-33.3904
D(ROA(-2))	-0.247444	0.02109	-11.7311
D(TDTA(-1))	-0.001347	0.01220	-0.11040
D(TDTA(-2))	0.000530	0.01217	0.04352
D(TDTE(-1))	-2.59E-05	0.00587	-0.00441
D(TDTE(-2))	1.78E-05	0.00592	0.00301
D(STDTA(-1))	0.002266	0.01976	0.11471
D(STDTA(-2))	0.001023	0.01397	0.07321
D(TANG(-1))	-0.000227	0.02266	-0.01001
D(TANG(-2))	0.000337	0.02915	0.01157

D(FMS(-1))	6.73E-06	5.3E-06	1.27801
D(FMS(-2))	-1.79E-05	8.2E-06	-2.17274
D(GRT(-1))	1.11E-05	3.2E-06	3.45765
D(GRT(-2))	-2.26E-05	4.8E-06	-4.70783
D(RISK(-1))	-36.68975	68.1783	-0.53814
D(RISK(-2))	-24.65832	68.3399	-0.36082
D(TAX(-1))	-9.71E-05	7.7E-05	-1.26078
D(TAX(-2))	5.29E-05	9.1E-05	0.57941
ECM (-1)	-3.39E-05	0.00030	-0.11455

Source: Computer analysis using E-views 8.0

Table 70: VECM Result: ROE, TDTA, TDTE, STDTA, TANG, FMS, GRT, RISK and TAX

Variables	Coefficient	Standard Error	T-Statistic
C	-5.747005	17.3474	-0.33129
D(ROA(-1))	-0.001210	0.02679	-0.04516
D(ROA(-2))	-0.000572	0.01896	-0.03018
D(TDTA(-1))	0.003490	0.00462	0.75574
D(TDTA(-2))	0.001744	0.00462	0.37755
D(TDTE(-1))	0.000458	0.00223	0.20550
D(TDTE(-2))	0.000208	0.00225	0.09234
D(STDTA(-1))	-0.002796	0.00464	-0.60292
D(STDTA(-2))	-0.001411	0.00441	-0.31999
D(TANG(-1))	-0.001124	0.00861	-0.13061
D(TANG(-2))	0.000439	0.01107	0.03969
D(FMS(-1))	4.77E-07	2.0E-06	0.23810
D(FMS(-2))	-2.02E-07	3.1E-06	-0.06452
D(GRT(-1))	-3.80E-07	1.2E-06	-0.31271
D(GRT(-2))	-1.08E-06	1.8E-06	-0.59445
D(RISK(-1))	-58.09110	25.9402	-2.23943
D(RISK(-2))	-12.61011	25.9508	-0.48592
D(TAX(-1))	1.05E-05	2.9E-05	0.35738
D(TAX(-2))	-9.66E-07	3.5E-05	-0.02785
ECM (-1)	-0.997976	0.03408	-29.2854

Source: Computer analysis using E-views 8.0.

Table 71: VECM Result: NPM, TDTA, TDTE, STDTA, TANG, FMS, GRT, RISK and TAX

Variables	Coefficient	Standard Error	T-Statistic
C	-0.089420	0.15247	-0.58646
D(ROA(-1))	-0.631610	0.02119	-29.8072
D(ROA(-2))	-0.306267	0.02120	-14.4464
D(TDTA(-1))	3.31E-06	4.1E-05	0.08139
D(TDTA(-2))	1.45E-06	4.1E-05	0.03573
D(TDTE(-1))	6.38E-07	2.0E-05	0.03255
D(TDTE(-2))	2.91E-07	2.0E-05	0.01475
D(STDTA(-1))	-4.28E-05	6.6E-05	-0.64828
D(STDTA(-2))	-2.21E-05	4.7E-05	-0.47373
D(TANG(-1))	-1.97E-06	7.6E-05	-0.02604
D(TANG(-2))	1.14E-06	9.7E-05	0.01176
D(FMS(-1))	2.16E-09	1.8E-08	0.12264
D(FMS(-2))	1.45E-09	2.8E-08	0.05254

D(GRT(-1))	9.54E-09	1.1E-08	0.89389
D(GRT(-2))	2.25E-09	1.6E-08	0.14153
D(RISK(-1))	0.011812	0.22758	0.05190
D(RISK(-2))	0.022875	0.22810	0.10029
D(TAX(-1))	8.36E-08	2.6E-07	0.32543
D(TAX(-2))	-4.46E-08	3.0E-07	-0.14628
ECM (-1)	-0.000101	0.00020	-0.49792

Source: Computer analysis using E-views 8.0.

Table 72: VECM Result: GRV, TDTA, TDTE, STDTA, TANG, FMS, GRT, RISK and TAX

Variables	Coefficient	Standard Error	T-Statistic
C	328771.9	255784	1.28535
D(ROA(-1))	-0.006398	0.02226	-0.28746
D(ROA(-2))	-0.136094	0.02281	-5.96770
D(TDTA(-1))	5.733332	68.1338	0.08415
D(TDTA(-2))	11.94594	67.9714	0.17575
D(TDTE(-1))	5.732444	33.0944	0.17322
D(TDTE(-2))	15.96942	33.1681	0.48147
D(STDTA(-1))	8.978737	110.332	0.08138
D(STDTA(-2))	5.685665	78.0198	0.07287
D(TANG(-1))	-4.414190	126.540	-0.03488
D(TANG(-2))	13.07952	162.785	0.08035
D(FMS(-1))	-0.032256	0.02951	-1.09317
D(FMS(-2))	0.024241	0.04621	0.52458
D(GRT(-1))	0.020957	0.01832	1.14393
D(GRT(-2))	-0.035390	0.02784	-1.27107
D(RISK(-1))	-280463.1	380931	-0.73626
D(RISK(-2))	-392920.9	381834	-1.02904
D(TAX(-1))	0.230166	0.43109	0.53391
D(TAX(-2))	1.283342	0.51275	2.50288
ECM (-1)	2.54E-08	2.7E-06	0.00927

Source: Computer analysis using E-views 8.0.

On the long run linkage between return on assets and financial structure, the error correction coefficient in Table 69 did showed the expected negative sign expressing that there is a tendency by the model to correct and move towards the equilibrium path following disequilibrium in each period and by implication significant error correction is taking place, i.e. there are adjustments to instability in the short term. 339% of the error generated in the previous year is corrected in the current year. For return on equity and financial structure long run relationship, Table 70 infers that the error correction coefficient again showed the expected negative sign expressing that there is a tendency by the model to correct and move towards the equilibrium path

following disequilibrium in each period and by implication significant error correction is taking place. Only 99.79% of the error generated in the previous year is corrected in the current year.

Table 71 shows that for net profit margin and financial structure long run nexus. The error correction coefficient shows the expected negative sign expressing that there is a tendency by the model to correct and move towards the equilibrium path following disequilibrium in each period and by implication significant error correction is taking place. Only 0.010% of the error generated in the previous year is corrected in the current year as evidenced by ECM (-1) coefficient of -0.000101. For gross revenue and financial structure long run relationship, Table 72 discloses that the error correction coefficient did not show the expected negative sign expressing that there is no tendency by the model to correct and move towards the equilibrium path following disequilibrium in each period and by implication no significant error correction is taking place on gross revenues of quoted firms’.

4.9 Variance Decomposition

In order to determine which of the financial structure variables in incorporation of control variables that exerts greater influence on return on assets, return on equity, net profit margin and gross revenue, the variance decomposition function was estimated and presented in Table 73, 74, 75 and 76. From the result in Table 73, it is observed that total debt to total assets ratio is greater in explaining the variations in return on assets than total debt to total equity ratio and short term debt to total assets ratio. In terms of the control variables, it is firms’ size that exerts greater influence on return on assets compared to tangibility, growth opportunity, risk if bankruptcy and taxation. Fluctuations in return on assets was more explained by variations in return on assets itself.

Table 73: Variance Decomposition of ROA

Period	S.E.	ROA	TDTA	TDTE	STDTA	TANG	FMS	GRT	RISK	TAX
1	2005.259	100.0000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	2092.013	99.33711	0.000113	1.30E-05	9.69E-05	1.04E-06	0.096998	0.484158	0.013018	0.068496
3	2378.622	98.14110	0.000263	0.000117	0.000372	1.04E-05	0.578815	1.191856	0.011322	0.076145
4	2619.222	98.31962	0.000698	9.73E-05	0.000595	3.27E-05	0.516159	1.084243	0.009480	0.069072
5	2793.157	98.23877	0.001189	0.000101	0.000723	3.25E-05	0.640308	1.008452	0.012233	0.098187
6	2986.693	98.29966	0.001568	0.000328	0.000784	2.90E-05	0.635708	0.938214	0.011315	0.112398
7	3159.082	98.36047	0.001533	0.000375	0.000839	3.01E-05	0.616615	0.902544	0.011370	0.106220
8	3321.676	98.38771	0.001639	0.000346	0.000884	3.61E-05	0.609685	0.883465	0.011524	0.104714
9	3479.578	98.41431	0.001827	0.000349	0.000920	3.35E-05	0.603041	0.862419	0.011259	0.105839
10	3628.716	98.43711	0.001888	0.000362	0.000954	3.23E-05	0.600052	0.841098	0.011268	0.107239

Source: Computer analysis using E-views 8.0

Table74: Variance Decomposition of ROE

Period	S.E.	ROE	TDTA	TDTE	STDTA	TANG	FMS	GRT	RISK	TAX
1	761.7168	100.0000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	761.9285	99.94460	0.006138	0.000590	0.006132	6.36E-06	0.000434	0.019937	0.014819	0.007349
3	762.7606	99.72692	0.016109	0.001251	0.015512	0.001955	0.017498	0.024145	0.189274	0.007337
4	763.3391	99.57621	0.032172	0.002240	0.032062	0.002616	0.020941	0.047185	0.276000	0.010571
5	763.8859	99.43455	0.038958	0.002735	0.042467	0.003672	0.029820	0.083583	0.350144	0.014073
6	764.5414	99.26506	0.050376	0.003655	0.054039	0.004529	0.034823	0.113301	0.454522	0.019697
7	765.1155	99.11735	0.061111	0.004444	0.066681	0.005383	0.038326	0.135712	0.543663	0.027335
8	765.6767	98.97342	0.070280	0.005229	0.078211	0.006257	0.041898	0.159467	0.631746	0.033489
9	766.2733	98.82064	0.081073	0.006086	0.089984	0.007096	0.046284	0.185727	0.724538	0.038577
10	766.8584	98.67108	0.091217	0.006847	0.101895	0.007940	0.050667	0.212148	0.814282	0.043927

Source: Computer analysis using E-views 8.0

Table 75: Variance Decomposition of NPM

Period	S.E.	NPM	TDTA	TDTE	STDTA	TANG	FMS	GRT	RISK	TAX
1	6.694612	100.0000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	7.140173	99.85024	0.000207	8.56E-06	0.116683	3.64E-05	0.001778	0.026633	6.51E-05	0.004347
3	7.779910	99.85506	0.000248	7.31E-06	0.099890	3.56E-05	0.001644	0.039377	6.18E-05	0.003671
4	8.743929	99.87659	0.000228	5.94E-06	0.080020	3.83E-05	0.003367	0.033998	0.000146	0.005608
5	9.322598	99.87038	0.000378	9.42E-06	0.080829	3.45E-05	0.005883	0.035003	0.000158	0.007324
6	9.935505	99.87522	0.000367	1.09E-05	0.074085	3.13E-05	0.006138	0.037110	0.000141	0.006900
7	10.54723	99.87924	0.000364	1.02E-05	0.068873	3.08E-05	0.006483	0.037928	0.000163	0.006905
8	11.08539	99.88014	0.000407	1.05E-05	0.066154	2.89E-05	0.007103	0.038714	0.000160	0.007281
9	11.61306	99.88227	0.000411	9.79E-06	0.063022	2.72E-05	0.007520	0.039172	0.000156	0.007413
10	12.12012	99.88394	0.000415	9.08E-06	0.060539	2.63E-05	0.007853	0.039559	0.000160	0.007501

Source: Computer analysis using E-views 8.0

For the variations in return on equity, Table 74 depicts that short term debt to total assets ratio explained more of the changes in return on equity compared to total debt to total assets ratio and total debt to total equity ratio. Risk of bankruptcy exerts greater impact than other control variables. Variation in return on equity was

attributed majorly to change in return on equity itself compared to financial structure and control variables.

Table 76: Variance Decomposition of GRV

Period	S.E.	GRV	TDTA	TDTE	STDTA	TANG	FMS	GRT	RISK	TAX
1	11198764	100.0000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	15798684	99.93168	0.000227	0.000639	0.000211	2.33E-05	0.024136	0.024498	0.011834	0.006750
3	18517510	99.69919	0.001112	0.004585	0.000186	7.07E-05	0.019044	0.034592	0.034017	0.207202
4	20891295	99.55371	0.001161	0.003659	0.000174	0.000121	0.016652	0.086001	0.030667	0.307858
5	23090431	99.54299	0.000954	0.003052	0.000151	0.000100	0.014363	0.101853	0.029507	0.307032
6	25097504	99.55406	0.000894	0.003205	0.000134	8.48E-05	0.016128	0.098020	0.031160	0.296317
7	26948543	99.55394	0.000867	0.003084	0.000122	7.57E-05	0.016925	0.095739	0.031107	0.298138
8	28679199	99.54510	0.000831	0.002959	0.000111	6.97E-05	0.016311	0.098084	0.031142	0.305396
9	30312018	99.53824	0.000813	0.002882	0.000103	6.41E-05	0.015728	0.101024	0.031363	0.309786
10	31861432	99.53599	0.000783	0.002798	9.68E-05	5.89E-05	0.015546	0.102279	0.031384	0.311064

Source: Computer analysis using E-views 8.0

On net profit margin, Table 75 reveals that total debt to total equity ratio is higher in explaining the changes in net profit margin than total debt to total assets ratio and short term debt to total assets ratio. On the side of firms' specific factors, the ratio of fixed assets to total assets influenced net profit margin more in comparison to size of the firms, risk of bankruptcy, growth opportunities and tax payment. Finally, by a careful look at the financial structure variables values from period 1-10 in Table 76, it is observe that total debt to total equity ratio explained more of the changes in gross revenue than total debt to total assets ratio and short term debt to total assets ratio. The ratio of fixed assets to total assets was also found to have influenced gross revenue more in comparison to size of the firms, risk of bankruptcy, growth opportunities and tax payment However, the variations in gross revenue itself was explained more by gross revenue following the variation from period 1-10.

4.10 Impulse Response Function

To trace the effect of one-time shock to innovation of financial structure variables on return on assets, return on equity, net profit margin and gross revenue, the impulse response function was utilized and results summarized in Tables 77, 78, 79 and 80. The result in Table 77 shows that shock to total debt to total assets and short term debt

to total assets, starting from period two have negative effect on return on assets of firms. However, for total debt to total equity, return on assets was only affected negatively in period two and five only. For Table 78, beginning from period two also, return on equity responds negatively to one-time shock from total debt to total assets and total debt to total equity. From Table 77 and Table 78, it would be deduced that firms' return on assets and return on equity respond negatively to one-time shock to innovation from financial structure decision, hence upholding the pecking order theory in respect to return on assets and return on equity of firms.

Table 77: Impulse Response Function of ROA

Period	ROA	TDTA	TDTE	STDTA	TANG	FMS	GRT	RISK	TAX
1	2005.259	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	571.3504	-2.225659	-0.754418	-2.059254	0.213601	65.15486	145.5654	-23.86881	-54.75165
3	1097.799	-3.150483	2.454209	-4.100878	-0.737285	-168.8292	-215.0443	-8.419461	36.19938
4	1091.958	-5.742103	0.289800	-4.443528	1.287208	51.59177	-83.36215	-3.118866	-20.74688
5	958.7892	-6.701171	-1.112653	-3.954832	-0.536860	-120.6022	-65.52927	-17.43702	-54.05297
6	1050.876	-6.860767	4.624054	-3.670920	0.233675	-82.17177	-70.81791	-7.413163	-48.64115
7	1023.483	-3.628821	2.848490	-3.714066	0.643535	-69.49601	-79.87658	-11.19552	-23.96380
8	1019.541	-5.275478	0.865543	-3.720158	0.987551	-75.71541	-86.05381	-11.69735	-30.87342
9	1029.484	-6.358929	2.037531	-3.722829	0.274268	-75.78364	-83.30520	-9.573427	-35.50649
10	1022.892	-5.234432	2.322052	-3.766162	0.452417	-77.45540	-79.59401	-10.97783	-36.14483

Source: Computer analysis using E-views 8.0

Table 78: Impulse Response Function of ROE

Period	ROE	TDTA	TDTE	STDTA	TANG	FMS	GRT	RISK	TAX
1	761.7168	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	0.953639	-5.969395	-1.850182	5.966281	0.192217	-1.587325	10.75836	9.275241	6.531587
3	1.212320	-7.621536	-1.962916	7.392723	3.366732	-9.964214	4.973102	31.86179	-0.165100
4	1.510958	-9.682011	-2.403258	9.827122	1.967420	-4.496053	11.59608	22.51696	4.347980
5	2.236998	-6.313757	-1.705060	7.809176	2.486827	-7.210155	14.58709	20.85536	4.530162
6	2.331742	-8.193635	-2.325024	8.250215	2.246486	-5.435321	13.21145	24.77148	5.745981
7	2.656236	-7.955224	-2.155874	8.630231	2.244978	-4.561839	11.49754	22.93077	6.699703
8	2.768254	-7.367450	-2.154886	8.256395	2.273702	-4.612073	11.85032	22.82690	6.025907
9	2.735800	-8.000815	-2.254095	8.357147	2.231875	-5.112524	12.47596	23.46540	5.494026
10	2.646984	-7.770705	-2.128110	8.417342	2.241921	-5.117611	12.53163	23.11411	5.639817

Source: Computer analysis using E-views 8.0

Table 79: Impulse Response Function of NPM

Period	NPM	TDTA	TDTE	STDTA	TANG	FMS	GRT	RISK	TAX
1	6.694612	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	2.467364	0.010269	0.002089	-0.243900	-0.004310	0.030109	0.116525	0.005762	0.047077
3	3.087646	0.006698	0.000250	-0.031198	0.001732	0.009407	0.101270	-0.002056	0.002352
4	3.990321	0.004912	-0.000337	-0.026831	-0.002772	0.039741	0.046472	0.008615	0.045449
5	3.230519	0.012427	0.001910	-0.095230	-0.000860	0.050388	0.066547	0.005109	0.045583
6	3.434078	0.005801	-0.001604	-0.053698	-0.000936	0.030745	0.078812	0.001388	0.021121
7	3.538179	0.006485	0.000772	-0.059031	-0.001836	0.033955	0.074560	0.006430	0.029504
8	3.410103	0.009795	0.001263	-0.068385	-0.001104	0.038947	0.073363	0.003980	0.035576
9	3.459145	0.007320	-0.000502	-0.060825	-0.001110	0.037586	0.072487	0.003593	0.032407
10	3.467351	0.007431	0.000361	-0.062742	-0.001396	0.037337	0.072682	0.005061	0.031966

Source: Computer analysis using E-views 8.0

Table 80: Impulse Response Function of GRV

Period	GRV	TDTA	TDTE	STDTA	TANG	FMS	GRT	RISK	TAX
1	11198764	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
2	11136229	23778.96	39940.32	22969.71	-7633.857	-245444.6	247280.9	-171861.3	129799.4
3	9614511.	57002.24	118862.1	10518.58	13576.37	-71125.82	-239723.8	-295136.8	832853.3
4	9624535.	35388.34	15752.87	-11001.39	16870.09	85886.48	-506687.2	-131167.4	795703.4
5	9809840.	4261.517	17395.87	-6957.746	-2525.852	-62440.47	-409513.7	-153217.0	541625.7
6	9815520.	23392.87	62546.21	-6151.124	-931.6851	-158150.2	-272698.5	-197360.1	479020.9
7	9793305.	25811.33	47013.42	-6166.390	3929.952	-146029.3	-279050.2	-172147.7	546528.9
8	9786228.	23175.94	44046.50	-5401.246	4869.940	-106020.8	-333853.4	-173889.4	588832.6
9	9788810.	25151.61	46347.21	-5827.695	3901.902	-101770.4	-348547.4	-178941.0	578359.6
10	9791056.	21822.19	43766.47	-6002.470	3079.663	-115357.3	-331757.3	-174441.5	558026.6

Source: Computer analysis using E-views 8.0

From Table 79 and 80, shock to total debt to total assets and total debt to total equity have positive effect on net profit margin and gross revenue with some deviation in period four, six and nine. In other words, net profit margin and gross revenue responds positively to one-time shock to innovation from total debt to total assets and total debt to total equity but negatively from short term debt to total assets in the long run.

