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The Impact of Financial Structure on Firm Performance: A Study of Nigeria Agricultural and Healthcare Sector

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Author's contribution

This work was carried out in collaboration between authors EFN and AAC. Author EFN was responsible for study conceptualization and sourcing of relevant literature. EFN wrote the first draft of the manuscript and author AAC censoriously evaluated it. Author AAC assiduously sourced the data, performed the analysis and interpreted the results. Authors EFN and AAC read and approved the final version of the manuscript.

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ABSTRACT

This study examines the impact of financial structure on performance of agricultural and healthcare firms listed in Nigerian Stock Exchange for a period of twenty one (21) years 1993 to 2013. This study selected fifteen (15) out of the sixteen (16) firms listed on agricultural and healthcare sectors. Data were collected from the Nigerian Stock Exchange factbook of various issues as relevant and were analysed using the pooled OLS, fixed, random effect models and the granger causality test. Financial structure was surrogated by total debt to total equity ratio, short term debt to total equity and total debt to total assets ratio while firm performance was measured by return on assets, return on equity, earnings per share and profit before tax. The analysis for the agricultural firms revealed that financial structure significantly impacts on earnings per share but does not impact on return on equity, return on asset and profit before tax. For healthcare firms, financial structure significantly impacts on earnings per share and profit before tax but does not impact on return on

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equity and return on assets. On the impact of the control variables on performance, it was observed that it is only risk that is significant in determining performance of agricultural firms while tangibility, size, growth and tax are significant factors that impact on performance of healthcare firms. To this effect, we suggests that it is very crucial for firm's management to carefully look at the debt-equity mix, which according to the result of the study, significantly impacts on performance of firms in agricultural and healthcare sectors.

Keywords: Financial structure and performance; return on assets; return on equity; earnings per share; profit before tax; agricultural and healthcare firms.

1. BACKGROUND OF THE STUDY

Financial structure and firm performance has received considerable attention in the finance literature following the seminal work of [1]. Financial structure relates to the combination of sources from which long term funds are raise for the business. In other words, it means the composition of the firm's long term funds comprising of common equity, preference equity and debt. The financial structure of a firm consists of various sources, which are presented in the equity and liability side of the balance sheet [2]. Financial structure proposes the ratio between owned capital and borrowed capital. While planning the financial structure, proper balance between debt and equity is indispensable. There is no strongly binding rule in deciding the optimal financial structure. A firm may decide to go for equity financing or may decide on a certain ratio between equity and debt financing.

Firm's financial structure decision is necessary for it to compete effectively in the business environment. The decision is also important because of the need to maximize returns to various firm constituencies. The desire of most firm is to have a mix of debt, preferred stock and common stock which will maximise shareholders wealth or maximize market price per share. Weighted average cost of capital depends on the mix of different securities in the financial structure. A change of different securities in the financial structure will cause a change in the financial structure. Hence, there will be a mix of different securities in the financial structure at which weighted average cost of capital will be the least. [1] noted that in a world without corporate taxes financial structure is irrelevant. The firm value is independent of the financial structure decision as the value of a firm equals operating income divided by operating cost of capital. Thus, the mix between debt and equity is not important. Any benefit of low cost debt is completely offset by an increase in cost of equity due to use of borrowing.

Furthermore, [1] observed that with corporate taxes, value of levered firm equals the value of unlevered plus the value of the tax shield. Correspondingly, the higher the debt in the financial structure, the higher will be the value of a levered firm. The firm value can be increased by an equivalent increase in leverage level, and by implication, the firm should issue maximum debt. This is not the practice in the real world where firms by and large prefer internal financing and moderately source debt financing due to fear of bankruptcy cost. Debt financing gives firm tax advantage. On the other hand, the firm is under pressure to meet obligations arising from interest and principal payment. In the event that these obligations are not satisfied, the firm may be face with some ilk of financial difficulty. The possibility of bankruptcy has a negative impact on the value of the firm. Nonetheless, it is not the risk of bankruptcy itself that lowers value rather it is the cost associated with bankruptcy that lowers value. As the proportion of debt in the firm's financial structure is increased, the probability of bankruptcy increases also thus, the rate of return required by debt holders increases with leverage. The optimal ratio of debt to equity is determined by taking an increasing amounts of debt until the marginal gain from leverage is equal to the marginal expected loss from the bankruptcy cost.