4.11 Granger Causality Effect Result

To examine the effect of financial structure on financial performance of firms quoted on Nigeria Stock Exchange visa viz: return on assets, return on equity, net profit margin and gross revenue, this study applied the granger causality test. The essence of choosing the granger causality over ordinary least square regression is based on the fact that it takes into consideration the dynamic nature of variables. Furthermore, for a

variable to have effect on another it must cause it move or granger cause it and it is only the granger causality test that offers such tool of effect assessment. The lag length selected was one on the premises that the data applied were gotten financial statement of firms which on yearly/annual bases. According to Ezirim (2016), when annual/yearly data are utilized for granger causality, the lag length is recommended to be one to reflect the yearly/annual nature of the data employed. The granger causality test on basis of the specific objectives of the study are summarise in Table 81, 82, 83 and 84. Table 81 shows that there is no unidirectional or bidirectional causal relationship between financial structure variables and return on assets of quoted firms. Causality does not flow from total debt to total assets ratio, total debt to total equity ratio and short term debt to total assets ratio to return on assets neither does it flow from return on assets to financial structure variables at 5% level of significance. From the inference in Table 81, financial structure has no significant effect on return on assets of quoted firms on Nigerian Stock Exchange. Firms specific factors expressed as control variables: tangibility, size of firms, risk of bankruptcy, growth opportunity and taxation exert any significant influence on firms' return on assets.

Table 81: Granger Causality Result for Objective One

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
TDTA does not Granger Cause ROA ROA does not Granger Cause TDTA	2266	0.00176 0.00180	0.9965 0.9661	No Causality No Causality
TDTE does not Granger Cause ROA ROA does not Granger Cause TDTE	2266	0.00187 0.00194	0.9655 0.9648	No Causality No Causality
STDTA does not Granger Cause ROA ROA does not Granger Cause STDTA	2266	0.00105 0.00107	0.9742 0.9739	No Causality No Causality
TANG does not Granger Cause ROA ROA does not Granger Cause TANG	2266	0.00099 0.00019	0.9749 0.9889	No Causality No Causality
FMS does not Granger Cause ROA ROA does not Granger Cause FMS	2266	0.03649 0.05566	0.8485 0.8135	No Causality No Causality
GRT does not Granger Cause ROA ROA does not Granger Cause GRT	2266	1.45111 0.92459	0.2285 0.3364	No Causality No Causality
RISK does not Granger Cause ROA ROA does not Granger Cause RISK	2266	0.36084 0.07220	0.5481 0.7882	No Causality No Causality
TAX does not Granger Cause ROA ROA does not Granger Cause TAX	2266	0.01766 0.11007	0.8943 0.7401	No Causality No Causality

Source: Computer analysis using E-views 8.0.

Table 82: Granger Causality Result for Objective Two

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
TDTA does not Granger Cause ROE ROE does not Granger Cause TDTA	2266	0.00230 0.00260	0.9617 0.9594	No Causality No Causality
TDTE does not Granger Cause ROE ROE does not Granger Cause TDTE	2266	0.00271 0.00274	0.9585 0.9583	No Causality No Causality
STDTA does not Granger Cause ROE ROE does not Granger Cause STDTA	2266	0.00140 0.00155	0.9701 0.9686	No Causality No Causality
TANG does not Granger Cause ROE ROE does not Granger Cause TANG	2266	0.00149 0.00029	0.9692 0.9864	No Causality No Causality
FMS does not Granger Cause ROE ROE does not Granger Cause FMS	2266	0.05729 2.04532	0.8108 0.1528	No Causality No Causality
GRT does not Granger Cause ROE ROE does not Granger Cause GRT	2266	0.06075 1.72125	0.8053 0.1897	No Causality No Causality
RISK does not Granger Cause ROE ROE does not Granger Cause RISK	2266	0.11764 0.00401	0.7316 0.9495	No Causality No Causality
TAX does not Granger Cause ROE ROE does not Granger Cause TAX	2266	0.00211 0.07379	0.9633 0.7859	No Causality No Causality

Source: Computer analysis using E-views 8.0.

From Table 82, it observed that the p-values of financial structure surrogates: total debt to total assets ratio, total debt to total equity ratio and short term debt to total assets ratio are insignificant at 5% level of significance. This is an indication that no one or two way relationship between financial structure and return on equity of firms quoted on Nigeria Stock Exchange as causality does not flow from financial structure variables to return on equity neither does it flow from return on equity to financial structure surrogates. Thus, financial structure has no significant effect on quoted firms return on equity. Firm's oriented factors capable of affecting its financial performance were found to have not significantly influenced return on shareholder wealth. The granger causality result in Table 83 shows evidence that there is causality flowing from financial structure variables: total debt to total assets ratio, total debt to total equity ratio and short term debt to total assets ratio to net profit margin at 5% level of significance. This suggests that financial structure has no significant effect on net profit margin of quoted firms on Nigeria Stock Exchange as the p-values of all the financial structure proxies are insignificant at 5% level of significance. It is also

observe that firms' related operational factor represented by control variables have no significant impact on their net profit margin within the period studied.

Table 83: Granger Causality Result for Objective Three

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
TDTA does not Granger Cause NPM NPM does not Granger Cause TDTA	2266	0.01465 0.00011	0.9037 0.9517	No Causality No Causality
TDTE does not Granger Cause NPM NPM does not Granger Cause TDTE	2266	0.01913 0.01964	0.8900 0.8886	No Causality No Causality
STDTA does not Granger Cause NPM NPM does not Granger Cause STDTA	2266	2.34185 0.01116	0.1216 0.9159	No Causality No Causality
TANG does not Granger Cause NPM NPM does not Granger Cause TANG	2266	0.01271 0.03673	0.9102 0.8480	No Causality No Causality
FMS does not Granger Cause NPM NPM does not Granger Cause FMS	2266	0.61572 0.04984	0.4327 0.8234	No Causality No Causality
GRT does not Granger Cause NPM NPM does not Granger Cause GRT	2266	0.19753 0.03882	0.6568 0.8438	No Causality No Causality
RISK does not Granger Cause NPM NPM does not Granger Cause RISK	2266	3.04147 1.47510	0.0813 0.2247	No Causality No Causality
TAX does not Granger Cause NPM NPM does not Granger Cause TAX	2266	0.67872 0.03348	0.4101 0.8548	No Causality No Causality

Source: Computer analysis using E-views 8.0.

From Table 84, there is evidence of a unidirectional relationship between gross revenue of firms and a financial structure proxy: total debt to total equity. Causality flows from gross revenue to total debt to total equity as 5% level of significance on the basis of the p-value (0.0000) of the F-statistic (60.6796). This result entails that it is gross revenue of quoted firms that affects or impacts total debt to total equity. In other words, financial structure has no significant effect on gross revenue but gross revenue significantly affect or impact on firm's financial structure expressed via total debt to total equity. This is against the expectation that financial structure should affect performance. It is also observed from Table 84 that firms' growth opportunity has significant effect on gross revenue as evidenced by the unidirectional relationship between firm's growth opportunities and gross revenue.

Table 84: Granger Causality Result for Objective Four

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
TDTA does not Granger Cause GRV	2266	0.02530	0.8736	No Causality
GRV does not Granger Cause TDTA		0.02761	0.8681	No Causality
TDTE does not Granger Cause GRV	2266	0.45088	0.5020	No Causality
GRV does not Granger Cause TDTE		60.6796	0.0000	Causality
STDTA does not Granger Cause GRV	2266	6.6E-06	0.9975	No Causality
GRV does not Granger Cause STDTA		0.05556	0.8137	No Causality
TANG does not Granger Cause GRV	2266	0.00051	0.9820	No Causality
GRV does not Granger Cause TANG		0.00304	0.9560	No Causality
FMS does not Granger Cause GRV	2266	0.45279	0.5011	No Causality
GRV does not Granger Cause FMS		3.15669	0.0758	No Causality
GRT does not Granger Cause GRV	2266	5.21731	0.0225	Causality
GRV does not Granger Cause GRT		0.18458	0.6675	No Causality
RISK does not Granger Cause GRV	2266	0.66951	0.4133	No Causality
GRV does not Granger Cause RISK		0.63703	0.4249	No Causality
TAX does not Granger Cause GRV	2266	0.59779	0.4395	No Causality
GRV does not Granger Cause TAX		0.17186	0.6785	No Causality

Source: Computer analysis using E-views 8.0.

4.12 Test of Hypotheses

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

4.12.1 Hypothesis One

Restatement of Research Hypothesis

H₀: Financial structure has no significant effect on return on assets of quoted non-financial service firms in Nigeria.

The result in Table 85 denotes that financial structure has no significant effect on return on assets of quoted non-financial service firms in Nigeria. Looking at the F-statistics of 0.00176, 0.00187 and 0.00105 with p-values of 0.9965, 0.9661 and 0.9742 respectively for total debt to total assets, total debt to total equity and short term debt to total assets, the null hypothesis that financial structure has no significant effect on return on assets of quoted non-financial service firms in Nigeria would not be rejected that is, the null hypothesis that financial structure has no significant effect on return on assets of quoted non-financial service firms in Nigeria is accepted.

Table 85: Test for Hypothesis One

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
TDTA does not Granger Cause ROA	2266	0.00176	0.9965	No Causality
ROA does not Granger Cause TDTA		0.00180	0.9661	No Causality
TDTE does not Granger Cause ROA	2266	0.00187	0.9655	No Causality
ROA does not Granger Cause TDTE		0.00194	0.9648	No Causality
STDTA does not Granger Cause ROA	2266	0.00105	0.9742	No Causality
ROA does not Granger Cause STDTA		0.00107	0.9739	No Causality

Source: Computer analysis using E-views 8.0.

4.12.2 Hypothesis Two

Restatement of Research Hypothesis

H_0 : Financial structure has no significant effect on return on equity of quoted non-financial service firms in Nigeria.

From Table 86, the p-values of F-statistic for all the financial structure variables are greater than 0.05 indication the absence of a causal relationship between financial structure and return on equity. In the light of this, the null hypothesis financial structure has no significant effect on return on equity of quoted non-financial service firms in Nigeria is accepted.

Table 86: Test for Hypothesis Two

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
TDTA does not Granger Cause ROE	2266	0.00230	0.9617	No Causality
ROE does not Granger Cause TDTA		0.00260	0.9594	No Causality
TDTE does not Granger Cause ROE	2266	0.00271	0.9585	No Causality
ROE does not Granger Cause TDTE		0.00274	0.9583	No Causality
STDTA does not Granger Cause ROE	2266	0.00140	0.9701	No Causality
ROE does not Granger Cause STDTA		0.00155	0.9686	No Causality

Source: Computer analysis using E-views 8.0.

4.12.3 Hypothesis Three

Restatement of Research Hypothesis

H_0 : Financial structure has no significant effect on net profit margin of quoted non-financial service firms in Nigeria.

Going by p-values of 0.9037, 0.8900 and 0.1216 for total debt to total assets, total debt to total equity and short term debt to total assets respectively Table 87, financial structure has no significant effect on firms' net profit margin. Consequently, the null

hypothesis that financial structure has no significant effect on net profit margin of quoted non-financial service firms in Nigeria is upheld.

Table 87: Test for Hypothesis Three

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
TDTA does not Granger Cause NPM NPM does not Granger Cause TDTA	2266	0.01465 0.00011	0.9037 0.9517	No Causality No Causality
TDTE does not Granger Cause NPM NPM does not Granger Cause TDTE	2266	0.01913 0.01964	0.8900 0.8886	No Causality No Causality
STDTA does not Granger Cause NPM NPM does not Granger Cause STDTA	2266	2.34185 0.01116	0.1216 0.9159	No Causality No Causality

Source: Computer analysis using E-views 8.0.

4.12.4 Hypothesis Four

Restatement of Research Hypothesis

H₀: Financial structure has no significant effect on gross revenue of quoted non-financial service firms in Nigeria.

Table 88: Test for Hypothesis Four

Null Hypothesis:	Obs	F-Statistic	Prob.	Remarks
TDTA does not Granger Cause GRV GRV does not Granger Cause TDTA	2266	0.02530 0.02761	0.8736 0.8681	No Causality No Causality
TDTE does not Granger Cause GRV GRV does not Granger Cause TDTE	2266	0.45088 60.6796	0.5020 0.0000	No Causality Causality
STDTA does not Granger Cause GRV GRV does not Granger Cause STDTA	2266	6.6E-06 0.05556	0.9975 0.8137	No Causality No Causality

Source: Computer analysis using E-views 8.0.

From Table 88, the p-values of all the financial structure variables are insignificant at 5% level of significance, an evidence that financial structure has no significant effect on gross revenue of quoted firms. To this effect, the null hypothesis financial structure has no significant effect on gross revenue of quoted non-financial service firms in Nigeria is accepted.

4.13 Discussion of Findings

On firms' sectorial analysis, it was discovered that it is only the consumer goods sector that financial structure reflected by total debt to total assets, total debt to total equity and short term debt to total assets relates positively with all the financial performance proxies: return on assets, return on equity, net profit margin and gross

revenue. This could be that firms in the consumer goods sector have higher level of retain earnings due to high profit they gain from operations. According to the trade-off theory, firms with higher level of retained earnings tend to have higher debt level because, they can more effectively use tax shield on interest. Thus, this findings is an indication that it is only the consumers' goods sector that aligns completely with trade-off theory of financial structure. This result is evidenced in the regression analysis in Tables 33, 34, 35 and 36.

On specific firms' financial performance proxies' analysis, all the financial structure variables applied in the analysis: total debt to total assets, total debt to total equity and short term debt to total assets were found to have positive relationship with gross revenue of only firms in oil and gas, service, natural resources, healthcare and consumer goods sector only. On net profit margin as a performance surrogate, all the financial structure variables have positive relationship with net profit margin of firms on in service, consumer goods and oil and gas sectors only whereas a negative relationship for firms in conglomerate and industrial goods sector. In addition, all financial structure variables related negatively on return on equity of natural resources and construction and real sectors firms only but for return on assets, it was negatively associated for firms in industrial sectors only. All the five firms' specific factors included in the study as control variables were found to be positively and significantly related with all financial performance surrogates for firms in information and communication sector only.

On the analysis of the entire selected firms quoted on Nigerian Stock Exchange, total debt to total assets has negative relationship with firms return on assets, return on equity, gross revenue and net profit margin. Total debt to total equity has negative relationship with return on assets and return on equity but a positive

relationship with net profit margin and gross revenue growth. Short term debt to total assets also has negative relationship with return on assets and return on equity but a positive relationship with net profit margin and gross revenue growth. The negative relationship that exists between return on assets and financial structure surrogates infers that increase in total debt to total assets, total debt to total equity and short term debt to total assets would decrease return on assets. This suggests that firm's with high level of debt in their financial structure tend to have lower return on assets. This supports the work of Zeitun and Tain (2007), Manawaduge, Zoysa, Chowdhury and Chandarakumara (2011), Khanam, Nasreen and Pirzada (2014) and Hassan, Ahsan, Rahaman and Alam (2014) on the negative influence of financial structure on firm's return on assets in Jordan, Sri Lanka, Pakistan and Senegal respectively. It is also in agreement with the empirical findings of studies conducted in Nigeria by Akeem et al. (2014) and Osuji and Odita (2012). However, it refutes the results of Javed, Younas and Imram (2014), Mwangi and Birundi (2015) and Boroujeni, Noroozi, Nadem and Chadegani (2013) on the positive relationship between return on assets and financial structure in the context of Iran, Kenya and Pakistan respectively.

The negative relationship between return on equity and total debt to total assets, total debt to total equity and short term debt to total assets is also an indication that acquiring much debt does not improve the wealth of shareholders. This is because debt creates financial obligation on firms to periodically pay interest and charges to creditors, hence affecting negatively the wealth of shareholders. This is attributed by widely held notion that debts are relatively more expensive than equity, hence acquisition of debt in high proportion relative to equity could lead to low profitability. In addition, negative relationship between financial structure and return on equity gives credence to the idea that profitable firms rely tremendously on equity as their

main financing option in consonance with pecking order theory. This finding is in unison with study of Sormadi and Hayajneh (2015), Tauseef, Lohano and Khan (2015), Mwangi, Makau and Kosimbei (2014), Arowoshegbe and Emeni (2014), Shubita and Alsawalhah (2012) and Moghaddam, Kashkoueyeh, Talezadeh, Aala, Ebrahimipour and Tehranypour (2015) on negative association between financial structure and return on equity of firms in Amman, Pakistan, Kenya, Nigeria, Iran and Jordan respectively.

On the positive relationship between net profit margin and two financial structure variables: total debt to total equity and short term debt to total assets suggests that a unit increase in these variable would increase the net profit margin of firms. This infers that firm's with high short term debt in their financial structure tend to have higher net profit margin. This findings suggests that short term debt does not expose Nigeria quoted firms to the risk of refinancing as it positively related with net profit margin. This findings confirms the result of Adesina, Nwibe and Adesina (2015) and Oke and Afolabi (2011) on the positive relationship of the two financial structure variables and net profit margin of selected firms in Nigeria and Kimondo (2015) for Kenya. On the other hand, it disagrees with the works of Rakakumaran and Yogendrarajah (2015), Iavorskyi (2013), Norvaisiene and Stankeiciene (2012) and Chechet and Olayiwola (2014) that these financial structure variables negatively associate with net profit margin of selected firms in Sri Lanka, Ukraine, Lithuania and Nigeria respectively.

The positive relationship between gross revenue and two financial structure variables: total debt to total equity and short term debt to total assets shows that increase in these ratios would improve gross revenue of quoted firms not minding the negative association between firms total debt to total assets ratio. This finding infers

firms managers prefer to acquire debt to increase their gross revenue especially, when there is growth opportunities rather than bear the tax burden associated with equity capital. It could also be deduce from this result that most quoted firms in Nigeria Stock Exchange prefer to take risk regarding bankruptcy to boost revenue but reluctant to bear tax cost. This is compatible with the work of San and Heng (2011) and Pratheepkanth (2011) for Malaysia and Sri Lanka firms respectively but conflicts outcome of Zeitun and Tain (2007) and Javed, Younas and Imram (2014) for selected firms in Jordan and Pakistan correspondingly.

Tangibility has negative relationship with financial performance of firms. This is indication that quoted firms investment in fixed assets are not in proportion that would improve performance or perhaps quoted firms under utilize their fixed assets as it does not influence their performance as it ought to be. The positive relationship of growth with most financial indicators implies that firms' with higher growth ratio tends to have higher returns on investment arguably attributed to diversification in investments. Beside, high growth rates lowers cost of capital and enhances performance. Risk of bankruptcy was also found to be positively related with most performance variable. The implication is that firms with higher variability in net income tend to have higher return which is consistent with the risk-return trade off postulations. The significant correlation between tax and gross revenue, return on assets and net profit margin tends to supports the argument firms that pays high tax have higher profit due to investment diversification to cater for the tax burden.

The granger causality effect assessment result reveals that financial structure reflected by total debt to total assets, total debt to total equity and short term debt to total assets has no significant effect on financial performance of quoted non-financial service firms in Nigeria as expressed by return on assets, return on equity, net profit

margin and gross revenue. However, gross revenue was found to significantly affect or impact on firm's financial structure surrogated as total debt to total equity. Firms oriented factor: growth opportunity has significant effect on gross revenue as evidenced by the unidirectional relationship between firm's growth opportunities and gross revenue.

4.14 A Priori Expectation

The a priori expectation was presented on the premises of the two theories on which this research work was anchored: Pecking Order Theory and Trade-off Theory in order to determine which of the theories quoted non-financial service firms financial structure decisions align more to. The observed sign of the financial structure variables Table 89 and 90 unveil that firms quoted non-financial service firms financial structure practices are more aligned to Pecking Order Theory compared to Trade-off Theory of financial structure.

Table 89: A Priori Expectation in Pecking Order Theory

Independent Variables	Expected Signs	Observed Signs	Remarks
TDTA	-	-	Accepted
TDTE	-	-	Accepted
STDTA	-	-	Accepted
TANG	+	-	Rejected
FMS	+	+	Accepted
GRT	+	+	Accepted
RISK	+	+	Accepted
TAX	-	+	Rejected

Source: Panel Regression Result in Tables 65-68

Table 90: A Priori Expectation in Trade-off Theory

Independent Variables	Expected Signs	Observed Signs	Remarks
TDTA	+	-	Rejected
TDTE	+	+	Accepted
STDTA	+	+	Accepted
TANG	+	-	Rejected
FMS	+	+	Accepted
GRT	+	+	Accepted
RISK	+	+	Accepted
TAX	-	+	Rejected

Source: Panel Regression Result in Tables 65-68

CHAPTER FIVE

SUMMARY OF FINDINGS, CONCLUSION AND RECOMMENDATIONS

5.1 Summary of Findings

This research work examined the effect of financial structure on financial performance of non-financial service firms quoted on the Nigerian Stock Exchange by specifically ascertaining the effect of financial structure on return on assets, return on equity, net profit margin and gross revenue for a period of twenty three (23) years i.e. 1993 to 2015. The findings reveals the following:

- i. Financial structure has no significant effect on return on assets of quoted non-financial service firms. The relationship between financial structure and return on assets is negative. Financial structure has not contributed positively to return on assets growth as only -0.23% variation in return on assets was attributed to financial structure decision.
- ii. Financial structure has no significant effect on quoted non-financial service firms return on equity. Only 0.77% changes in shareholders wealth was explained by financial structure and the correlation between financial structure and return on equity is negative but insignificant.
- iii. Financial structure has no significant effect on net profit margin of quoted non-financial service firms. Financial structure tends to positively relates with net profit margin and 6.03% changes in net profit margin was accounted by financial structure variables.
- iv. Financial structure has no significant effect on quoted non-financial service firms' gross revenue rather it is gross revenue growth that significantly affect financial structure decisions of quoted firms. Thus, 83.58% in gross revenue was attributed to firms' financial structure decisions.

The overall findings of this study suggests that financial structure has no significant effect on financial performance of quoted non-financial service firms quoted on the Nigerian Stock Exchange. Furthermore, quoted firms are more aligned to Pecking Order Theory compared to Trade-off Theory suggesting that majority of the firms prefer internal financing to external financing. However, if they require external financing they will issue the safest security first.

5.2 Conclusion

Financial structure plays a critical role in financial performance of firms, hence financial structure decision remain one of the mainstream in firms management practice capable of affecting firms performance positively or negatively. This study established that financial performance of quoted non-financial service firms in Nigerian Stock Exchange are not significantly affected by financial structure decisions. To this effect, the findings of this study should not be viewed as conclusive empirical evidence, but rather an additional motivation for which scholars can develop new idea for further research on the nexus between financial structure and corporate performance of firms. On the whole, the findings validated positive and negative effects of financial structure but lays credence and consistent with major scholarly view that firms financial structure decision are more aligned to Pecking Order Theory compared to other theories of financial structure.

5.3 Recommendations

In view of the research findings, the following recommendations are put forward for consideration and implementation by firms' managements:

- i. Although optimal financial structure has not been established, however, it is very crucial for firm's management to establish a debt-equity mix capable of improving return on assets notwithstanding the financial structure measure adopted, which according to the result of the study, negatively relates with

return on assets of non-financial service firms quoted on the Nigeria Stock Exchange.

- ii. To increase return on equity, quoted non-financial service firms should fund their operations with more of equity capital as debt financing negatively influence shareholder wealth. This could be from sale of firm's share to the public or right offering. Inevitably, firms performance in Nigeria have been adversely affected by the macroeconomic instability and current economic recession and as such, borrowing from commercial banks, financial markets and other sources of external financing should be minimize due to high interest rates associated with such facilities.
- iii. Firms' management should consider the use of more short term debt relative to equity capital in preference to long term debt in their financial structure mix to increase net profit margin and gross revenue as this will reduce the overall cost of capital as a result of its tax advantage.
- iv. The implication of tangibility negatively relating to financial performance is that firms should increase their investment in fixed assets *visa viz*: production/manufacturing assets to improve gross revenue, under investment in fixed assets should be discontinued and effective and efficient utilization of fixed assets vehemently upheld.

5.4 Contribution to Knowledge

This study makes a contribution by providing a time series assessment for a developing country on the effect of financial structure on financial performance of non-financial service firms on Nigerian Stock Exchange, using an up-to-date regressed data as against structured questionnaire. In addition, all the non-financial service firms which have operated in Nigerian Stock Exchange for at least a period of ten (10) years were studied and gross revenue incorporated as a financial performance

indicator. To the best of my knowledge, this is new dimension on the study of financial structure and financial performance of firms quoted in Nigerian Stock Exchange.

5.5 Suggestions for Further Studies

This study has some defects which can be addressed in future studies. Firstly, the study is limited to only firms which have operated for at least ten (10) years in the Nigerian Stock Exchange. A study of firms that have been in operation for less ten (10) years should be looked into to understand the mechanism of firm's financial structure. Secondly, the sample size is one hundred and three (103) non-financial service firms out of the total one hundred and thirty four (134) non-financial service firms quoted on the Nigerian Stock Exchange (NSE). Future studies on all the firms quoted on Nigerian Stock Exchange will improve and provide robust results on the nexus between financial structure and financial performance. Thirdly, the financial structure and financial performance indicators/proxies applied in this study are constructed proxies and cannot replicate a firm's optimal financial structure and desired measure of financial performance.

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APPENDICES

APPENDIX 1: Summary of Descriptive Statistic and Diagnostic Output Data

	ROA	ROE	NPM	GRV	TDTA	TDTE	STDTA	TANG	FMS	GRT	RISK	TAX
Mean	29.92001	17.52061	-0.291413	3145638.	134.7390	306.4961	110.7908	117.0746	7642893.	7222332.	0.077340	369077.9
Median	0.071010	0.113850	0.030210	45825.00	0.293640	0.413730	0.067350	0.605660	873490.0	55936.00	0.055400	12772.00
Maximum	55331.00	29333.00	21.23670	5.08E+08	73752.00	240772.0	94178.00	79986.00	3.81E+08	6.51E+08	13.51818	19159968
Minimum	-40637.00	-17624.00	-240.8300	-64925182	0.000000	0.000000	0.000000	-80.19780	0.000000	-561.6453	-7.976800	-3400000.
Std. Dev.	1721.052	829.2518	5.911530	25464697	2774.378	5915.419	2955.172	2731.266	24270521	32457136	0.528599	1417609.
Skewness	9.055975	19.98063	-31.33117	16.33209	22.15466	31.67107	28.55606	25.78376	7.774559	10.08809	4.613123	7.806871
Kurtosis	642.0711	855.2492	1192.132	304.9732	519.1969	1197.466	840.1692	702.4538	89.89476	145.3131	236.7117	79.59753
Jarque-Bera	40141671	71488357	1.39E+08	9060187.	26361329	1.41E+08	69149863	48308176	765285.9	2028994.	5372614.	600148.2
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	70521.47	41296.08	-686.8602	7.41E+09	317579.8	722411.3	261134.0	275944.9	1.80E+10	1.70E+10	182.2898	8.70E+08
Sum Sq. Dev.	6.98E+09	1.62E+09	82333.21	1.53E+18	1.81E+10	8.24E+10	2.06E+10	1.76E+10	1.39E+18	2.48E+18	658.3074	4.73E+15
Observations	2357	2357	2357	2357	2357	2357	2357	2357	2357	2357	2357	2357

Heteroskedasticity

Breusch-Pagan test for heteroskedasticity

$$\text{ROA} = \text{TDTA} + \text{TDTE} + \text{STDTA} + \text{TANG} + \text{FMS} + \text{GRT} + \text{RISK} + \text{TAX}$$

Test statistic: LM = 4.422050,
with p-value = P(Chi-square(8) > 4.422050) = 0.817180

$$\text{ROE} = \text{TDTA} + \text{TDTE} + \text{STDTA} + \text{TANG} + \text{FMS} + \text{GRT} + \text{RISK} + \text{TAX}$$

Test statistic: LM = 0.393910,
with p-value = P(Chi-square(8) > 0.393910) = 0.999946

$$\text{NPM} = \text{TDTA} + \text{TDTE} + \text{STDTA} + \text{TANG} + \text{FMS} + \text{GRT} + \text{RISK} + \text{TAX}$$

Test statistic: LM = 0.448276,
with p-value = P(Chi-square(8) > 0.448276) = 0.999912

$$\text{GRV} = \text{TDTA} + \text{TDTE} + \text{STDTA} + \text{TANG} + \text{FMS} + \text{GRT} + \text{RISK} + \text{TAX}$$

Test statistic: LM = 0.533533,
with p-value = P(Chi-square(8) > 0.533533) = 0.102569

Ramsey Reset

$$\text{ROA} = \text{TDTA} + \text{TDTE} + \text{STDTA} + \text{TANG} + \text{FMS} + \text{GRT} + \text{RISK} + \text{TAX}$$

Test statistic: F = 1.455669,
with p-value = P(F(2,2349) > 1.45567) = 0.233

$$\text{ROE} = \text{TDTA} + \text{TDTE} + \text{STDTA} + \text{TANG} + \text{FMS} + \text{GRT} + \text{RISK} + \text{TAX}$$

Test statistic: F = 0.121272,
with p-value = P(F(2,2349) > 0.121272) = 0.886

$$\text{NPM} = \text{TDTA} + \text{TDTE} + \text{STDTA} + \text{TANG} + \text{FMS} + \text{GRT} + \text{RISK} + \text{TAX}$$

Test statistic: F = 2.210395,
with p-value = P(F(2,2349) > 2.2104) = 0.11

$$\text{GRV} = \text{TDTA} + \text{TDTE} + \text{STDTA} + \text{TANG} + \text{FMS} + \text{GRT} + \text{RISK} + \text{TAX}$$

Test statistic: F = 0.238691,
with p-value = P(F(2,2346) > 0.2387) = 0.370

Normality Test

$$\text{ROA} = \text{TDTA} + \text{TDTE} + \text{STDTA} + \text{TANG} + \text{FMS} + \text{GRT} + \text{RISK} + \text{TAX}$$

Test for null hypothesis of normal distribution:

Chi-square(2) = 79386.404 with p-value 0.00000

$$\text{ROE} = \text{TDTA} + \text{TDTE} + \text{STDTA} + \text{TANG} + \text{FMS} + \text{GRT} + \text{RISK} + \text{TAX}$$

Test for null hypothesis of normal distribution:
Chi-square(2) = 43254.721 with p-value 0.00000

$$\text{NPM} = \text{TDTA} + \text{TDTE} + \text{STDTA} + \text{TANG} + \text{FMS} + \text{GRT} + \text{RISK} + \text{TAX}$$

Test for null hypothesis of normal distribution:
Chi-square(2) = 959568.449 with p-value 0.00000

$$\text{GRV} = \text{TDTA} + \text{TDTE} + \text{STDTA} + \text{TANG} + \text{FMS} + \text{GRT} + \text{RISK} + \text{TAX}$$

Test for null hypothesis of normal distribution:
Chi-square(2) = 289042.774 with p-value 0.00000

APPENDIX II: Correlation Matrix and Arellano Serial Correlation Test

ROA	ROE	NPM	GRV	TDTA	TDTE
1.000000	0.093423	0.003076	0.000395	-0.000847	-0.000885
0.093423	1.000000	0.001428	-0.001624	-0.001010	-0.001036
0.003076	0.001428	1.000000	0.011298	0.002183	0.003085
0.000395	-0.001624	0.011298	1.000000	-0.002764	0.150327
-0.000847	-0.001010	0.002183	-0.002764	1.000000	-0.002498
-0.000885	-0.001036	0.003085	0.150327	-0.002498	1.000000
-0.000652	-0.000766	0.002905	-0.004431	-0.001812	-0.001931
-0.000734	-0.000890	0.003008	-0.004387	-0.002070	-0.002197
-0.004000	-0.001864	0.021907	0.104495	0.011654	0.013075
0.027996	0.007983	0.017725	0.023735	0.023327	-0.008026
0.016203	0.002293	0.047736	0.029604	0.003571	0.003801
0.002945	-0.001927	0.017570	0.112368	0.012551	0.025074
STDTE	TANG	FMS	GRT	RISK	TAX
-0.000652	-0.000734	-0.004000	0.027996	0.016203	0.002945
-0.000766	-0.000890	-0.001864	0.007983	0.002293	-0.001927
0.002905	0.003008	0.021907	0.017725	0.047736	0.017570
-0.004431	-0.004387	0.104495	0.023735	0.029604	0.112368
-0.001812	-0.002070	0.011654	0.023327	0.003571	0.012551
-0.001931	-0.002197	0.013075	-0.008026	0.003801	0.025074
1.000000	-0.001599	-0.007942	-0.008315	0.011798	-0.008716
-0.001599	1.000000	-0.006726	-0.008108	0.004739	-0.006134
-0.007942	-0.006726	1.000000	0.465787	0.024058	0.617118
-0.008315	-0.008108	0.465787	1.000000	0.012662	0.250145
0.011798	0.004739	0.024058	0.012662	1.000000	0.066141
-0.008716	-0.006134	0.617118	0.250145	0.066141	1.000000

Normality Test

ROA = TDTA + TDTE + STDTA + TANG + FMS + GRT + RISK + TAX

Test for null hypothesis of normal distribution:
Chi-square(2) = 79386.404 with p-value 0.00000

ROE = TDTA + TDTE + STDTA + TANG + FMS + GRT + RISK + TAX

Arellano-Bond Serial Correlation Test

ROA = TDTA + TDTE + STDTA + TANG + FMS + GRT + RISK + TAX

Test order	m-Statistic	rho	SE(rho)	Prob.
AR(1)	-1.653803	-7777731325.413568	4702937459.905456	0.0982
AR(2)	0.997464	2237223041.546885	2242911130.342688	0.3185

Test for null hypothesis of normal distribution:

Chi-square(2) = 43254.721 with p-value 0.00000

NPM = TDTA + TDTE + STDTA + TANG + FMS + GRT + RISK + TAX

Test for null hypothesis of normal distribution:

Chi-square(2) = 959568.449 with p-value 0.00000

ROE = TDTA + TDTE + STDTA + TANG + FMS + GRT + RISK + TAX

Test order	m-Statistic	rho	SE(rho)	Prob.
AR(1)	-1.413244	-1304567280.543107	923101492.060359	0.1576
AR(2)	-0.742311	-1728587.973363	2328656.864364	0.4579

NPM = TDTA + TDTE + STDTA + TANG + FMS + GRT + RISK + TAX

Test order	m-Statistic	rho	SE(rho)	Prob.
AR(1)	-0.563149	-63270.905580	112352.041806	0.5733
AR(2)	-0.053853	-317.751942	5900.315187	0.9571

GRV = TDTA + TDTE + STDTA + TANG + FMS + GRT + RISK + TAX

Test order	m-Statistic	rho	SE(rho)	Prob.
AR(1)	-1.511259	-77556394579701788	51319068516527544	0.1307
AR(2)	-1.673992	-14058709269595584	8398315615675660.0	0.0941

APPENDIX III: Vector Error Correction Model Output Data

ROA = TDTA + TDTE + STDTA + TANG + FMS + GRT + RISK + TAX

Error Correction:	D(ROA)	D(TDTA)	D(TDTE)	D(STDTE)	D(TANG)	D(FMS)	D(GRT)	D(RISK)	D(TAX)
CointEq1	-3.39E-05 (0.00030) [-0.11455]	-0.000714 (0.00051) [-1.39849]	-0.000602 (0.00106) [-0.56562]	-0.011751 (0.00042) [-27.6950]	-2.10E-05 (0.00029) [-0.07203]	-0.070678 (1.24780) [-0.05664]	-0.027612 (1.87865) [-0.01470]	-1.39E-08 (9.1E-08) [-0.15256]	-0.013462 (0.08374) [-0.16075]
D(ROA(-1))	-0.713410 (0.02137) [-33.3904]	0.002431 (0.03687) [0.06594]	-0.000568 (0.07685) [-0.00739]	0.007618 (0.03066) [0.24850]	0.000883 (0.02105) [0.04194]	-158.2408 (90.1573) [-1.75516]	-59.28320 (135.738) [-0.43675]	-2.21E-06 (6.6E-06) [-0.33545]	8.715722 (6.05080) [1.44042]
D(ROA(-2))	-0.247444 (0.02109) [-11.7311]	0.001898 (0.03640) [0.05216]	-0.001191 (0.07587) [-0.01569]	0.005167 (0.03026) [0.17074]	0.000626 (0.02078) [0.03011]	-183.4557 (89.0062) [-2.06116]	134.6007 (134.005) [1.00444]	2.25E-06 (6.5E-06) [0.34544]	10.13100 (5.97354) [1.69598]
D(TDTA(-1))	-0.001347 (0.01220) [-0.11040]	-0.664783 (0.02105) [-31.5769]	0.003961 (0.04388) [0.09026]	0.042344 (0.01750) [2.41904]	7.76E-05 (0.01202) [0.00646]	3.206549 (51.4800) [0.06229]	36.92661 (77.5068) [0.47643]	2.29E-06 (3.8E-06) [0.60706]	4.626997 (3.45502) [1.33921]
D(TDTA(-2))	0.000530 (0.01217) [0.04352]	-0.332827 (0.02100) [-15.8469]	0.003543 (0.04378) [0.08093]	0.022002 (0.01746) [1.25993]	0.000388 (0.01199) [0.03232]	-45.17592 (51.3573) [-0.87964]	54.44836 (77.3221) [0.70418]	8.91E-06 (3.8E-06) [2.36972]	-1.120923 (3.44678) [-0.32521]
D(TDTE(-1))	-2.59E-05 (0.00587) [-0.00441]	8.32E-05 (0.01013) [0.00822]	-0.702795 (0.02112) [-33.2779]	0.008706 (0.00842) [1.03338]	-4.88E-05 (0.00578) [-0.00843]	-17.41956 (24.7755) [-0.70310]	13.27241 (37.3013) [0.35582]	7.61E-07 (1.8E-06) [0.41947]	-1.315110 (1.66278) [-0.79091]