In a bid to explain the impact financial structure decision has on firm performance, several theories such as pecking order theory, trade off theory and the agency cost theory were developed by some academic scholars in the past. The perking order theory as pioneered by [3] argues that equity is a less preferred means to raise capital because managers issue new equity (who are assumed to know better about true conditions of the firm than investors). Investors believe that managers overvalue the firms and are taking advantage of this over-valuation. As a result, investors will place a lower

value to the new equity issuance. The perking order theory preserves that businesses adhere to a hierarchy of financing sources and prefer internal financing when available, and debt is preferred over equity if external financing is required. Thus, the form of debt a firm chooses can act as a signal of its need for external finance. This sort of signalling can affect how outside investors view the firm as a potential investment, and once again must be considered by the people in charge of the firm when making financial structure decisions.

The agency cost theory by [4] brings to light the relationship that exist between firm managers, shareholders and debt holders as well as the impact this relationship exert on the financial structure. On the standpoint of agency theory, the optimal financial structure of the capital stems from a concession between sources of financing via common equity, preference equity and debts such that conflict of interest between suppliers of funds (equity and debt holders) and managers is appeased. [5] envisaged that the indebtedness allows shareholders and managers to adhere to same objectives, but causes other conflicts (between managers and shareholders, on the one hand, and creditors, on the other side). The optimal level of indebtedness is the one that allows the minimization of overall agency costs [5].

1.1 Statement of the Problem

Determining the debt to equity ratio that maximizes a firm value is difficult as it depends on business risk of the firm i.e. greater the business risk, the lower the optimal financial structure; tax situation of the firm i.e. if the firm cannot use tax deductions, then there is no benefit from debt; degree to which the firm's assets are tangible i.e. the more tangible, the greater the optimal financial structure; firm's corporate governance i.e. the better the governance, the lower the cost of equity and, therefore, the greater the financial structure and transparency of the financial information i.e. the more transparent, the lower the cost of equity and, therefore, the greater the optimal financial structure [6].

Scholars in financial literature have not found the debt to equity ratio that maximizes the value of a firm despite its theoretical influence. The best that academics and practitioners have been able to achieve are prescriptions that satisfies short-term goals. For instance, the empirical findings of [7] asserted that the positive impact of financial structure on the firm value tends to be stronger for firms of higher financial quality, firms with greater growth opportunities and firms with higher corporate tax rates. Furthermore, leverage may also have a positive impact on firm value provided that a firm with a higher free cash flow, a higher corporate rate or a higher inflation, is able to properly capitalize on the resultant opportunities. While this can be true in some circumstances, it fails to consider either the intricacies of the competitive environment which the firm operate, or the long-term survival needs of the firm. [8-11] have found that financial structure negatively impact on firm performance. On the basis of the argument above, empirical studies on the impact of financial structure on firm performance are inconsistent and controversial. The All Progressive Change (APC) led government has taking agricultural and healthcare sectors as its priorities. The president of the Federal Republic of Nigeria, Muhammadu Buhari, on 8th February, 2015 said the government will give agriculture the needed attention as part of effort to diversify the economy due to the fall in crude oil prices in the international market which has resulted in dwindling revenue of the federal government. The government has also embarked on healthcare sector reforms as a means of preventing capital flight through health tourism. It is ideal to look at the impact of financial structure on agricultural and healthcare sector of the economy based on priority placed on these sectors by the federal government under President Muhammadu Buhari.