D(TDTE(-2))	1.78E-05 (0.00592) [0.00301]	1.73E-05 (0.01022) [0.00169]	-0.328554 (0.02130) [-15.4260]	0.004194 (0.00850) [0.49361]	-5.41E-05 (0.00583) [-0.00928]	-10.16225 (24.9864) [-0.40671]	5.326655 (37.6189) [0.14160]	9.94E-07 (1.8E-06) [0.54358]	-2.530200 (1.67694) [-1.50882]
D(STDTE(-1))	0.002266 (0.01976) [0.11471]	0.037188 (0.03409) [1.09084]	0.031759 (0.07106) [0.44694]	0.000168 (0.02835) [0.00593]	0.001183 (0.01946) [0.06077]	-4.158938 (83.3628) [-0.04989]	17.28601 (125.509) [0.13773]	2.77E-06 (6.1E-06) [0.45473]	0.466603 (5.59480) [0.08340]
D(STDTE(-2))	0.001023 (0.01397) [0.07321]	0.018652 (0.02411) [0.77370]	0.015711 (0.05025) [0.31266]	0.000165 (0.02004) [0.00822]	0.000636 (0.01376) [0.04622]	-0.921965 (58.9499) [-0.01564]	7.878616 (88.7533) [0.08877]	1.37E-06 (4.3E-06) [0.31676]	0.931586 (3.95635) [0.23547]
D(TANG(-1))	-0.000227 (0.02266) [-0.01001]	4.46E-06 (0.03910) [0.00011]	-0.000629 (0.08150) [-0.00772]	0.003946 (0.03251) [0.12137]	-0.100318 (0.02232) [-4.49466]	4.267989 (95.6118) [0.04464]	-7.061238 (143.950) [-0.04905]	-2.30E-07 (7.0E-06) [-0.03289]	4.170144 (6.41687) [0.64987]
D(TANG(-2))	0.000337 (0.02915) [0.01157]	-0.000548 (0.05030) [-0.01090]	0.001580 (0.10484) [0.01507]	0.002218 (0.04182) [0.05303]	-0.015692 (0.02871) [-0.54652]	0.147551 (122.997) [0.00120]	-1.059411 (185.181) [-0.00572]	2.51E-06 (9.0E-06) [0.27865]	-6.623348 (8.25481) [-0.80236]
D(FMS(-1))	6.73E-06 (5.3E-06) [1.27801]	-8.81E-07 (9.1E-06) [-0.09688]	-1.18E-05 (1.9E-05) [-0.62367]	4.43E-06 (7.6E-06) [0.58557]	-2.78E-07 (5.2E-06) [-0.05350]	0.046546 (0.02223) [2.09348]	-0.212837 (0.03347) [-6.35823]	-1.26E-09 (1.6E-09) [-0.77571]	0.001605 (0.00149) [1.07584]
D(FMS(-2))	-1.79E-05 (8.2E-06) [-2.17274]	-8.55E-06 (1.4E-05) [-0.60089]	9.82E-06 (3.0E-05) [0.33108]	1.52E-06 (1.2E-05) [0.12807]	-7.05E-06 (8.1E-06) [-0.86766]	0.054649 (0.03481) [1.56985]	0.453990 (0.05241) [8.66200]	-8.47E-10 (2.5E-09) [-0.33235]	-0.003092 (0.00234) [-1.32331]
D(GRT(-1))	1.11E-05 (3.2E-06) [3.45765]	3.47E-07 (5.5E-06) [0.06275]	-1.17E-06 (1.2E-05) [-0.10191]	-5.25E-07 (4.6E-06) [-0.11433]	-3.59E-07 (3.2E-06) [-0.11400]	0.064156 (0.01351) [4.74971]	0.215162 (0.02034) [10.5802]	6.50E-10 (9.9E-10) [0.65709]	3.60E-06 (0.00091) [0.00397]
D(GRT(-2))	-2.26E-05 (4.8E-06) [-4.70783]	-5.83E-06 (8.3E-06) [-0.70306]	5.47E-06 (1.7E-05) [0.31626]	2.98E-07 (6.9E-06) [0.04320]	-9.20E-07 (4.7E-06) [-0.19434]	0.137766 (0.02027) [6.79525]	-0.280728 (0.03052) [-9.19704]	-2.63E-10 (1.5E-09) [-0.17735]	-0.006550 (0.00136) [-4.81391]
D(RISK(-1))	-36.68975 (68.1783) [-0.53814]	-58.75473 (117.653) [-0.49939]	30.22698 (245.233) [0.12326]	328.0783 (97.8238) [3.35377]	26.34907 (67.1585) [0.39234]	-17639.71 (287693.) [-0.06131]	-145734.2 (433143.) [-0.33646]	-0.619828 (0.02105) [-29.4402]	2274.061 (19308.2) [0.11778]
D(RISK(-2))	-24.65832 (68.3399) [-0.36082]	2.410250 (117.932) [0.02044]	15.45058 (245.815) [0.06285]	-27.62715 (98.0557) [-0.28175]	16.11326 (67.3177) [0.23936]	182927.0 (288375.) [0.63434]	-141765.9 (434170.) [-0.32652]	-0.327331 (0.02110) [-15.5106]	3004.022 (19354.0) [0.15521]
D(TAX(-1))	-9.71E-05 (7.7E-05) [-1.26078]	0.000103 (0.00013) [0.77578]	-0.000307 (0.00028) [-1.10802]	-0.000109 (0.00011) [-0.98272]	-1.87E-06 (7.6E-05) [-0.02464]	1.127459 (0.32489) [3.47025]	1.760176 (0.48915) [3.59844]	9.52E-09 (2.4E-08) [0.40058]	-0.128242 (0.02180) [-5.88136]
D(TAX(-2))	5.29E-05 (9.1E-05) [0.57941]	-0.000146 (0.00016) [-0.92465]	0.000125 (0.00033) [0.38141]	0.000134 (0.00013) [1.01913]	1.88E-05 (9.0E-05) [0.20896]	-1.985632 (0.38548) [-5.15102]	6.383453 (0.58037) [10.9989]	3.10E-08 (2.8E-08) [1.10059]	-0.028134 (0.02587) [-1.08745]
C	12.53521 (45.6735) [0.27445]	17.78349 (78.8171) [0.22563]	22.34663 (164.285) [0.13602]	-7.462049 (65.5334) [-0.11387]	50.69921 (44.9904) [1.12689]	949181.9 (192730.) [4.92494]	80935.21 (290168.) [0.27893]	-0.015867 (0.01410) [-1.12500]	20801.12 (12934.8) [1.60815]
R-squared	0.390983	0.334973	0.356736	0.503400	0.010370	0.063799	0.189483	0.304593	0.032742
Adj. R-squared	0.385252	0.328715	0.350682	0.498727	0.001057	0.054989	0.181856	0.298049	0.023639
Sum sq. resids	8.12E+09	2.42E+10	1.05E+11	1.67E+10	7.88E+09	1.45E+17	3.28E+17	774.1903	6.51E+14
S.E. equation	2005.259	3460.403	7212.807	2877.193	1975.266	8461636.	12739598	0.619235	567892.7
F-statistic	68.22002	53.52461	58.93053	107.7183	1.113457	7.241474	24.84231	46.54405	3.596994
Log likelihood	-18386.76	-19499.26	-20996.85	-19122.93	-18356.03	-35407.36	-36241.67	-1905.935	-29899.28

Akaike AIC	18.05469	19.14592	20.61486	18.77678	18.02455	34.74974	35.56809	1.889097	29.34701
Schwarz SC	18.10982	19.20105	20.66999	18.83191	18.07968	34.80487	35.62322	1.944225	29.40214
Mean dependent	-0.005697	0.028827	0.136665	0.009369	39.23150	1151511.	438929.2	-0.010254	12273.27
S.D. dependent	2557.538	4223.506	8951.087	4063.796	1976.310	8704340.	14084481	0.739099	574726.3

$$\text{ROE} = \text{TDTA} + \text{TDTE} + \text{STDTA} + \text{TANG} + \text{FMS} + \text{GRT} + \text{RISK} + \text{TAX}$$

Error Correction:	D(ROE)	D(TDTA)	D(TDTE)	D(STDTE)	D(TANG)	D(FMS)	D(GRT)	D(RISK)	D(TAX)
CointEq1	-0.997976 (0.03408) [-29.2854]	-0.064222 (0.15488) [-0.41466]	-0.036837 (0.32271) [-0.11415]	0.067199 (0.15120) [0.44444]	0.001543 (0.08837) [0.01746]	223.1046 (378.750) [0.58905]	1745.845 (568.901) [3.06880]	2.12E-05 (2.8E-05) [0.76706]	24.19282 (25.4168) [0.95184]
D(ROE(-1))	-0.001210 (0.02679) [-0.04516]	0.038426 (0.12177) [0.31556]	0.022346 (0.25372) [0.08807]	-0.044202 (0.11887) [-0.37184]	-0.001717 (0.06948) [-0.02471]	139.7481 (297.779) [0.46930]	-1119.262 (447.278) [-2.50239]	-1.79E-05 (2.2E-05) [-0.82048]	-23.26838 (19.9830) [-1.16441]
D(ROE(-2))	-0.000572 (0.01896) [-0.03018]	0.018422 (0.08616) [0.21381]	0.012170 (0.17953) [0.06779]	-0.024193 (0.08411) [-0.28763]	-0.001704 (0.04916) [-0.03465]	68.55761 (210.703) [0.32537]	-735.8718 (316.487) [-2.32513]	-8.50E-06 (1.5E-05) [-0.55145]	-7.580260 (14.1397) [-0.53610]
D(TDTA(-1))	0.003490 (0.00462) [0.75574]	-0.667115 (0.02099) [-31.7835]	0.001931 (0.04373) [0.04415]	-5.49E-05 (0.02049) [-0.00268]	-2.54E-06 (0.01198) [-0.00021]	1.991010 (51.3284) [0.03879]	30.63861 (77.0978) [0.39740]	2.16E-06 (3.8E-06) [0.57560]	4.506241 (3.44450) [1.30824]
D(TDTA(-2))	0.001744 (0.00462) [0.37755]	-0.333996 (0.02099) [-15.9093]	0.002530 (0.04374) [0.05784]	0.000908 (0.02049) [0.04431]	0.000347 (0.01198) [0.02899]	-45.62619 (51.3391) [-0.88872]	51.54913 (77.1138) [0.66848]	8.85E-06 (3.8E-06) [2.35613]	-1.188942 (3.44522) [-0.34510]
D(TDTE(-1))	0.000458 (0.00223) [0.20550]	-0.000390 (0.01013) [-0.03854]	-0.703202 (0.02111) [-33.3149]	0.000366 (0.00989) [0.03699]	-6.45E-05 (0.00578) [-0.01115]	-17.56551 (24.7732) [-0.70905]	12.43482 (37.2105) [0.33418]	7.41E-07 (1.8E-06) [0.40907]	-1.337030 (1.66245) [-0.80425]
D(TDTE(-2))	0.000208 (0.00225) [0.09234]	-0.000214 (0.01022) [-0.02094]	-0.328753 (0.02130) [-15.4363]	0.000125 (0.00998) [0.01255]	-6.18E-05 (0.00583) [-0.01059]	-10.22997 (24.9957) [-0.40927]	4.929673 (37.5448) [0.13130]	9.84E-07 (1.8E-06) [0.53849]	-2.540943 (1.67739) [-1.51482]
D(STDTE(-1))	-0.002796 (0.00464) [-0.60292]	-0.000465 (0.02107) [-0.02207]	6.20E-05 (0.04391) [0.00141]	-0.616961 (0.02057) [-29.9877]	8.39E-05 (0.01202) [0.00698]	-7.228200 (51.5371) [-0.14025]	20.17610 (77.4111) [0.26064]	2.10E-06 (3.8E-06) [0.55599]	-0.186827 (3.45850) [-0.05402]
D(STDTE(-2))	-0.001411 (0.00441) [-0.31999]	-0.000188 (0.02004) [-0.00937]	-0.000148 (0.04176) [-0.00354]	-0.308570 (0.01957) [-15.7703]	8.65E-05 (0.01144) [0.00757]	-2.454047 (49.0139) [-0.05007]	9.398198 (73.6212) [0.12766]	1.03E-06 (3.6E-06) [0.28673]	0.606488 (3.28918) [0.18439]
D(TANG(-1))	-0.001124 (0.00861) [-0.13061]	-0.000244 (0.03912) [-0.00624]	-0.000820 (0.08151) [-0.01006]	0.001085 (0.03819) [0.02842]	-0.100321 (0.02232) [-4.49478]	4.446337 (95.6613) [0.04648]	-5.192687 (143.688) [-0.03614]	-2.11E-07 (7.0E-06) [-0.03020]	4.196401 (6.41954) [0.65369]
D(TANG(-2))	0.000439 (0.01107) [0.03969]	-0.000630 (0.05032) [-0.01252]	0.001500 (0.10485) [0.01431]	0.000240 (0.04913) [0.00489]	-0.015696 (0.02871) [-0.54667]	0.025746 (123.060) [0.00021]	-2.061200 (184.842) [-0.01115]	2.49E-06 (9.0E-06) [0.27685]	-6.638599 (8.25821) [-0.80388]
D(FMS(-1))	4.77E-07 (2.0E-06) [0.23810]	-1.00E-06 (9.1E-06) [-0.11013]	-1.19E-05 (1.9E-05) [-0.62977]	1.09E-06 (8.9E-06) [0.12283]	-2.84E-07 (5.2E-06) [-0.05473]	0.046830 (0.02226) [2.10416]	-0.214232 (0.03343) [-6.40854]	-1.29E-09 (1.6E-09) [-0.79393]	0.001522 (0.00149) [1.01940]
D(FMS(-2))	-2.02E-07 (3.1E-06) [-0.06452]	-8.68E-06 (1.4E-05) [-0.60889]	9.64E-06 (3.0E-05) [0.32480]	-4.17E-06 (1.4E-05) [-0.29997]	-7.06E-06 (8.1E-06) [-0.86861]	0.053183 (0.03485) [1.52604]	0.446677 (0.05235) [8.53301]	-9.69E-10 (2.5E-09) [-0.38033]	-0.003061 (0.00234) [-1.30865]

D(GRT(-1))	-3.80E-07 (1.2E-06) [-0.31271]	3.40E-07 (5.5E-06) [0.06161]	-1.17E-06 (1.2E-05) [-0.10144]	-7.68E-07 (5.4E-06) [-0.14253]	-3.64E-07 (3.2E-06) [-0.11540]	0.065535 (0.01350) [4.85376]	0.213517 (0.02028) [10.5282]	6.14E-10 (9.9E-10) [0.62177]	-7.65E-05 (0.00091) [-0.08445]
D(GRT(-2))	-1.08E-06 (1.8E-06) [-0.59445]	-5.81E-06 (8.2E-06) [-0.70529]	5.41E-06 (1.7E-05) [0.31495]	-1.17E-07 (8.0E-06) [-0.01458]	-9.03E-07 (4.7E-06) [-0.19190]	0.133305 (0.02016) [6.61277]	-0.280763 (0.03028) [-9.27241]	-2.79E-10 (1.5E-09) [-0.18944]	-0.006273 (0.00135) [-4.63699]
D(RISK(-1))	-58.09110 (25.9402) [-2.23943]	-68.60258 (117.896) [-0.58189]	22.80061 (245.650) [0.09282]	225.7650 (115.094) [1.96158]	26.26843 (67.2675) [0.39051]	-6288.666 (288308.) [-0.02181]	-63726.59 (433052.) [-0.14716]	-0.619146 (0.02109) [-29.3610]	3586.808 (19347.5) [0.18539]
D(RISK(-2))	-12.61011 (25.9508) [-0.48592]	-8.462270 (117.944) [-0.07175]	6.809111 (245.751) [0.02771]	-166.9959 (115.141) [-1.45036]	15.91107 (67.2951) [0.23644]	187747.8 (288426.) [0.65094]	-70547.35 (433230.) [-0.16284]	-0.326612 (0.02110) [-15.4822]	3995.508 (19355.4) [0.20643]
D(TAX(-1))	1.05E-05 (2.9E-05) [0.35738]	0.000104 (0.00013) [0.78526]	-0.000306 (0.00028) [-1.10426]	-9.66E-05 (0.00013) [-0.74400]	-1.88E-06 (7.6E-05) [-0.02476]	1.122336 (0.32512) [3.45205]	1.740492 (0.48835) [3.56404]	9.37E-09 (2.4E-08) [0.39402]	-0.128034 (0.02182) [-5.86828]
D(TAX(-2))	-9.66E-07 (3.5E-05) [-0.02785]	-0.000142 (0.00016) [-0.90173]	0.000129 (0.00033) [0.39256]	0.000205 (0.00015) [1.33272]	1.88E-05 (9.0E-05) [0.20938]	-1.969152 (0.38533) [-5.11024]	6.413272 (0.57879) [11.0805]	3.19E-08 (2.8E-08) [1.13255]	-0.028968 (0.02586) [-1.12024]
C	-5.747005 (17.3474) [-0.33129]	16.96726 (78.8425) [0.21520]	21.73457 (164.278) [0.13230]	-20.17143 (76.9686) [-0.26207]	50.65123 (44.9850) [1.12596]	954874.4 (192805.) [4.95253]	82033.39 (289603.) [0.28326]	-0.015850 (0.01410) [-1.12393]	20457.15 (12938.6) [1.58109]
R-squared	0.526969	0.334385	0.356638	0.314809	0.010367	0.062837	0.192444	0.304635	0.031943
Adj. R-squared	0.522518	0.328121	0.350584	0.308361	0.001054	0.054018	0.184844	0.298091	0.022833
Sum sq. resids	1.17E+09	2.42E+10	1.05E+11	2.31E+10	7.88E+09	1.45E+17	3.26E+17	774.1437	6.52E+14
S.E. equation	761.7168	3461.934	7213.356	3379.649	1975.268	8465981.	12716311	0.619217	568127.0
F-statistic	118.3801	53.38334	58.90541	48.82232	1.113152	7.124990	25.32294	46.55326	3.506386
Log likelihood	-16413.10	-19500.17	-20997.01	-19451.12	-18356.04	-35408.41	-36237.94	-1905.873	-29900.12
Akaike AIC	16.11879	19.14680	20.61502	19.09869	18.02456	34.75077	35.56443	1.889037	29.34784
Schwarz SC	16.17391	19.20193	20.67014	19.15382	18.07968	34.80590	35.61956	1.944164	29.40297
Mean dependent	-5.696349	0.028827	0.136665	0.009369	39.23150	1151511.	438929.2	-0.010254	12273.27
S.D. dependent	1102.338	4223.506	8951.087	4063.796	1976.310	8704340.	14084481	0.739099	574726.3

$$\text{NPM} = \text{TDTA} + \text{TDTE} + \text{STDTA} + \text{TANG} + \text{FMS} + \text{GRT} + \text{RISK} + \text{TAX}$$

Error Correction:	D(NPM)	D(TDTA)	D(TDTE)	D(STDTE)	D(TANG)	D(FMS)	D(GRT)	D(RISK)	D(TAX)
CointEq1	-0.000101 (0.00020) [-0.49792]	-0.144061 (0.10517) [-1.36980]	-0.120928 (0.21921) [-0.55166]	-2.421312 (0.08744) [-27.6905]	-0.004145 (0.06003) [-0.06904]	-13.76388 (257.461) [-0.05346]	-12.87481 (387.429) [-0.03323]	-1.40E-06 (1.9E-05) [-0.07450]	-3.067703 (17.2726) [-0.17760]
D(NPM(-1))	-0.631610 (0.02119) [-29.8072]	0.374184 (10.9531) [0.03416]	0.188615 (22.8302) [0.00826]	1.915682 (9.10689) [0.21036]	1.075790 (6.25209) [0.17207]	1125.414 (26814.0) [0.04197]	-1216.442 (40349.9) [-0.03015]	-0.000904 (0.00196) [-0.46120]	-17.01509 (1798.91) [-0.00946]
D(NPM(-2))	-0.306267 (0.02120) [-14.4464]	0.602998 (10.9585) [0.05503]	0.100623 (22.8413) [0.00441]	1.556898 (9.11133) [0.17087]	0.780430 (6.25514) [0.12477]	1342.617 (26827.0) [0.05005]	-1058.737 (40369.6) [-0.02623]	0.001038 (0.00196) [0.52944]	-93.53501 (1799.78) [-0.05197]
D(TDTA(-1))	3.31E-06 (4.1E-05) [0.08139]	-0.664885 (0.02105) [-31.5862]	0.003862 (0.04388) [0.08801]	0.041450 (0.01750) [2.36833]	7.29E-05 (0.01202) [0.00607]	2.955818 (51.5315) [0.05736]	37.07398 (77.5451) [0.47810]	2.26E-06 (3.8E-06) [0.60122]	4.643603 (3.45717) [1.34318]
D(TDTA(-2))	1.45E-06 (4.1E-05) [0.03573]	-0.332881 (0.02100) [-15.8497]	0.003495 (0.04378) [0.07984]	0.021565 (0.01746) [1.23494]	0.000382 (0.01199) [0.03191]	-45.11294 (51.4150) [-0.87743]	54.52279 (77.3697) [0.70470]	8.90E-06 (3.8E-06) [2.36732]	-1.123013 (3.44935) [-0.32557]

D(TDTE(-1))	6.38E-07 (2.0E-05) [0.03255]	5.95E-05 (0.01013) [0.00588]	-0.702816 (0.02112) [-33.2799]	0.008486 (0.00842) [1.00733]	-5.03E-05 (0.00578) [-0.00869]	-17.40989 (24.8034) [-0.70192]	13.32629 (37.3244) [0.35704]	7.56E-07 (1.8E-06) [0.41722]	-1.315139 (1.66402) [-0.79034]
D(TDTE(-2))	2.91E-07 (2.0E-05) [0.01475]	5.65E-06 (0.01022) [0.00055]	-0.328564 (0.02130) [-15.4265]	0.004086 (0.00850) [0.48089]	-5.51E-05 (0.00583) [-0.00945]	-10.15980 (25.0152) [-0.40614]	5.351439 (37.6432) [0.14216]	9.92E-07 (1.8E-06) [0.54269]	-2.530106 (1.67823) [-1.50760]
D(STDTE(-1))	-4.28E-05 (6.6E-05) [-0.64828]	0.036424 (0.03411) [1.06788]	0.030995 (0.07109) [0.43598]	0.000388 (0.02836) [0.01367]	0.001115 (0.01947) [0.05727]	-4.219093 (83.5002) [-0.05053]	19.03182 (125.652) [0.15146]	2.37E-06 (6.1E-06) [0.38886]	0.534411 (5.60190) [0.09540]
D(STDTE(-2))	-2.21E-05 (4.7E-05) [-0.47373]	0.018269 (0.02412) [0.75734]	0.015334 (0.05028) [0.30497]	0.000261 (0.02006) [0.01303]	0.000646 (0.01377) [0.04694]	-0.941152 (59.0530) [-0.01594]	8.710462 (88.8636) [0.09802]	1.07E-06 (4.3E-06) [0.24808]	0.968406 (3.96177) [0.24444]
D(TANG(-1))	-1.97E-06 (7.6E-05) [-0.02604]	3.83E-06 (0.03910) [9.8e-05]	-0.000627 (0.08150) [-0.00770]	0.004044 (0.03251) [0.12440]	-0.100316 (0.02232) [-4.49458]	4.220397 (95.7233) [0.04409]	-7.098969 (144.045) [-0.04928]	-2.55E-07 (7.0E-06) [-0.03650]	4.173926 (6.42192) [0.64995]
D(TANG(-2))	1.14E-06 (9.7E-05) [0.01176]	-0.000540 (0.05030) [-0.01074]	0.001584 (0.10484) [0.01511]	0.002340 (0.04182) [0.05595]	-0.015682 (0.02871) [-0.54617]	0.115577 (123.140) [0.00094]	-1.109035 (185.302) [-0.00598]	2.50E-06 (9.0E-06) [0.27750]	-6.620819 (8.26128) [-0.80143]
D(FMS(-1))	2.16E-09 (1.8E-08) [0.12264]	-8.91E-07 (9.1E-06) [-0.09802]	-1.18E-05 (1.9E-05) [-0.62372]	4.44E-06 (7.6E-06) [0.58686]	-2.83E-07 (5.2E-06) [-0.05455]	0.047091 (0.02226) [2.11569]	-0.212850 (0.03349) [-6.35489]	-1.26E-09 (1.6E-09) [-0.77488]	0.001576 (0.00149) [1.05515]
D(FMS(-2))	1.45E-09 (2.8E-08) [0.05254]	-8.53E-06 (1.4E-05) [-0.59948]	9.81E-06 (3.0E-05) [0.33071]	1.60E-06 (1.2E-05) [0.13508]	-7.04E-06 (8.1E-06) [-0.86690]	0.052252 (0.03483) [1.50030]	0.453363 (0.05241) [8.65039]	-8.81E-10 (2.5E-09) [-0.34605]	-0.002959 (0.00234) [-1.26642]
D(GRT(-1))	9.54E-09 (1.1E-08) [0.89389]	3.38E-07 (5.5E-06) [0.06133]	-1.16E-06 (1.2E-05) [-0.10110]	-4.91E-07 (4.6E-06) [-0.10708]	-3.69E-07 (3.1E-06) [-0.11702]	0.065267 (0.01351) [4.83129]	0.213908 (0.02033) [10.5224]	6.29E-10 (9.9E-10) [0.63723]	-5.79E-05 (0.00091) [-0.06390]
D(GRT(-2))	2.25E-09 (1.6E-08) [0.14153]	-5.77E-06 (8.2E-06) [-0.70111]	5.43E-06 (1.7E-05) [0.31660]	3.73E-07 (6.8E-06) [0.05447]	-9.02E-07 (4.7E-06) [-0.19199]	0.132832 (0.02016) [6.58870]	-0.280171 (0.03034) [-9.23502]	-2.74E-10 (1.5E-09) [-0.18599]	-0.006278 (0.00135) [-4.64182]
D(RISK(-1))	0.011812 (0.22758) [0.05190]	-59.40010 (117.635) [-0.50495]	29.49775 (245.193) [0.12030]	316.4076 (97.8068) [3.23503]	26.43817 (67.1467) [0.39374]	-21634.89 (287979.) [-0.07513]	-156386.9 (433353.) [-0.36088]	-0.619827 (0.02105) [-29.4477]	2475.049 (19320.0) [0.12811]
D(RISK(-2))	0.022875 (0.22810) [0.10029]	1.936953 (117.904) [0.01643]	14.89625 (245.753) [0.06061]	-33.60848 (98.0303) [-0.34284]	16.07181 (67.3001) [0.23881]	174886.9 (288636.) [0.60591]	-130127.6 (434343.) [-0.29960]	-0.327078 (0.02110) [-15.5039]	3449.566 (19364.2) [0.17814]
D(TAX(-1))	8.36E-08 (2.6E-07) [0.32543]	0.000103 (0.00013) [0.77607]	-0.000307 (0.00028) [-1.10823]	-0.000109 (0.00011) [-0.98700]	-1.87E-06 (7.6E-05) [-0.02460]	1.121944 (0.32526) [3.44937]	1.762692 (0.48946) [3.60133]	9.59E-09 (2.4E-08) [0.40330]	-0.127941 (0.02182) [-5.86314]
D(TAX(-2))	-4.46E-08 (3.0E-07) [-0.14628]	-0.000146 (0.00016) [-0.92705]	0.000126 (0.00033) [0.38233]	0.000134 (0.00013) [1.01939]	1.86E-05 (9.0E-05) [0.20634]	-1.962652 (0.38562) [-5.08960]	6.400771 (0.58029) [11.0304]	3.17E-08 (2.8E-08) [1.12500]	-0.029408 (0.02587) [-1.13672]
C	-0.089420 (0.15247) [-0.58646]	17.72277 (78.8144) [0.22487]	22.35875 (164.277) [0.13610]	-7.684024 (65.5296) [-0.11726]	50.75077 (44.9876) [1.12811]	954552.7 (192943.) [4.94733]	81788.12 (290342.) [0.28170]	-0.015837 (0.01410) [-1.12301]	20507.83 (12944.2) [1.58432]
R-squared	0.306830	0.334948	0.356731	0.503405	0.010384	0.061625	0.188423	0.304720	0.031228
Adj. R-squared	0.300307	0.328689	0.350677	0.498732	0.001071	0.052794	0.180785	0.298177	0.022112
Sum sq. resids	90487.20	2.42E+10	1.05E+11	1.67E+10	7.88E+09	1.45E+17	3.28E+17	774.0498	6.52E+14
S.E. equation	6.694612	3460.469	7212.835	2877.179	1975.251	8471455.	12747933	0.619179	568336.8
F-statistic	47.03716	53.51848	58.92925	107.7204	1.115043	6.978496	24.67093	46.57179	3.425382

Log likelihood	-6759.923	-19499.30	-20996.86	-19122.92	-18356.02	-35409.73	-36243.00	-1905.750	-29900.87
Akaike AIC	6.650243	19.14596	20.61487	18.77677	18.02454	34.75206	35.56940	1.888916	29.34858
Schwarz SC	6.705371	19.20108	20.67000	18.83190	18.07967	34.80719	35.62452	1.944043	29.40370
Mean dependent	-0.043688	0.028827	0.136665	0.009369	39.23150	1151511.	438929.2	-0.010254	12273.27
S.D. dependent	8.003347	4223.506	8951.087	4063.796	1976.310	8704340.	14084481	0.739099	574726.3

$$\text{GRV} = \text{TDTA} + \text{TDTE} + \text{STDTE} + \text{TANG} + \text{FMS} + \text{GRT} + \text{RISK} + \text{TAX}$$

Error Correction:	D(GRV)	D(TDTA)	D(TDTE)	D(STDTE)	D(TANG)	D(FMS)	D(GRT)	D(RISK)	D(TAX)
CointEq1	2.54E-08 (2.7E-06) [0.00927]	-1.18E-09 (8.5E-10) [-1.39290]	-9.67E-10 (1.8E-09) [-0.55138]	-1.95E-08 (7.1E-10) [-27.6139]	-3.48E-11 (4.9E-10) [-0.07177]	-1.07E-07 (2.1E-06) [-0.05160]	-9.21E-08 (3.1E-06) [-0.02987]	-2.36E-14 (1.5E-13) [-0.15530]	-2.19E-08 (1.4E-07) [-0.15755]
D(GRV(-1))	-0.006398 (0.02226) [-0.28746]	-1.65E-06 (6.9E-06) [-0.23919]	8.81E-05 (1.4E-05) [6.19213]	-6.95E-07 (5.7E-06) [-0.12114]	1.34E-07 (3.9E-06) [0.03409]	-0.000854 (0.01684) [-0.05074]	0.011734 (0.02502) [0.46901]	4.98E-10 (1.2E-09) [0.40328]	0.000282 (0.00113) [0.24925]
D(GRV(-2))	-0.136094 (0.02281) [-5.96770]	6.32E-07 (7.1E-06) [0.08947]	-2.43E-05 (1.5E-05) [-1.66476]	9.15E-08 (5.9E-06) [0.01557]	-1.02E-07 (4.0E-06) [-0.02535]	0.022333 (0.01725) [1.29464]	0.004035 (0.02564) [0.15741]	-9.15E-11 (1.3E-09) [-0.07233]	0.000381 (0.00116) [0.32928]
D(TDTA(-1))	5.733332 (68.1338) [0.08415]	-0.664815 (0.02112) [-31.4847]	0.004505 (0.04357) [0.10339]	0.042296 (0.01756) [2.40909]	7.49E-05 (0.01205) [0.00621]	3.531963 (51.5390) [0.06853]	36.37137 (76.5917) [0.47487]	2.29E-06 (3.8E-06) [0.60712]	4.639364 (3.45746) [1.34184]
D(TDTA(-2))	11.94594 (67.9714) [0.17575]	-0.332827 (0.02107) [-15.7999]	0.003763 (0.04347) [0.08658]	0.021981 (0.01752) [1.25500]	0.000389 (0.01202) [0.03238]	-45.13629 (51.4161) [-0.87786]	54.08027 (76.4091) [0.70777]	8.91E-06 (3.8E-06) [2.36344]	-1.079631 (3.44922) [-0.31301]
D(TDTE(-1))	5.732444 (33.0944) [0.17322]	-4.21E-05 (0.01026) [-0.00411]	-0.698987 (0.02116) [-33.0276]	0.008493 (0.00853) [0.99591]	-3.03E-05 (0.00585) [-0.00518]	-21.86018 (25.0338) [-0.87323]	11.75726 (37.2026) [0.31603]	7.75E-07 (1.8E-06) [0.42198]	-1.392702 (1.67938) [-0.82930]
D(TDTE(-2))	15.96942 (33.1681) [0.48147]	-7.41E-05 (0.01028) [-0.00721]	-0.325162 (0.02121) [-15.3300]	0.004080 (0.00855) [0.47735]	-4.17E-05 (0.00587) [-0.00710]	-12.70795 (25.0896) [-0.50650]	4.805455 (37.2854) [0.12888]	1.01E-06 (1.8E-06) [0.54817]	-2.571612 (1.68312) [-1.52788]
D(STDTE(-1))	8.978737 (110.332) [0.08138]	0.037147 (0.03419) [1.08639]	0.030564 (0.07056) [0.43318]	0.000216 (0.02843) [0.00758]	0.001182 (0.01952) [0.06055]	-4.363585 (83.4590) [-0.05228]	17.34261 (124.028) [0.13983]	2.79E-06 (6.1E-06) [0.45571]	0.453980 (5.59880) [0.08109]
D(STDTE(-2))	5.685665 (78.0198) [0.07287]	0.018635 (0.02418) [0.77069]	0.014943 (0.04989) [0.29949]	0.000189 (0.02010) [0.00938]	0.000635 (0.01380) [0.04603]	-1.033795 (59.0171) [-0.01752]	7.971080 (87.7048) [0.09089]	1.37E-06 (4.3E-06) [0.31719]	0.923576 (3.95913) [0.23328]
D(TANG(-1))	-4.414190 (126.540) [-0.03488]	-4.95E-06 (0.03922) [-0.00013]	-0.000251 (0.08092) [-0.00311]	0.003958 (0.03261) [0.12137]	-0.100319 (0.02239) [-4.48134]	4.300409 (95.7195) [0.04493]	-6.712961 (142.248) [-0.04719]	-2.29E-07 (7.0E-06) [-0.03259]	4.176090 (6.42129) [0.65035]
D(TANG(-2))	13.07952 (162.785) [0.08035]	-0.000577 (0.05045) [-0.01144]	0.003125 (0.10410) [0.03002]	0.002203 (0.04195) [0.05253]	-0.015689 (0.02880) [-0.54479]	0.475812 (123.136) [0.00386]	-1.282609 (182.992) [-0.00701]	2.52E-06 (9.0E-06) [0.27884]	-6.641295 (8.26054) [-0.80398]
D(FMS(-1))	-0.032256 (0.02951) [-1.09317]	-6.99E-07 (9.1E-06) [-0.07644]	-1.50E-05 (1.9E-05) [-0.79523]	4.46E-06 (7.6E-06) [0.58628]	-2.64E-07 (5.2E-06) [-0.05059]	0.045069 (0.02232) [2.01921]	-0.205621 (0.03317) [-6.19902]	-1.31E-09 (1.6E-09) [-0.79803]	0.001584 (0.00150) [1.05758]
D(FMS(-2))	0.024241 (0.04621) [0.52458]	-8.72E-06 (1.4E-05) [-0.60922]	1.27E-05 (3.0E-05) [0.42870]	1.51E-06 (1.2E-05) [0.12684]	-7.08E-06 (8.2E-06) [-0.86619]	0.056053 (0.03496) [1.60354]	0.457864 (0.05195) [8.81395]	-8.45E-10 (2.6E-09) [-0.32974]	-0.003422 (0.00234) [-1.45938]
D(GRT(-1))	0.020957	6.53E-07	-8.24E-06	-5.23E-07	-3.63E-07	0.067055	0.227358	5.81E-10	-0.000276

	(0.01832)	(5.7E-06)	(1.2E-05)	(4.7E-06)	(3.2E-06)	(0.01386)	(0.02059)	(1.0E-09)	(0.00093)
	[1.14393]	[0.11504]	[-0.70302]	[-0.11069]	[-0.11197]	[4.83876]	[11.0400]	[0.57230]	[-0.29672]
D(GRT(-2))	-0.035390	-6.28E-06	5.14E-06	3.48E-07	-9.89E-07	0.141744	-0.298599	-2.09E-10	-0.006854
	(0.02784)	(8.6E-06)	(1.8E-05)	(7.2E-06)	(4.9E-06)	(0.02106)	(0.03130)	(1.5E-09)	(0.00141)
	[-1.27107]	[-0.72767]	[0.28845]	[0.04854]	[-0.20076]	[6.73018]	[-9.54034]	[-0.13529]	[-4.85140]
D(RISK(-1))	-280463.1	-57.78791	-19.37229	328.2781	26.30427	-27005.49	-159368.4	-0.620409	2382.374
	(380931.)	(118.055)	(243.604)	(98.1591)	(67.3899)	(288150.)	(428218.)	(0.02113)	(19330.4)
	[-0.73626]	[-0.48950]	[-0.07952]	[3.34435]	[0.39033]	[-0.09372]	[-0.37217]	[-29.3664]	[0.12325]
D(RISK(-2))	-392920.9	2.609193	9.367577	-27.52910	16.18078	161491.4	-116753.9	-0.327258	3208.301
	(381834.)	(118.335)	(244.181)	(98.3918)	(67.5497)	(288833.)	(429233.)	(0.02118)	(19376.2)
	[-1.02904]	[0.02205]	[0.03836]	[-0.27979]	[0.23954]	[0.55912]	[-0.27201]	[-15.4537]	[0.16558]
D(TAX(-1))	0.230166	0.000103	-0.000360	-0.000108	-2.18E-06	1.136849	1.760994	9.22E-09	-0.131035
	(0.43109)	(0.00013)	(0.00028)	(0.00011)	(7.6E-05)	(0.32609)	(0.48461)	(2.4E-08)	(0.02188)
	[0.53391]	[0.77174]	[-1.30766]	[-0.97641]	[-0.02862]	[3.48626]	[3.63387]	[0.38576]	[-5.98996]
D(TAX(-2))	1.283342	-0.000148	0.000130	0.000136	1.91E-05	-2.040614	6.037709	3.18E-08	-0.026550
	(0.51275)	(0.00016)	(0.00033)	(0.00013)	(9.1E-05)	(0.38786)	(0.57640)	(2.8E-08)	(0.02602)
	[2.50288]	[-0.93239]	[0.39505]	[1.02666]	[0.21087]	[-5.26121]	[10.4749]	[1.11776]	[-1.02038]
C	328771.9	17.97818	5.071413	-7.367106	50.89494	926904.2	18727.24	-0.016000	19347.85
	(255784.)	(79.2707)	(163.573)	(65.9110)	(45.2504)	(193484.)	(287536.)	(0.01419)	(12979.8)
	[1.28535]	[0.22679]	[0.03100]	[-0.11177]	[1.12474]	[4.79059]	[0.06513]	[-1.12786]	[1.49061]
R-squared	0.023636	0.335009	0.369612	0.503420	0.010373	0.065238	0.193196	0.304481	0.033078
Adj. R-squared	0.014393	0.328714	0.363644	0.498719	0.001004	0.056389	0.185558	0.297897	0.023924
Sum sq. resids	2.52E+17	2.42E+10	1.03E+11	1.67E+10	7.88E+09	1.44E+17	3.18E+17	774.1974	6.48E+14
S.E. equation	11198764	3470.639	7161.567	2885.724	1981.157	8471160.	12588933	0.621087	568283.0
F-statistic	2.557168	53.21506	61.93446	107.0867	1.107157	7.372152	25.29433	46.24295	3.613599
Log likelihood	-35767.01	-19390.43	-20858.77	-19016.32	-18253.98	-35201.20	-36004.20	-1900.710	-29724.65
Akaike AIC	35.31032	19.15188	20.60066	18.78276	18.03057	34.75205	35.54435	1.895125	29.34844
Schwarz SC	35.36572	19.20728	20.65606	18.83815	18.08596	34.80745	35.59975	1.950521	29.40384
Mean dependent	299022.5	0.028275	0.134231	0.009418	39.46398	1131124.	371705.7	-0.010368	10758.96
S.D. dependent	11280237	4235.996	8977.556	4075.813	1982.152	8720600.	13949505	0.741228	575205.3