1.2 Objectives of the Study

The focal intent of this study is to examine the impact of financial structure on performance of agricultural and healthcare firms. Explicitly, the study will:

1. Examine the impact of financial structure on return on equity of agricultural and healthcare firms.
2. Evaluate the impact of financial structure on return on assets of agricultural and healthcare firms.
3. Determine the impact of financial structure on earnings per share of agricultural and healthcare firms.
4. Assess the impact of financial structure on profit before tax of agricultural and healthcare firms.

The hypotheses that will be tested in the course of this study are affirmed below as:

1. Financial structure does not granger cause return on equity of agricultural and healthcare firms.
2. Financial structure does not granger cause return on assets of agricultural and healthcare firms.
3. Financial structure does not granger earnings per share of agricultural and healthcare firms.
4. Financial structure does not granger profit before tax of agricultural and healthcare firms.

2. REVIEW OF RELATED LITERATURE

2.1 Conceptual Exposition

Financial structure is considered as one of the important determinant of firm's success thus, the firm's choice of financial structure remains a complicated issue considering the unexplained financing behaviour [12]. Decision that relates to financial structure is very necessary and crucial for every firm [13]. In their attempt to maximise the overall value, firms differs with respect to financial structures [2]. The financial structure of a firm is defined to be the menu of the firm's liabilities that is, the right-hand side of the balance sheet. A great variety of types of securities can be and are used in firms' financial structures. In addition to common stock equity, some typical examples are bank loans, commercial paper, secured bonds, debentures, convertible bonds, income bonds, preferred stock, and warrants. The purpose of financial structure is to provide an overview of the level of the firm's risk. As a rule of thumb, the higher the proportion of debt financing a firm has, the higher its exposure to risk will be. A firm's financial structure points out how its assets are financed. When a firm finances its operations by opening up or increasing capital to an investor albeit preferred shares, common shares, or retained earnings, it avoids debt risk, thus reducing the potential that it will go bankrupt. Moreover, the owner may choose debt funding and maintain control over the company, increasing returns on the operations. Debt takes the form of a corporate bond issue, long-term loan, or short-term debt. The latter directly impacts the working capital. It is very important for a firm to manage its debt and equity financing because a favourable ratio will be attractive to potential investors in the business.

Performance is the execution or accomplishment of work feats etc. or a particular action, deed or proceeding. However, the manner in which or the efficiency with which something reacts or fulfils its intended purpose is defined as performance. Performance may thus, mean different things to different businesses. Success or failure in the economic sense is judged in relation to expectations, return on invested capital and the objective of the business concern. In understanding the term performance, a clear distinction needs to be drawn between performance measures and performance indicators. Performance measures need to be based on cat evaluation of the causes and effects of policy intervention whereas a performance indicator is less precise and usually provides only intermediate measure of achievement. Financial performance is the blue print of the financial affairs of an entity and reveals how a firm has prospered under the leadership of its management. The financial performance of any firm can always be judged in the lights of its objectives and the main objective of a firm is to earn profit and to enlarge profit by making the most efficient use of the resources available to them. The financial performance of firms could be analysed by a composite index of not only quantifiable selected trends and ratios, an analysis of the financial statements, a study of the cash flow and the fund flow statements etc. but also qualitative factors like operational efficiency and effectiveness and socio-economic development of the country.

2.2 Theoretical Background

Following the proposition of [1] on the inappositeness of financing cradle in determination of a firm value, the literature on financial structure has been expanded by many theoretical and empirical contributions [14]. The trade-off theory argues that an optimal financial structure may result from the balancing of the agency costs and benefits of debt [4]. The use of debt by a firm assuage the probable conflict between firm managers and common stock holders by alleviating dependence on external equity and by establishing a commitment to pay out cash in the form of interest. Nevertheless, according to [15], debt engenders a conflict of interest between bond holders and owners in the form of the "under investment" and "asset substitution" problems [16]. The under investment problem occurs when shareholders forego positive net present value projects if they anticipate that profits will be used to pay off bond

holders: a problem that is more pronounced in the case of growth firms. [16] noted that the asset substitution problem lies in the shareholders' incentive for risk shifting within a relationship where bond holders have a fixed claim on the firm's cash flows but shareholders hold the residual claim; the latter can then take action so as to increase the value of their claims while imposing additional, uncompensated risk on bond holders.