APPENDIX IV: LLC unit Root Output Data

Individual Intercept

Series: ROA

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-15.0545	0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.52871	-29.351	1.070	-0.554	0.919	2210

Series: ROE

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-16.4412	0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.52943	-28.453	1.067	-0.554	0.919	2211

Series: NPM

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-24.2145	0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.71487	-37.861	1.142	-0.554	0.919	2155

Series: GRV

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-0.27385	0.3921

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.18127	-11.734	1.198	-0.554	0.919	2159

Series: TDTA

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-7.86309	0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.32023	-19.673	1.079	-0.554	0.919	2174

Series: TDTE

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-9.54319	0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.36606	-20.962	1.115	-0.554	0.919	2182

Series: STDTE

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-8.45228	0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.37437	-20.362	1.074	-0.554	0.919	2021

Series: TANG

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-7.35178	0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.30419	-19.616	1.068	-0.554	0.919	2160

Series: FMS

Cross-sections included: 103

Method	Statistic	Prob.**
Levin, Lin & Chu t*	10.3661	1.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	0.00438	0.506	1.112	-0.554	0.919	2162

Series: GRT

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-0.52843	0.2986

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.07814	-7.813	1.199	-0.554	0.919	2201

Series: RISK

Method	Statistic					Prob.**
Levin, Lin & Chu t*	-15.8537					0.0000
	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.53379	-27.996	1.085	-0.554	0.919	2214

Series: TAX

Method	Statistic					Prob.**
Levin, Lin & Chu t*	-3.20068					0.0007
	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.30297	-16.479	1.214	-0.554	0.919	2186

Individual Intercept and Trend

Series: ROA

Method	Statistic					Prob.**
Levin, Lin & Chu t*	-14.8577					0.0000
	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.73650	-36.527	1.070	-0.703	1.003	2193

Series: ROE

Method	Statistic					Prob.**
Levin, Lin & Chu t*	-16.7562					0.0000
	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.74548	-35.707	1.060	-0.703	1.003	2177

Series: NPM

Method	Statistic					Prob.**
Levin, Lin & Chu t*	-7.42513					0.0000
	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.72128	-29.691	1.154	-0.703	1.003	2138

Series: GRV

Method	Statistic					Prob.**
Levin, Lin & Chu t*	-2.03973					0.0207
	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.57408	-24.869	1.158	-0.703	1.003	2145

Series: TDTA

Method	Statistic					Prob.**
Levin, Lin & Chu t*	-8.52675					0.0000
	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.55523	-27.831	1.063	-0.703	1.003	2162

Series: TDTE

Method	Statistic					Prob.**
Levin, Lin & Chu t*	-11.9024					0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.60750	-30.243	1.070	-0.703	1.003	2171

Series: STDTE

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-11.0683	0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.59737	-28.874	1.065	-0.703	1.003	2084

Series: TANG

Sample: 1993 2015

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-8.63250	0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.51385	-27.635	1.063	-0.703	1.003	2148

Series: FMS

Method	Statistic	Prob.**
Levin, Lin & Chu t*	2.32262	0.9899

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.28244	-16.997	1.121	-0.703	1.003	2145

Series: GRT

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-7.05310	0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.45218	-24.879	1.158	-0.703	1.003	2191

Series: RISK

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-13.9361	0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.70255	-33.761	1.070	-0.703	1.003	2200

Series: TAX

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-0.67117	0.2511

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.55112	-22.171	1.227	-0.703	1.003	2161

**First Difference
Individual Intercept**

Series: D(ROA)

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-50.0287	0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-1.38504	-64.877	1.082	-0.554	0.919	2085

Series: D(ROE)

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-29048.5	0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-0.99997	-26701.546	1.160	-0.554	0.919	2114

Series: D(NPM)

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-37.5943	0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-1.44710	-53.219	1.114	-0.554	0.919	2034

Series: D(GRV)

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-26.5752	0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-1.36503	-44.585	1.136	-0.554	0.919	2027

Series: D(TDTA)

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-47.6654	0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-1.33655	-57.790	1.052	-0.554	0.919	2053

Series: D(TDTE)

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-382.599	0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-1.00610	-359.237	1.151	-0.554	0.919	2056

Series: D(STDTE)

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-30.0883	0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-1.33407	-57.962	1.063	-0.554	0.919	1991

Series: D(TANG)

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-45.3571	0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-1.23605	-55.030	1.042	-0.554	0.919	2057

Series: D(FMS)

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-25.4081	0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-1.04472	-38.787	1.118	-0.554	0.919	2062

Series: D(GRT)

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-31.6436	0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-1.23740	-46.412	1.128	-0.554	0.919	2073

Series: D(RISK)

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-45.9039	0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-1.41585	-58.991	1.067	-0.554	0.919	2080

Series: D(TAX)

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-31.9131	0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-1.29027	-45.275	1.220	-0.554	0.919	2052

Individual Intercept and Trend

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-39.0542	0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-1.43194	-63.920	1.097	-0.703	1.003	2058

Series: D(ROE)

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-44.6040	0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-1.51386	-65.286	1.097	-0.703	1.003	2076

Series: D(NPM)

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-29.4463	0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-1.49693	-52.939	1.130	-0.703	1.003	2012

Series: D(GRV)

Method	Statistic	Prob.**
Levin, Lin & Chu t*	-17.3117	0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
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Pooled	-1.45284	-43.383	1.200	-0.703	1.003	2007
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Series: D(TDTA)

Method	Statistic					Prob.**
Levin, Lin & Chu t*	-38.7848					0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-1.38763	-57.329	1.076	-0.703	1.003	2031

Series: D(TDTE)

Method	Statistic					Prob.**
Levin, Lin & Chu t*	-284.195					0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-1.00871	-295.456	1.220	-0.703	1.003	2028

Series: D(STDTE)

Method	Statistic					Prob.**
Levin, Lin & Chu t*	-10.3997					0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-1.39599	-55.613	1.109	-0.703	1.003	1938

Series: D(TANG)

Method	Statistic					Prob.**
Levin, Lin & Chu t*	-36.1661					0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-1.29122	-54.310	1.060	-0.703	1.003	2031

Series: D(FMS)

Method	Statistic					Prob.**
Levin, Lin & Chu t*	-19.6232					0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-1.22700	-41.039	1.140	-0.703	1.003	2043

Series: D(GRT)

Method	Statistic					Prob.**
Levin, Lin & Chu t*	-26.7884					0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-1.37461	-49.073	1.118	-0.703	1.003	2058

Series: D(RISK)

Method	Statistic					Prob.**
Levin, Lin & Chu t*	-38.9343					0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-1.52874	-61.652	1.117	-0.703	1.003	2067

Series: D(TAX)

Method	Statistic					Prob.**
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Levin, Lin & Chu t* -23.9693 0.0000

	Coefficient	t-Stat	SE Reg	mu*	sig*	Obs
Pooled	-1.34798	-44.747	1.243	-0.703	1.003	2035

APPENDIX V: Breitung Unit Root Test Output Data

Series: ROA

Method	Statistic	Prob.**
Breitung t-stat	-8.87697	0.0000

	Coefficient	t-Stat	SE Reg	Obs
Pooled	-0.11762	-8.877	0.013	2090

Series: ROE

Method	Statistic	Prob.**
Breitung t-stat	-11.2033	0.0000

	Coefficient	t-Stat	SE Reg	Obs
Pooled	-0.17160	-11.203	0.015	2076

Series: NPM

Method	Statistic	Prob.**
Breitung t-stat	3.27701	0.9995

	Coefficient	t-Stat	SE Reg	Obs
Pooled	0.03939	3.277	0.012	2037

Series: GRV

Method	Statistic	Prob.**
Breitung t-stat	8.33174	1.0000

	Coefficient	t-Stat	SE Reg	Obs
Pooled	0.05522	8.332	0.007	2042

Series: TDTA

Method	Statistic	Prob.**
Breitung t-stat	-9.54528	0.0000

	Coefficient	t-Stat	SE Reg	Obs
Pooled	-0.15217	-9.545	0.016	2062

Series: TDTE

Method	Statistic	Prob.**
Breitung t-stat	1.41000	0.9207

	Coefficient	t-Stat	SE Reg	Obs
Pooled	0.01199	1.410	0.009	2070

Series: STDTE

Method	Statistic	Prob.**
Breitung t-stat	-3.98485	0.0000

	Coefficient	t-Stat	SE Reg	Obs
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Pooled	-0.04873	-3.985	0.012	1988
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Series: TANG

Method				Statistic	Prob.**
Breitung t-stat				-7.41688	0.0000

	Coefficient	t-Stat	SE Reg	Obs
Pooled	-0.10631	-7.417	0.014	2049

Series: FMS

Method				Statistic	Prob.**
Breitung t-stat				9.53221	1.0000

	Coefficient	t-Stat	SE Reg	Obs
Pooled	0.04637	9.532	0.005	2042

Series: GRT

Method				Statistic	Prob.**
Breitung t-stat				4.28444	1.0000

	Coefficient	t-Stat	SE Reg	Obs
Pooled	0.02812	4.284	0.007	2088

Series: RISK

Method				Statistic	Prob.**
Breitung t-stat				-9.30707	0.0000

	Coefficient	t-Stat	SE Reg	Obs
Pooled	-0.13748	-9.307	0.015	2098

Series: TAX

Method				Statistic	Prob.**
Breitung t-stat				6.47067	1.0000

	Coefficient	t-Stat	SE Reg	Obs
Pooled	0.04433	6.471	0.007	2058

Series: D(ROA)

Method				Statistic	Prob.**
Breitung t-stat				-19.4913	0.0000

	Coefficient	t-Stat	SE Reg	Obs
Pooled	-0.48546	-19.491	0.025	1955

Series: D(ROE)

Method				Statistic	Prob.**
Breitung t-stat				-16.8855	0.0000

	Coefficient	t-Stat	SE Reg	Obs
Pooled	-0.37697	-16.885	0.022	1974

Series: D(NPM)

Method			Statistic	Prob.**
Breitung t-stat			-2.84396	0.0022
	Coefficient	t-Stat	SE Reg	Obs
Pooled	-0.04832	-2.844	0.017	1911

Series: D(GRV)

Method			Statistic	Prob.**
Breitung t-stat			-2.02784	0.0033
	Coefficient	t-Stat	SE Reg	Obs
Pooled	-0.03415	-2.028	0.017	1904

Series: D(TDTA)

Method			Statistic	Prob.**
Breitung t-stat			-20.8300	0.0000
	Coefficient	t-Stat	SE Reg	Obs
Pooled	-0.52335	-20.830	0.025	1931

Series: D(TDTE)

Method			Statistic	Prob.**
Breitung t-stat			-17.6529	0.0000
	Coefficient	t-Stat	SE Reg	Obs
Pooled	-0.44889	-17.653	0.025	1927

Series: D(STDTE)

Method			Statistic	Prob.**
Breitung t-stat			-20.7744	0.0000
	Coefficient	t-Stat	SE Reg	Obs
Pooled	-0.53798	-20.774	0.026	1842

Series: D(TANG)

Method			Statistic	Prob.**
Breitung t-stat			-26.0996	0.0000
	Coefficient	t-Stat	SE Reg	Obs
Pooled	-0.69689	-26.100	0.027	1932

Series: D(FMS)

Method			Statistic	Prob.**
Breitung t-stat			-12.65973	0.0000
	Coefficient	t-Stat	SE Reg	Obs
Pooled	-0.02564	-22.660	0.010	1940

Series: D(GRT)

Method			Statistic	Prob.**
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Breitung t-stat			-2.54578	0.0055
	Coefficient	t-Stat	SE Reg	Obs
Pooled	-0.03906	-2.546	0.015	1955
Series: D(RISK)				
Method			Statistic	Prob.**
Breitung t-stat			-22.8865	0.0000

	Coefficient	t-Stat	SE Reg	Obs
Pooled	-0.63897	-22.886	0.028	1965
Series: D(TAX)				
Method			Statistic	Prob.**
Breitung t-stat			-1.78511	0.0371

	Coefficient	t-Stat	SE Reg	Obs
Pooled	-0.03426	-1.785	0.019	1932

APPENDIX VI: Kao Residual Co-integration Test Output Data

ROA = TDTA + TDTE + STDTA + TANG + FMS + GRT + RISK + TAX

Series: ROA TDTA TDTE STDTE TANG FMS GRT RISK TAX

		t-Statistic	Prob.
ADF		-3.341248	0.0004

Residual variance	6154000.
HAC variance	1304316.

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID(-1)	-0.969224	0.031145	-31.11988	0.0000
D(RESID(-1))	-0.096177	0.021172	-4.542727	0.0000

R-squared	0.548970	Mean dependent var	-6.840432
Adjusted R-squared	0.548760	S.D. dependent var	2521.773
S.E. of regression	1693.987	Akaike info criterion	17.70849
Sum squared resid	6.15E+09	Schwarz criterion	17.71378
Log likelihood	-18990.35	Hannan-Quinn criter.	17.71042
Durbin-Watson stat	2.078462		

ROE = TDTA + TDTE + STDTA + TANG + FMS + GRT + RISK + TAX

Series: ROE TDTA TDTE STDTE TANG FMS GRT RISK TAX

		t-Statistic	Prob.
ADF		-20.43601	0.0000

Residual variance	1533194.
HAC variance	614008.6

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID(-1)	-1.124052	0.028424	-39.54538	0.0000
D(RESID(-1))	0.062678	0.019451	3.222371	0.0013

R-squared	0.581668	Mean dependent var	-6.708653
Adjusted R-squared	0.581473	S.D. dependent var	1168.469
S.E. of regression	755.9251	Akaike info criterion	16.09469
Sum squared resid	1.22E+09	Schwarz criterion	16.09998

Log likelihood -17259.56 Hannan-Quinn criter. 16.09663
 Durbin-Watson stat 1.999342

NPM = TDTA + TDTE + STDTA + TANG + FMS + GRT + RISK + TAX
 Series: NPM TDTA TDTE STDTE TANG FMS GRT RISK TAX

	t-Statistic	Prob.
ADF	-17.23634	0.0000
Residual variance	57.58011	
HAC variance	53.54059	

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID(-1)	-0.829440	0.029429	-28.18429	0.0000
D(RESID(-1))	-0.063538	0.021970	-2.891979	0.0039
R-squared	0.440589	Mean dependent var		-0.039264
Adjusted R-squared	0.440327	S.D. dependent var		7.804086
S.E. of regression	5.838336	Akaike info criterion		6.367701
Sum squared resid	73046.65	Schwarz criterion		6.372988
Log likelihood	-6827.359	Hannan-Quinn criter.		6.369635
Durbin-Watson stat	2.091010			

GRV = TDTA + TDTE + STDTA + TANG + FMS + GRT + RISK + TAX
 Series: GRV TDTA TDTE STDTE TANG FMS GRT RISK TAX

	t-Statistic	Prob.
ADF	-1.982620	0.0237
Residual variance	1.13E+14	
HAC variance	1.02E+14	

Variable	Coefficient	Std. Error	t-Statistic	Prob.
RESID(-1)	-0.538577	0.036787	-14.64031	0.0000
D(RESID(-1))	0.331174	0.036854	8.986138	0.0000
D(RESID(-2))	0.295187	0.035620	8.287214	0.0000
D(RESID(-3))	0.316734	0.033182	9.545432	0.0000
D(RESID(-4))	0.293471	0.031808	9.226294	0.0000
R-squared	0.122823	Mean dependent var		234399.7
Adjusted R-squared	0.120878	S.D. dependent var		12482911
S.E. of regression	11704166	Akaike info criterion		35.39155
Sum squared resid	2.47E+17	Schwarz criterion		35.40675
Log likelihood	-32006.66	Hannan-Quinn criter.		35.39716
Durbin-Watson stat	2.163159			

APPENDIX VII: Johansen Fisher Panel Co-integration Output Data
ROA = TDTA + TDTE + STDTA + TANG + FMS + GRT + RISK + TAX

Series: ROA TDTA TDTE STDTE TANG FMS GRT RISK TAX
 Unrestricted Cointegration Rank Test (Trace and Maximum Eigenvalue)

Hypothesized No. of CE(s)	Fisher Stat.* (from trace test)	Prob.	Fisher Stat.* (from max-eigen test)	Prob.
None	98.43	0.9979	98.43	0.9979
At most 1	98.43	0.9979	98.43	0.9979
At most 2	91.50	0.9997	183.6	0.0107

At most 3	42.98	1.0000	779.8	0.0000
At most 4	6.931	1.0000	1223.	0.0000
At most 5	18.42	1.0000	1308.	0.0000
At most 6	1271.	0.0000	1308.	0.0000
At most 7	989.5	0.0000	854.1	0.0000
At most 8	425.5	0.0000	425.5	0.0000

ROE TDTA+ TDTE+STDTE +TANG +FMS +GRT+RISK+TAX

Series: ROE TDTA TDTE STDTE TANG FMS GRT RISK TAX

Unrestricted Cointegration Rank Test (Trace and Maximum Eigenvalue)