Myers and Majluf [3] through the pecking order theory suggested that when there is an information asymmetry between managers or inside owners and outside investors, the choice of or adjustments to the financial structure can influence the market's perception of the future stream of cash flows and affect the value of the firm. The issuance of new equity in the presence of information asymmetry could signal bad news [3]. Considered together with transactions costs, this information effect suggests a preference by the firm for a hierarchy of funding sources: Internally generated equity is preferred to debt, which, due to its lower uncertainty and associated cost, is in turn preferred to external equity [16]. In consistence with the pecking order theory, internal financing is preferred to raising funds externally. Thus, a more profitable firm that has a greater availability of internal funds will tend to rely less on external borrowing. A firm with greater investment opportunities will make more profit which in turn reduce the preference of debt, financing of operations will be heavily relied on internal financing.

2.3 Empirical Studies

The theories of financial structure have been largely studied in developed and under-developed countries of the world and the findings provides support to the various theories. A brief of such studies and findings are put together here. [17] assessed the development of financial structure and capital disparity across the farmers' cooperatives from fourteen regions of the Czech Republic for time series 2009 – 2013. Data were obtained and processed from the database of enterprises of Albertina. The financial and economic crisis lowered the debt to equity ratio and debt to assets ratio and the profitability ratios as well and the indicators reports V-shaped trend. The impact of financial structure indicators on the profitability of cooperatives seems to be not significant during the monitored period.

Saeed et al. [18] conducted an empirical study on the determinants of the financial structure of pharmaceutical firms of Pakistan listed at Karachi Stock Exchange. The study used data from 2004-2011 from the statement of balance sheet analysis published by Central Bank of Pakistan. The study employed a fixed effect panel data methodology. Firm size, profitability, tangibility, growth, liquidity, earning volatility, non-debt tax shields, CEO duality, CEO Tenure, Board size affect the firms' level of leverage.

Jawade [19] investigated the influence of financial structure on performance of pharmaceutical firms across various market capitalizations. Data for period of 2008-2013 was undertaken for the study. The study asserted that the firms studied have been cautious in their approach for bringing in optimal financial structure. Irrespective of capitalization, firms have not particularly shown an inclination for pecking order theory or chosen the option of leverage even if in best position to do so. However, there were some exceptions which indeed followed the theory of resorting to pecking order but it could be measured as an aberration rather than a rule.

Bassey [20] examined the determinants of financial structure of agro-listed firms in Nigeria, using data generated from the financial statements of twenty eight (28) agro-allied firms, which have been listed in the Nigeria Stock Exchange (NSE) from 2005 to 2010. The major tool for data analysis was Ordinary Least Squares (OLS). Highly tangible firms use more short-term debts, as high tangible asset reduced the magnitude of debt loss incurred by debt providers if the firms default. Agro-listed firms with high taxes use more short term debts in their finances. Highly profitable firms do not depend on short-term debts. Highly profitable firms use less long term debts while large sized firms depend on long term debt for their finances because of high tangible assets at their disposal as collaterals.

Tan and Hamid [13] explored the relationship between financial structure and firm performance. The sample of the study was 41 listed firms in Bursa Malaysia from year 2007 to year 2011. This study used four financial structure measures as independent variables which are short-term debt to total assets, long-term debt to total assets, total debt to total assets and total debt to total equity. Another five firm performance indices as dependent variables which are return on equity, return on assets, gross profit margin, earnings per share and price

earnings. Financial structure variable which measured by total debt to total assets, short-term debt to total assets and long-term debt to total assets have significant positive relationships with return on equity, return on assets; and significant negative relationships with gross profit margin.

Njagi [21] looked into the relationship between financial structure and financial performance of agricultural firms listed at the Nairobi Stock Exchange. The population of the study was all the 7 firms listed in the Nairobi Stock Exchange under the agricultural sector. The quantitative method of data analysis and inferential analysis were used as analysis techniques. The Adjusted R-squared showed that the variation of financial performance of agricultural firms listed in the Nairobi Stock Exchange were due to variations in short term long term debt and revenue.

Mohammadzadeha et al. [22] determined the relationship between the financial structure and the profitability of pharmaceutical firms in Iran. For this purpose, top 30 Iranian pharmaceutical firms defined as study samples and their financial data were gathered for the period of 2001-2010. They applied the net margin 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 a significant negative relationship between profitability and financial structure which means that pharmaceutical firms have established a pecking order theory and internal financing by the firms have led to more profitability.

Ana et al. [23] attempted to identify empirical evidences for structural determinants on Macedonian agricultural firms' financial performance and to explain the financial strategy of these firms to earn profit. The analysis applied a dynamic panel data consisting of 26 Macedonian agricultural firms during the period 2006-2010. Results suggest that Macedonian agricultural firms in the short run are limited by pricing flexibility undertaking different strategies to increase profitability. Furthermore, statistical evidences do not support the hypothesis of that high-levered agricultural firms in Macedonia have higher opportunities to profit.

Kumar et al. [24] ascertained the financial structure pattern of various pharmaceutical firms for the period of 2007-2011 and analyse the effect of changes in financial structure on its investment pattern over the period. The study revealed that financial structure decision of the pharmaceutical firms have very little effect on its investment pattern, which defines that the firm is using long term sources of funds to finance its current assets and its operational activities of its business with the object to attain the long term solvency and maximising profitability with least cost of capital.

Zambuto et al. [25] dealt with the financial structure problem in the pharmaceutical industry that has recently changed its business model because of the biotechnology advent. They proposed some set of hypotheses that explains the drivers of financial structure decision in the industry and tested their validity over a sample of 50 biopharmaceutical firms. The obtained result showed that pecking order theory is suitable to explain intra industry differences in financial structure while growth opportunities are the most explicative variable.

3. METHODOLOGY

The population of this study is made of agricultural and healthcare firms listed in Nigerian Stock Exchange for the period 1993 to 2013. The financial data were obtained from the Nigerian Stock Exchange (NSE) fact book of various years based on the financial statement tendered by firms in compliance with the rule and regulation of listing on the floor of the exchange. The sample of this study comprises of 15 firms (5 agricultural firms and 10 healthcare firms) from the total of 16 firms listed on the agricultural and healthcare sectors of the Nigerian Stock Exchange.

3.1 Description of Variables

Return on Equity (ROE), Return on Assets (ROA), Earnings per Share (EPS) and Profit before Tax (PBT) are the dependent variables. Return of assets measures efficiency of a firm in utilizing its assets to generate profit. It is the ratio of profit after tax to total assets. Return on equity is financial performance indicator which measure profitability by revealing how much profit a firm generates with the money invested by shareholders or common stock holders. Return on equity as used in this work is the ratio of profit after tax to book value of owner equity. The financial structure variables are Total Debt to Total Equity (TDTE), Short Term Debt to Total Equity (STDTE) and Total Debt to Total Assets (TDTA). Tangibility, firm size, growth opportunities, risk and tax were added as control variables. These variables have been applied by [9,13,8,21,11].

3.2 Econometric Model

This study adopted the model of [13] with some modification. The general model of the study is developed as follows:

$$Y_{i,t} = a_i + \beta_1 X_{i,t} + \beta_2 Z_{i,t} + \varepsilon_{i,t} \quad (3.1)$$

Where $Y_{i,t}$: Firm performance/dependent variable for firm i in year t, a_i: coefficient constant for firm i , β_i : Slope coefficient of the independent variables of firm i, $X_{i,t}$: Financial structure of firm i in year t and $\varepsilon_{i,t}$ is the error term of firm i in year t.