Hypothesized No. of CE(s)	Fisher Stat.* (from trace test)	Prob.	Fisher Stat.* (from max-eigen test)	Prob.
None	98.43	0.9979	98.43	0.9979
At most 1	98.43	0.9979	98.43	0.9979
At most 2	92.88	0.9995	166.6	0.0778
At most 3	49.91	1.0000	694.6	0.0000
At most 4	2.773	1.0000	1274.	0.0000
At most 5	18.42	1.0000	1308.	0.0000
At most 6	1271.	0.0000	1308.	0.0000
At most 7	1091.	0.0000	985.1	0.0000
At most 8	416.9	0.0000	416.9	0.0000

NPM+TDTA+TDTE+STDTE+TANG+FMS+GRT+RISK+TAX

Series: NPM TDTA TDTE STDTE TANG FMS GRT RISK TAX

Unrestricted Cointegration Rank Test (Trace and Maximum Eigenvalue)

Hypothesized No. of CE(s)	Fisher Stat.* (from trace test)	Prob.	Fisher Stat.* (from max-eigen test)	Prob.
None	98.43	0.9979	98.43	0.9979
At most 1	97.04	0.9985	115.5	0.9500
At most 2	91.50	0.9997	183.6	0.0107
At most 3	49.91	1.0000	694.6	0.0000
At most 4	6.931	1.0000	1223.	0.0000
At most 5	18.42	1.0000	1308.	0.0000
At most 6	1271.	0.0000	1308.	0.0000
At most 7	1067.	0.0000	930.2	0.0000
At most 8	454.8	0.0000	454.8	0.0000

GRV=TDTA+TDTE+STDTE+TANG+FMS+GRT+RISK+TAX

Series: GRV TDTA TDTE STDTE TANG FMS GRT RISK TAX

Unrestricted Cointegration Rank Test (Trace and Maximum Eigenvalue)

Hypothesized No. of CE(s)	Fisher Stat.* (from trace test)	Prob.	Fisher Stat.* (from max-eigen test)	Prob.
None	95.65	0.9977	95.65	0.9977
At most 1	95.65	0.9977	95.65	0.9977
At most 2	95.65	0.9977	95.65	0.9977
At most 3	58.22	1.0000	555.6	0.0000
At most 4	8.318	1.0000	1169.	0.0000
At most 5	18.42	1.0000	1271.	0.0000
At most 6	1234.	0.0000	1271.	0.0000
At most 7	1054.	0.0000	915.3	0.0000
At most 8	513.5	0.0000	513.5	0.0000

APPENDIX VIII: Panel OLS Analysis Output Data
ROA = TDTA + TDTE + STDTA + TANG + FMS
+ GRT + RISK + TAX
Dependent Variable: ROA. POOLED

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.010721	0.023598	0.454306	0.6506
TDTA	2.17E-07	2.01E-06	0.108015	0.9142
TDTE	-0.001584	0.002058	-0.769586	0.4433
STDTE	-0.101420	0.040237	-2.520543	0.0133
TANG	0.021508	0.039580	0.543413	0.5880
FMS	2.24E-08	1.02E-08	2.193736	0.0305
GRT	6.99E-09	1.90E-08	0.368538	0.7132
RISK	0.580802	0.057053	10.18009	0.0000
ROA(-1)	0.320525	0.057946	5.531441	0.0000
R-squared	0.787081	Mean dependent var		0.068662
Adjusted R-squared	0.770216	S.D. dependent var		0.233958
S.E. of regression	0.112150	Akaike info criterion		-1.459686
Sum squared resid	1.270336	Schwarz criterion		-1.238737
Log likelihood	89.28271	Hannan-Quinn criter.		-1.370068
F-statistic	46.66979	Durbin-Watson stat		1.921272
Prob(F-statistic)	0.000000			

Dependent Variable: ROA. FIXED EFFECT

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.009118	0.023554	0.387126	0.6995
TDTA	2.05E-07	2.01E-06	0.102461	0.9186
TDTE	-0.001528	0.002052	-0.744715	0.4582
STDTE	-0.101677	0.040106	-2.535174	0.0128
TANG	0.027966	0.039768	0.703227	0.4835
FMS	1.99E-08	1.04E-08	1.919011	0.0578
GRT	-9.81E-09	2.29E-08	-0.427607	0.6699
RISK	0.575745	0.057002	10.10053	0.0000
TAX	5.22E-07	4.05E-07	1.289468	0.2002
ROA(-1)	0.305093	0.058984	5.172511	0.0000
R-squared	0.790563	Mean dependent var		0.068662
Adjusted R-squared	0.771714	S.D. dependent var		0.233958
S.E. of regression	0.111784	Akaike info criterion		-1.457994
Sum squared resid	1.249559	Schwarz criterion		-1.212496
Log likelihood	90.18969	Hannan-Quinn criter.		-1.358419
F-statistic	41.94121	Durbin-Watson stat		1.959567
Prob(F-statistic)	0.000000			

Dependent Variable: ROA. FIXED EFFECT

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.010402	0.025389	-0.409699	0.6831
TDTA	9.57E-07	2.23E-06	0.428833	0.6692
TDTE	-0.001031	0.002420	-0.425999	0.6713
STDTE	-0.069760	0.049207	-1.417685	0.1602
TANG	0.040749	0.043129	0.944817	0.3476
FMS	2.04E-08	1.24E-08	1.643063	0.1043
GRT	-6.44E-09	2.56E-08	-0.251583	0.8020
RISK	0.534788	0.065379	8.179821	0.0000
TAX	4.86E-07	4.13E-07	1.176720	0.2428
ROA(-1)	0.350349	0.069936	5.009597	0.0000

Effects Specification

Period fixed (dummy variables)

R-squared	0.837360	Mean dependent var	0.068662
Adjusted R-squared	0.775598	S.D. dependent var	0.233958
S.E. of regression	0.110829	Akaike info criterion	-1.329060
Sum squared resid	0.970356	Schwarz criterion	-0.568015
Log likelihood	104.0983	Hannan-Quinn criter.	-1.020376
F-statistic	13.55785	Durbin-Watson stat	1.926935
Prob(F-statistic)	0.000000		

Dependent Variable: ROA. RANDOM EFFECT

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.009118	0.023353	0.390462	0.6970
TDTA	2.05E-07	1.99E-06	0.103343	0.9179
TDTE	-0.001528	0.002034	-0.751133	0.4543
STDTE	-0.101677	0.039764	-2.557021	0.0121
TANG	0.027966	0.039428	0.709287	0.4798
FMS	1.99E-08	1.03E-08	1.935548	0.0557
GRT	-9.81E-09	2.28E-08	-0.431292	0.6672
RISK	0.575745	0.056514	10.18757	0.0000
TAX	5.22E-07	4.01E-07	1.300579	0.1964
ROA(-1)	0.305093	0.058480	5.217085	0.0000

Effects Specification

	S.D.	Rho
Period random	0.000000	0.0000
Idiosyncratic random	0.110829	1.0000

Weighted Statistics

R-squared	0.790563	Mean dependent var	0.068662
Adjusted R-squared	0.771714	S.D. dependent var	0.233958
S.E. of regression	0.111784	Sum squared resid	1.249559
F-statistic	41.94121	Durbin-Watson stat	1.959567
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.790563	Mean dependent var	0.068662
Sum squared resid	1.249559	Durbin-Watson stat	1.959567

Correlated Random Effects - Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random	10.959739	9	0.2785

** WARNING: estimated period random effects variance is zero.

$$\text{ROE} = \text{TDTA} + \text{TDTE} + \text{STDTE} + \text{TANG} + \text{FMS} + \text{GRT} + \text{RISK} + \text{TAX}$$

Dependent Variable: ROE. RANDOM EFFECT

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.026842	0.117716	0.228020	0.8201
TDTA	-2.12E-06	1.03E-05	-0.204851	0.8381

TDTE	-0.008101	0.010585	-0.765327	0.4458
STDTE	-0.434264	0.200810	-2.162558	0.0328
TANG	0.240123	0.200689	1.196493	0.2342
FMS	2.66E-08	5.35E-08	0.496548	0.6205
GRT	-5.86E-08	1.18E-07	-0.497554	0.6198
RISK	1.130666	0.259096	4.363891	0.0000
TAX	-4.11E-07	2.05E-06	-0.200941	0.8411

Effects Specification

	S.D.	Rho
Period random	0.000000	0.0000
Idiosyncratic random	0.578010	1.0000

Weighted Statistics

R-squared	0.247407	Mean dependent var	0.123324
Adjusted R-squared	0.190608	S.D. dependent var	0.643238
S.E. of regression	0.578697	Sum squared resid	35.49831
F-statistic	4.355809	Durbin-Watson stat	1.884893
Prob(F-statistic)	0.000143		

Unweighted Statistics

R-squared	0.247407	Mean dependent var	0.123324
Sum squared resid	35.49831	Durbin-Watson stat	1.884893

Correlated Random Effects - Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random	10.946739	8	0.2047

** WARNING: estimated period random effects variance is zero.

Dependent Variable: ROE. FIXED EFFECT

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.072222	0.128591	-0.561644	0.5759
TDTA	-3.49E-06	1.16E-05	-0.300440	0.7646
TDTE	-0.009406	0.012599	-0.746598	0.4574
STDTE	-0.269990	0.254610	-1.060405	0.2920
TANG	0.431563	0.220014	1.961527	0.0531
FMS	-1.40E-08	6.43E-08	-0.217598	0.8283
GRT	-1.12E-07	1.32E-07	-0.844573	0.4007
RISK	1.286058	0.291491	4.411995	0.0000
TAX	-6.12E-07	2.11E-06	-0.289753	0.7727

Effects Specification

Period fixed (dummy variables)

R-squared	0.405020	Mean dependent var	0.123324
Adjusted R-squared	0.192527	S.D. dependent var	0.643238
S.E. of regression	0.578010	Akaike info criterion	1.966564
Sum squared resid	28.06403	Schwarz criterion	2.706502
Log likelihood	-82.07744	Hannan-Quinn criter.	2.266901
F-statistic	1.906041	Durbin-Watson stat	1.833649
Prob(F-statistic)	0.011343		

Dependent Variable: ROE. POOLED

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.026842	0.117855	0.227750	0.8203
TDTA	-2.12E-06	1.04E-05	-0.204608	0.8383
TDTE	-0.008101	0.010597	-0.764419	0.4463
STDTE	-0.434264	0.201049	-2.159992	0.0330
TANG	0.240123	0.200927	1.195074	0.2347
FMS	2.66E-08	5.36E-08	0.495959	0.6210
GRT	-5.86E-08	1.18E-07	-0.496964	0.6202
RISK	1.130666	0.259404	4.358714	0.0000
TAX	-4.11E-07	2.05E-06	-0.200703	0.8413

R-squared	0.247407	Mean dependent var	0.123324
Adjusted R-squared	0.190608	S.D. dependent var	0.643238
S.E. of regression	0.578697	Akaike info criterion	1.818952
Sum squared resid	35.49831	Schwarz criterion	2.033773
Log likelihood	-95.58973	Hannan-Quinn criter.	1.906146
F-statistic	4.355809	Durbin-Watson stat	1.884893
Prob(F-statistic)	0.000143		

$$\text{NPM} = \text{TDTA} + \text{TDTE} + \text{STDTE} + \text{TANG} + \text{FMS} + \text{GRT} + \text{RISK} + \text{TAX}$$

Dependent Variable: NPM. POOLED

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.068425	0.206281	0.331708	0.7408
TDTA	4.39E-06	1.75E-05	0.250147	0.8030
TDTE	0.007402	0.017989	0.411483	0.6816
STDTE	-0.429331	0.345653	-1.242087	0.2171
TANG	-0.148205	0.345944	-0.428408	0.6693
FMS	-3.61E-07	9.71E-08	-3.719602	0.0003
GRT	5.41E-07	2.07E-07	2.614553	0.0103
RISK	0.086234	0.443147	0.194594	0.8461
TAX	-3.62E-06	3.47E-06	-1.041479	0.3002
NPM(-1)	0.505001	0.090707	5.567395	0.0000

R-squared	0.485398	Mean dependent var	-0.204619
Adjusted R-squared	0.439084	S.D. dependent var	1.307909
S.E. of regression	0.979550	Akaike info criterion	2.883061
Sum squared resid	95.95181	Schwarz criterion	3.128559
Log likelihood	-148.5684	Hannan-Quinn criter.	2.982636
F-statistic	10.48055	Durbin-Watson stat	2.060221
Prob(F-statistic)	0.000000		

Dependent Variable: NPM. FIXED EFFECT

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.120146	0.229523	0.523458	0.6021
TDTA	2.76E-07	2.01E-05	0.013701	0.9891
TDTE	0.012294	0.021887	0.561712	0.5759
STDTE	-0.617863	0.448106	-1.378831	0.1718
TANG	-0.254418	0.389254	-0.653605	0.5153
FMS	-3.02E-07	1.16E-07	-2.609751	0.0108
GRT	5.32E-07	2.40E-07	2.215391	0.0296
RISK	0.032924	0.507745	0.064843	0.9485
TAX	-3.23E-06	3.69E-06	-0.875366	0.3840
NPM(-1)	0.494619	0.103647	4.772129	0.0000

Effects Specification

Period fixed (dummy variables)			
R-squared	0.575595	Mean dependent var	-0.204619
Adjusted R-squared	0.414428	S.D. dependent var	1.307909
S.E. of regression	1.000847	Akaike info criterion	3.072175
Sum squared resid	79.13391	Schwarz criterion	3.833219
Log likelihood	-137.9696	Hannan-Quinn criter.	3.380858
F-statistic	3.571426	Durbin-Watson stat	2.055739
Prob(F-statistic)	0.000003		

Dependent Variable: NPM. RANDOM EFFECT

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.068425	0.210766	0.324650	0.7461
TDTA	4.39E-06	1.79E-05	0.244824	0.8071
TDTE	0.007402	0.018380	0.402727	0.6880
STDTE	-0.429331	0.353168	-1.215657	0.2270
TANG	-0.148205	0.353466	-0.419292	0.6759
FMS	-3.61E-07	9.92E-08	-3.640452	0.0004
GRT	5.41E-07	2.11E-07	2.558918	0.0120
RISK	0.086234	0.452782	0.190453	0.8493
TAX	-3.62E-06	3.55E-06	-1.019317	0.3105
NPM(-1)	0.505001	0.092679	5.448925	0.0000

Effects Specification

	S.D.	Rho
Period random	0.000000	0.0000
Idiosyncratic random	1.000847	1.0000

Weighted Statistics

R-squared	0.485398	Mean dependent var	-0.204619
Adjusted R-squared	0.439084	S.D. dependent var	1.307909
S.E. of regression	0.979550	Sum squared resid	95.95181
F-statistic	10.48055	Durbin-Watson stat	2.060221
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.485398	Mean dependent var	-0.204619
Sum squared resid	95.95181	Durbin-Watson stat	2.060221

Correlated Random Effects - Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random	7.069175	9	0.6299

** WARNING: estimated period random effects variance is zero.

**GRV = TDTA + TDTE + STDTE + TANG + FMS
+ GRT + RISK + TAX**

Dependent Variable: GRV. RANDOM EFFECT

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4789.544	16697.81	0.286837	0.7748
TDTA	0.557944	1.418518	0.393329	0.6949
TDTE	324.7441	1463.450	0.221903	0.8248

STDTE	2085.123	27699.49	0.075277	0.9401
TANG	-50994.16	28039.08	-1.818682	0.0720
FMS	-0.014316	0.007345	-1.949183	0.0541
GRT	0.076965	0.017798	4.324262	0.0000
RISK	73161.43	35911.85	2.037250	0.0443
TAX	1.800239	0.320150	5.623104	0.0000
GRV(-1)	0.114060	0.092462	1.233589	0.2202

Effects Specification

	S.D.	Rho
Period random	0.000000	0.0000
Idiosyncratic random	79222.62	1.0000

Weighted Statistics

R-squared	0.712831	Mean dependent var	43167.25
Adjusted R-squared	0.686985	S.D. dependent var	143341.5
S.E. of regression	80196.31	Sum squared resid	6.43E+11
F-statistic	27.58073	Durbin-Watson stat	1.696348
Prob(F-statistic)	0.000000		

Unweighted Statistics

R-squared	0.712831	Mean dependent var	43167.25
Sum squared resid	6.43E+11	Durbin-Watson stat	1.696348

Correlated Random Effects - Hausman Test

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Period random	11.492029	9	0.2435

** WARNING: estimated period random effects variance is zero.

Dependent Variable: GRV. FIXED EFFECT

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	8732.164	18151.33	0.481076	0.6318
TDTA	0.814666	1.594955	0.510777	0.6109
TDTE	205.6939	1754.835	0.117216	0.9070
STDTE	-14566.29	35104.86	-0.414937	0.6793
TANG	-62808.49	30890.59	-2.033257	0.0454
FMS	-0.007017	0.008833	-0.794446	0.4293
GRT	0.083193	0.020187	4.121101	0.0001
RISK	68827.76	40299.94	1.707887	0.0916
TAX	1.719023	0.328697	5.229806	0.0000
GRV(-1)	0.111513	0.101129	1.102681	0.2735

Effects Specification

Period fixed (dummy variables)

R-squared	0.778612	Mean dependent var	43167.25
Adjusted R-squared	0.694540	S.D. dependent var	143341.5
S.E. of regression	79222.62	Akaike info criterion	25.63052
Sum squared resid	4.96E+11	Schwarz criterion	26.39156
Log likelihood	-1378.678	Hannan-Quinn criter.	25.93920
F-statistic	9.261299	Durbin-Watson stat	1.732825
Prob(F-statistic)	0.000000		

Dependent Variable: GRV. POOLED

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	4789.544	16903.04	0.283354	0.7775
TDTA	0.557944	1.435952	0.388554	0.6984
TDTE	324.7441	1481.436	0.219209	0.8269
STDTE	2085.123	28039.93	0.074363	0.9409
TANG	-50994.16	28383.70	-1.796600	0.0754
FMS	-0.014316	0.007435	-1.925517	0.0570
GRT	0.076965	0.018017	4.271759	0.0000
RISK	73161.43	36353.23	2.012515	0.0469
TAX	1.800239	0.324085	5.554832	0.0000
GRV(-1)	0.114060	0.093599	1.218612	0.2259

R-squared	0.712831	Mean dependent var	43167.25
Adjusted R-squared	0.686985	S.D. dependent var	143341.5
S.E. of regression	80196.31	Akaike info criterion	25.50885
Sum squared resid	6.43E+11	Schwarz criterion	25.75435
Log likelihood	-1392.987	Hannan-Quinn criter.	25.60843
F-statistic	27.58073	Durbin-Watson stat	1.696348
Prob(F-statistic)	0.000000		

APPENDIX IX: Granger Causality Output Data

$$\text{ROA} = \text{TDTA} + \text{TDTE} + \text{STDTE} + \text{TANG} + \text{FMS} + \text{GRT} + \text{RISK} + \text{TAX}$$

Null Hypothesis:	Obs	F-Statistic	Prob.
TDTA does not Granger Cause ROA	2260	0.00176	0.9665
ROA does not Granger Cause TDTA		0.00180	0.9661
TDTE does not Granger Cause ROA	2263	0.00187	0.9655
ROA does not Granger Cause TDTE		0.00194	0.9648
STDTE does not Granger Cause ROA	2266	0.00105	0.9742
ROA does not Granger Cause STDTE		0.00107	0.9739
TANG does not Granger Cause ROA	2266	0.00099	0.9749
ROA does not Granger Cause TANG		0.00019	0.9889
FMS does not Granger Cause ROA	2266	0.03649	0.8485
ROA does not Granger Cause FMS		0.05566	0.8135
GRT does not Granger Cause ROA	2266	1.45111	0.2285
ROA does not Granger Cause GRT		0.92459	0.3364
RISK does not Granger Cause ROA	2266	0.36084	0.5481
ROA does not Granger Cause RISK		0.07220	0.7882
TAX does not Granger Cause ROA	2260	0.01766	0.8943
ROA does not Granger Cause TAX		0.11007	0.7401
TDTE does not Granger Cause TDTA	2257	0.01521	0.9019
TDTA does not Granger Cause TDTE		0.01375	0.9067
STDTE does not Granger Cause TDTA	2260	0.00805	0.9285
TDTA does not Granger Cause STDTE		0.00804	0.9286
TANG does not Granger Cause TDTA	2260	0.00832	0.9273
TDTA does not Granger Cause TANG		0.00141	0.9701

FMS does not Granger Cause TDTA	2260	0.03109	0.8601
TDTA does not Granger Cause FMS		0.12188	0.7270
<hr/>			
GRT does not Granger Cause TDTA	2260	0.64618	0.4216
TDTA does not Granger Cause GRT		0.12210	0.7268
<hr/>			
RISK does not Granger Cause TDTA	2260	0.09830	0.7539
TDTA does not Granger Cause RISK		0.12820	0.7203
<hr/>			
TAX does not Granger Cause TDTA	2254	0.21657	0.6417
TDTA does not Granger Cause TAX		0.54059	0.4623
<hr/>			
STDTE does not Granger Cause TDTE	2263	0.00916	0.9237
TDTE does not Granger Cause STDTE		0.00915	0.9238
<hr/>			
TANG does not Granger Cause TDTE	2263	0.00946	0.9225
TDTE does not Granger Cause TANG		0.00169	0.9672
<hr/>			
FMS does not Granger Cause TDTE	2263	0.27021	0.6032
TDTE does not Granger Cause FMS		0.15883	0.6903
<hr/>			
GRT does not Granger Cause TDTE	2263	0.14519	0.7032
TDTE does not Granger Cause GRT		0.03727	0.8469
<hr/>			
RISK does not Granger Cause TDTE	2263	0.04241	0.8369
TDTE does not Granger Cause RISK		0.02632	0.8711
<hr/>			
TAX does not Granger Cause TDTE	2257	0.86443	0.3526
TDTE does not Granger Cause TAX		0.59194	0.4418
<hr/>			
TANG does not Granger Cause STDTE	2266	0.00501	0.9436
STDTE does not Granger Cause TANG		0.00082	0.9772
<hr/>			
FMS does not Granger Cause STDTE	2266	0.15343	0.6953
STDTE does not Granger Cause FMS		0.02171	0.8829
<hr/>			
GRT does not Granger Cause STDTE	2266	0.15600	0.6929
STDTE does not Granger Cause GRT		0.01804	0.8932
<hr/>			
RISK does not Granger Cause STDTE	2266	1.64084	0.2003
STDTE does not Granger Cause RISK		0.09997	0.7519
<hr/>			
TAX does not Granger Cause STDTE	2260	0.18146	0.6702
STDTE does not Granger Cause TAX		0.03566	0.8502
<hr/>			
FMS does not Granger Cause TANG	2266	5.2E-05	0.9943
TANG does not Granger Cause FMS		4.3E-05	0.9947
<hr/>			
GRT does not Granger Cause TANG	2266	0.02543	0.8733
TANG does not Granger Cause GRT		0.00407	0.9491
<hr/>			
RISK does not Granger Cause TANG	2266	2.6E-05	0.9960
TANG does not Granger Cause RISK		0.26675	0.6056
<hr/>			
TAX does not Granger Cause TANG	2260	0.07007	0.7913
TANG does not Granger Cause TAX		0.07480	0.7845
<hr/>			
GRT does not Granger Cause FMS	2266	1.12934	0.2880
FMS does not Granger Cause GRT		9.81787	0.0018
<hr/>			
RISK does not Granger Cause FMS	2266	1.48500	0.2231
FMS does not Granger Cause RISK		0.58130	0.4459

TAX does not Granger Cause FMS	2260	85.8977	4.E-20
FMS does not Granger Cause TAX		0.07880	0.7790
RISK does not Granger Cause GRT	2266	0.19200	0.6613
GRT does not Granger Cause RISK		0.00322	0.9547
TAX does not Granger Cause GRT	2260	49.8820	2.E-12
GRT does not Granger Cause TAX		11.6948	0.0006
TAX does not Granger Cause RISK	2260	6.35344	0.0118
RISK does not Granger Cause TAX		0.45638	0.4994

ROE = TDTA + TDTE + STDTE + TANG + FMS + GRT + RISK + TAX

Null Hypothesis:	Obs	F-Statistic	Prob.
TDTA does not Granger Cause ROE	2260	0.00230	0.9617
ROE does not Granger Cause TDTA		0.00260	0.9594
TDTE does not Granger Cause ROE	2263	0.00271	0.9585
ROE does not Granger Cause TDTE		0.00274	0.9583
STDTE does not Granger Cause ROE	2266	0.00140	0.9701
ROE does not Granger Cause STDTE		0.00155	0.9686
TANG does not Granger Cause ROE	2266	0.00149	0.9692
ROE does not Granger Cause TANG		0.00029	0.9864
FMS does not Granger Cause ROE	2266	0.05729	0.8108
ROE does not Granger Cause FMS		2.04532	0.1528
GRT does not Granger Cause ROE	2266	0.06075	0.8053
ROE does not Granger Cause GRT		1.72125	0.1897
RISK does not Granger Cause ROE	2266	0.11764	0.7316
ROE does not Granger Cause RISK		0.00401	0.9495
TAX does not Granger Cause ROE	2260	0.00211	0.9633
ROE does not Granger Cause TAX		0.07379	0.7859
TDTE does not Granger Cause TDTA	2257	0.01521	0.9019
TDTA does not Granger Cause TDTE		0.01375	0.9067
STDTE does not Granger Cause TDTA	2260	0.00805	0.9285
TDTA does not Granger Cause STDTE		0.00804	0.9286
TANG does not Granger Cause TDTA	2260	0.00832	0.9273
TDTA does not Granger Cause TANG		0.00141	0.9701
FMS does not Granger Cause TDTA	2260	0.03109	0.8601
TDTA does not Granger Cause FMS		0.12188	0.7270
GRT does not Granger Cause TDTA	2260	0.64618	0.4216
TDTA does not Granger Cause GRT		0.12210	0.7268
RISK does not Granger Cause TDTA	2260	0.09830	0.7539
TDTA does not Granger Cause RISK		0.12820	0.7203
TAX does not Granger Cause TDTA	2254	0.21657	0.6417
TDTA does not Granger Cause TAX		0.54059	0.4623

STDTE does not Granger Cause TDTE	2263	0.00916	0.9237
TDTE does not Granger Cause STDTE		0.00915	0.9238
<hr/>			
TANG does not Granger Cause TDTE	2263	0.00946	0.9225
TDTE does not Granger Cause TANG		0.00169	0.9672
<hr/>			
FMS does not Granger Cause TDTE	2263	0.27021	0.6032
TDTE does not Granger Cause FMS		0.15883	0.6903
<hr/>			
GRT does not Granger Cause TDTE	2263	0.14519	0.7032
TDTE does not Granger Cause GRT		0.03727	0.8469
<hr/>			
RISK does not Granger Cause TDTE	2263	0.04241	0.8369
TDTE does not Granger Cause RISK		0.02632	0.8711
<hr/>			
TAX does not Granger Cause TDTE	2257	0.86443	0.3526
TDTE does not Granger Cause TAX		0.59194	0.4418
<hr/>			
TANG does not Granger Cause STDTE	2266	0.00501	0.9436
STDTE does not Granger Cause TANG		0.00082	0.9772
<hr/>			
FMS does not Granger Cause STDTE	2266	0.15343	0.6953
STDTE does not Granger Cause FMS		0.02171	0.8829
<hr/>			
GRT does not Granger Cause STDTE	2266	0.15600	0.6929
STDTE does not Granger Cause GRT		0.01804	0.8932
<hr/>			
RISK does not Granger Cause STDTE	2266	1.64084	0.2003
STDTE does not Granger Cause RISK		0.09997	0.7519
<hr/>			
TAX does not Granger Cause STDTE	2260	0.18146	0.6702
STDTE does not Granger Cause TAX		0.03566	0.8502
<hr/>			
FMS does not Granger Cause TANG	2266	5.2E-05	0.9943
TANG does not Granger Cause FMS		4.3E-05	0.9947
<hr/>			
GRT does not Granger Cause TANG	2266	0.02543	0.8733
TANG does not Granger Cause GRT		0.00407	0.9491
<hr/>			
RISK does not Granger Cause TANG	2266	2.6E-05	0.9960
TANG does not Granger Cause RISK		0.26675	0.6056
<hr/>			
TAX does not Granger Cause TANG	2260	0.07007	0.7913
TANG does not Granger Cause TAX		0.07480	0.7845
<hr/>			
GRT does not Granger Cause FMS	2266	1.12934	0.2880
FMS does not Granger Cause GRT		9.81787	0.0018
<hr/>			
RISK does not Granger Cause FMS	2266	1.48500	0.2231
FMS does not Granger Cause RISK		0.58130	0.4459
<hr/>			
TAX does not Granger Cause FMS	2260	85.8977	4.E-20
FMS does not Granger Cause TAX		0.07880	0.7790
<hr/>			
RISK does not Granger Cause GRT	2266	0.19200	0.6613
GRT does not Granger Cause RISK		0.00322	0.9547
<hr/>			
TAX does not Granger Cause GRT	2260	49.8820	2.E-12
GRT does not Granger Cause TAX		11.6948	0.0006
<hr/>			
TAX does not Granger Cause RISK	2260	6.35344	0.0118
RISK does not Granger Cause TAX		0.45638	0.4994

$$\text{NPM} = \text{TDTA} + \text{TDTE} + \text{STDTE} + \text{TANG} + \text{FMS} + \text{GRT} + \text{RISK} + \text{TAX}$$

Null Hypothesis:	Obs	F-Statistic	Prob.
TDTA does not Granger Cause NPM	2260	0.01465	0.9037
NPM does not Granger Cause TDTA		0.00011	0.9917
TDTE does not Granger Cause NPM	2263	0.01913	0.8900
NPM does not Granger Cause TDTE		0.01964	0.8886
STDTE does not Granger Cause NPM	2266	2.34185	0.1261
NPM does not Granger Cause STDTE		0.01116	0.9159
TANG does not Granger Cause NPM	2266	0.01271	0.9102
NPM does not Granger Cause TANG		0.03673	0.8480
FMS does not Granger Cause NPM	2266	0.61572	0.4327
NPM does not Granger Cause FMS		0.04984	0.8234
GRT does not Granger Cause NPM	2266	0.19753	0.6568
NPM does not Granger Cause GRT		0.03882	0.8438
RISK does not Granger Cause NPM	2266	3.04147	0.0813
NPM does not Granger Cause RISK		1.47510	0.2247
TAX does not Granger Cause NPM	2260	0.67872	0.4101
NPM does not Granger Cause TAX		0.03348	0.8548
TDTE does not Granger Cause TDTA	2257	0.01521	0.9019
TDTA does not Granger Cause TDTE		0.01375	0.9067
STDTE does not Granger Cause TDTA	2260	0.00805	0.9285
TDTA does not Granger Cause STDTE		0.00804	0.9286
TANG does not Granger Cause TDTA	2260	0.00832	0.9273
TDTA does not Granger Cause TANG		0.00141	0.9701
FMS does not Granger Cause TDTA	2260	0.03109	0.8601
TDTA does not Granger Cause FMS		0.12188	0.7270
GRT does not Granger Cause TDTA	2260	0.64618	0.4216
TDTA does not Granger Cause GRT		0.12210	0.7268
RISK does not Granger Cause TDTA	2260	0.09830	0.7539
TDTA does not Granger Cause RISK		0.12820	0.7203
TAX does not Granger Cause TDTA	2254	0.21657	0.6417
TDTA does not Granger Cause TAX		0.54059	0.4623
STDTE does not Granger Cause TDTE	2263	0.00916	0.9237
TDTE does not Granger Cause STDTE		0.00915	0.9238
TANG does not Granger Cause TDTE	2263	0.00946	0.9225
TDTE does not Granger Cause TANG		0.00169	0.9672
FMS does not Granger Cause TDTE	2263	0.27021	0.6032
TDTE does not Granger Cause FMS		0.15883	0.6903
GRT does not Granger Cause TDTE	2263	0.14519	0.7032

TDTE does not Granger Cause GRT		0.03727	0.8469
RISK does not Granger Cause TDTE	2263	0.04241	0.8369
TDTE does not Granger Cause RISK		0.02632	0.8711
TAX does not Granger Cause TDTE	2257	0.86443	0.3526
TDTE does not Granger Cause TAX		0.59194	0.4418
TANG does not Granger Cause STDTE	2266	0.00501	0.9436
STDTE does not Granger Cause TANG		0.00082	0.9772
FMS does not Granger Cause STDTE	2266	0.15343	0.6953
STDTE does not Granger Cause FMS		0.02171	0.8829
GRT does not Granger Cause STDTE	2266	0.15600	0.6929
STDTE does not Granger Cause GRT		0.01804	0.8932
RISK does not Granger Cause STDTE	2266	1.64084	0.2003
STDTE does not Granger Cause RISK		0.09997	0.7519
TAX does not Granger Cause STDTE	2260	0.18146	0.6702
STDTE does not Granger Cause TAX		0.03566	0.8502
FMS does not Granger Cause TANG	2266	5.2E-05	0.9943
TANG does not Granger Cause FMS		4.3E-05	0.9947
GRT does not Granger Cause TANG	2266	0.02543	0.8733
TANG does not Granger Cause GRT		0.00407	0.9491
RISK does not Granger Cause TANG	2266	2.6E-05	0.9960
TANG does not Granger Cause RISK		0.26675	0.6056
TAX does not Granger Cause TANG	2260	0.07007	0.7913
TANG does not Granger Cause TAX		0.07480	0.7845
GRT does not Granger Cause FMS	2266	1.12934	0.2880
FMS does not Granger Cause GRT		9.81787	0.0018
RISK does not Granger Cause FMS	2266	1.48500	0.2231
FMS does not Granger Cause RISK		0.58130	0.4459
TAX does not Granger Cause FMS	2260	85.8977	4.E-20
FMS does not Granger Cause TAX		0.07880	0.7790
RISK does not Granger Cause GRT	2266	0.19200	0.6613
GRT does not Granger Cause RISK		0.00322	0.9547
TAX does not Granger Cause GRT	2260	49.8820	2.E-12
GRT does not Granger Cause TAX		11.6948	0.0006
TAX does not Granger Cause RISK	2260	6.35344	0.0118
RISK does not Granger Cause TAX		0.45638	0.4994

$$\text{GRV} = \text{TDTA} + \text{TDTE} + \text{STDTA} + \text{TANG} + \text{FMS} + \text{GRT} + \text{RISK} + \text{TAX}$$

Null Hypothesis:	Obs	F-Statistic	Prob.
TDTA does not Granger Cause GRV	2254	0.02530	0.8736
GRV does not Granger Cause TDTA		0.02761	0.8681
TDTE does not Granger Cause GRV	2257	0.45088	0.5020
GRV does not Granger Cause TDTE		60.6796	1.E-14

STDTE does not Granger Cause GRV	2260	6.6E-06	0.9979
GRV does not Granger Cause STDTE		0.05556	0.8137
TANG does not Granger Cause GRV	2260	0.00051	0.9820
GRV does not Granger Cause TANG		0.00304	0.9560
FMS does not Granger Cause GRV	2260	0.45279	0.5011
GRV does not Granger Cause FMS		3.15669	0.0758
GRT does not Granger Cause GRV	2260	5.21731	0.0225
GRV does not Granger Cause GRT		0.18458	0.6675
RISK does not Granger Cause GRV	2260	0.66951	0.4133
GRV does not Granger Cause RISK		0.63703	0.4249
TAX does not Granger Cause GRV	2254	0.59779	0.4395
GRV does not Granger Cause TAX		0.17186	0.6785
TDTE does not Granger Cause TDTA	2257	0.01521	0.9019
TDTA does not Granger Cause TDTE		0.01375	0.9067
STDTE does not Granger Cause TDTA	2260	0.00805	0.9285
TDTA does not Granger Cause STDTE		0.00804	0.9286
TANG does not Granger Cause TDTA	2260	0.00832	0.9273
TDTA does not Granger Cause TANG		0.00141	0.9701
FMS does not Granger Cause TDTA	2260	0.03109	0.8601
TDTA does not Granger Cause FMS		0.12188	0.7270
GRT does not Granger Cause TDTA	2260	0.64618	0.4216
TDTA does not Granger Cause GRT		0.12210	0.7268
RISK does not Granger Cause TDTA	2260	0.09830	0.7539
TDTA does not Granger Cause RISK		0.12820	0.7203
STDTE does not Granger Cause TDTE	2263	0.00916	0.9237
TDTE does not Granger Cause STDTE		0.00915	0.9238
TANG does not Granger Cause TDTE	2263	0.00946	0.9225
TDTE does not Granger Cause TANG		0.00169	0.9672
FMS does not Granger Cause TDTE	2263	0.27021	0.6032
TDTE does not Granger Cause FMS		0.15883	0.6903
GRT does not Granger Cause TDTE	2263	0.14519	0.7032
TDTE does not Granger Cause GRT		0.03727	0.8469
RISK does not Granger Cause TDTE	2263	0.04241	0.8369
TDTE does not Granger Cause RISK		0.02632	0.8711
TAX does not Granger Cause TDTE	2257	0.86443	0.3526
TDTE does not Granger Cause TAX		0.59194	0.4418
TANG does not Granger Cause STDTE	2266	0.00501	0.9436
STDTE does not Granger Cause TANG		0.00082	0.9772
FMS does not Granger Cause STDTE	2266	0.15343	0.6953
STDTE does not Granger Cause FMS		0.02171	0.8829

GRT does not Granger Cause STDTE	2266	0.15600	0.6929
STDTE does not Granger Cause GRT		0.01804	0.8932
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RISK does not Granger Cause STDTE	2266	1.64084	0.2003
STDTE does not Granger Cause RISK		0.09997	0.7519
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TAX does not Granger Cause STDTE	2260	0.18146	0.6702
STDTE does not Granger Cause TAX		0.03566	0.8502
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FMS does not Granger Cause TANG	2266	5.2E-05	0.9943
TANG does not Granger Cause FMS		4.3E-05	0.9947
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GRT does not Granger Cause TANG	2266	0.02543	0.8733
TANG does not Granger Cause GRT		0.00407	0.9491
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RISK does not Granger Cause TANG	2266	2.6E-05	0.9960
TANG does not Granger Cause RISK		0.26675	0.6056
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TAX does not Granger Cause TANG	2260	0.07007	0.7913
TANG does not Granger Cause TAX		0.07480	0.7845
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GRT does not Granger Cause FMS	2266	1.12934	0.2880
FMS does not Granger Cause GRT		9.81787	0.0018
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RISK does not Granger Cause FMS	2266	1.48500	0.2231
FMS does not Granger Cause RISK		0.58130	0.4459
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TAX does not Granger Cause FMS	2260	85.8977	4.E-20
FMS does not Granger Cause TAX		0.07880	0.7790
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RISK does not Granger Cause GRT	2266	0.19200	0.6613
GRT does not Granger Cause RISK		0.00322	0.9547
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TAX does not Granger Cause GRT	2260	49.8820	2.E-12
GRT does not Granger Cause TAX		11.6948	0.0006
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