Note: $Y_{i,t}$ in equation 3.1 is performance indicator of the agricultural and healthcare firms selected for the purpose of this study and was decomposed to include Return on Assets (ROA), Return on Equity (ROE), Earnings per Share (EPS) and Profit before Tax (PBT). $\beta_i X_{i,t}$ in equation 3.1 on the other hand reflects firm's financial structure and was disintegrated as Total Debt to Total Equity (TDTE), Short Term Debt to Total Equity (STDTE) and Total Debt to Total Assets (TDTA). $\beta_2 Z_{i,t}$ reflects the control variables which include tangibility, firm size, growth opportunities, risk and tax.

3.2.1 Total Debt to Total Equity (TDTE)

This measures the leverage of the firms. This ratio indicates how much debt a firm is using to finance its assets relative to the amount of value represented in shareholders' equity. It is the ratio of total debt to total equity.

3.2.2 Total Debt to Total Asset (TDTA)

This indicates the portion of a firm's total assets that were financed by debt. This was calculated by dividing the total liabilities by total assets of the firm.

3.2.3 Short Term Debt to Total Equity (STDTE)

This is the ratio of short term firm's liabilities to total equity. Short term debt comprised of any debt incurred by a firm that is due within one year.

3.2.4 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.

3.2.5 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.

3.2.6 Growth

Growth is normally measured by the revenue of a firm occasioned by increase in sales or by increasing profitability through reduction in cost of capital and other associated costs. Firms with higher growth ratio tends to have higher returns on investment arguably attributed to diversification in investments. High growth rates lowers cost of capital and maximizes performance. Growth was measured by the growth rate of sales.

3.2.7 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.

3.2.8 Tax

This is the amount of money a firm pays out of its profit at the end of each trading year. The taxation in this work is the corporate tax firms pays to government agencies and reflected in the statement of accounts.

4. RESULTS AND ANALYSIS

4.1 Summary of Descriptive Statistics

4.1.1 Agricultural firms

Empirical analysis begins with the estimation of the descriptive statistics of the data. The statistical characteristics of the variables in the models are summarised in Table 4.1a and Table 4.1b.

The mean value of total debt to total equity is the highest among the financial structure variables in

the models. The changes in total debt to total equity maintained the highest central value of 0.62 compared to short term debt to total equity and total debt to total assets. Among all the explanatory variables, tax has the highest spread of data from 996,768.0 to 0.00. Firm's size, tangibility and growth are the other three most dynamic explanatory variables with a standard deviation of 5,974,169.0, 7678.6 and 38.2 respectively.

Taking inferences from the largeness of the mean values relative to the median values in all the variables, it is detected that all the earnings per share, short term debt to total equity, total debt to total equity, tangibility, size and tax are positively skewed towards normality. On the other hand, return on equity, return on assets, profit before tax, total debt to total equity, growth and risk are not positively skewed to normality. The Kurtosis of all the variables are greater than 3.0, indicating that all the variables are leptokurtic in nature.

The probability value of Jarque-Bera statistic for all the independent variables are statistical significant at 5% level. To this effect, all the explanatory variables in the models are normally distributed.

4.1.2 Healthcare firms

Table 4.1c and Table 4.1d summarises the descriptive results of the healthcare firms. The mean value of total debt to total equity is the highest among the financial structure variables in the models. The variations in total debt to total equity has the highest value of 1,105 followed by total debt to total assets and short term debt to total equity ratios. From the maximum and minimum values of the explanatory variables, firm size has the highest spread of data from 26,213,663 to 0.00. Firm's size, tax and total debt to total equity are the other three most dynamic explanatory variables with a standard deviation of 3451290.0, 191915.5 and 7680.8 respectively.

Table 4.1a. Summary of descriptive statistics

	ROE	ROA	EPS	PBT	TDTE	STDTE
Mean	0.271623	0.149893	111.0997	-135277.3	0.628416	0.424236
Median	0.102190	0.062830	8.160000	64208.00	0.213290	0.018800
Maximum	4.727620	4.952450	3023.000	25383749	6.595180	5.298160
Minimum	-3.373250	-8.994800	-49.82000	-31231523	0.000000	0.000000
Std. Dev.	0.845347	1.244253	380.5215	5303460.	1.040359	0.754015
Skewness	2.320030	-2.869814	6.073843	-2.417425	2.986695	3.316973
Kurtosis	18.19602	33.09780	42.43603	23.47779	13.94361	18.83631
Jarque-Bera	1104.466	4107.340	7449.604	1936.881	680.0678	1289.741
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	28.52046	15.73879	11665.47	-14204114	65.98373	44.54478
Sum Sq. Dev.	74.31955	161.0093	15058850	2.93E+15	112.5642	59.12806
Observations	105	105	105	105	105	105

Source: *Authors' computation*

Table 4.1b. Summary of descriptive statistics

	TDTA	TANG.	Size	Growth	Risk	Tax
Mean	0.340932	750.0968	2830824.	8.091274	0.094466	66453.99
Median	0.203020	0.771450	649176.0	0.000000	0.038700	516.0000
Maximum	5.592520	78683.00	31054673	154.1471	0.785850	996768.0
Minimum	0.000000	-0.623930	0.000000	-200.8721	-0.204260	0.000000
Std. Dev.	0.641355	7678.602	5974169.	38.15192	0.157012	171593.4
Skewness	5.889302	10.09998	3.635604	-1.295268	1.586689	3.652528
Kurtosis	45.72621	103.0096	15.98284	13.24714	6.395220	17.22243
Jarque-Bera	8593.658	45543.58	968.7328	488.7521	94.49059	1118.431
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	35.79787	78760.16	2.97E+08	849.5838	9.918950	6977669.
Sum Sq. Dev.	42.77895	6.13E+09	3.71E+15	151379.1	2.563878	3.06E+12
Observations	105	105	105	105	105	105

Source: *Authors' computation*

With regards to the largeness of the mean values relative to the median values in all the variables, it is observed that all the variables in the models are positively skewed towards normality with exception of earnings per share and growth which are less than 3.0. The Kurtosis of all the variables are greater than 3.0, indicating that all the variables are leptokurtic in nature.

The probability value of Jarque-Bera statistic for all the independent variables are statistical significant at 5% level. To this effect, all the explanatory variables in the models are normally distributed.

4.2 Summary of Diagnostic Test Results

4.2.1 White's test for heteroscedasticity

The probability of the Chq statistic for all the models are significant at 5% level of significance, suggesting that there is no existence of heterscedasticity in all the models. This is in line with econometric assumption that a model should be free from problem of heteroscedasticity. Table 4.2a present the white test for heteroscedascticity for all the models.

4.2.2 Ramsey RESET specification test

The probability values of all the models are significant at 5% level of significance with the exception of model 4. The alternate hypothesis that the models are well specified except for model 4. Table 4.2b summarizes the result of the Ramsey RESET specification test.

4.2.3 Test for multicollinearity

4.2.3.1 Agricultural firms

The correlation matrix in Table 4.2c shows the result of the correlation between the explanatory variables. There is a negative relationship

Table 4.1c. Summary of descriptive statistics

	ROE	ROA	EPS	PBT	TDTE	STDTE
Mean	0.028956	73.18625	21.79231	169362.5	1105.120	83.46764
Median	0.101415	0.074280	12.84500	38301.50	0.278470	0.000000
Maximum	5.675220	15204.00	1020.000	4314829.	86764.00	17324.00
Minimum	-14.57260	-0.773100	-485.0000	-958983.0	0.000000	0.000000
Std. Dev.	1.188382	1054.201	124.8867	614662.3	7680.818	1201.191
Skewness	-8.817738	14.31799	2.540029	4.723696	8.674716	14.31799
Kurtosis	114.3068	206.0048	29.62053	28.12090	86.34368	206.0048
Jarque-Bera	110068.4	364268.4	6365.316	6242.713	62808.82	364268.4
Probability	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	6.022809	15222.74	4532.800	35227409	229865.0	17361.27
Sum Sq. Dev.	292.3360	2.30E+08	3228512.	7.82E+13	1.22E+10	2.99E+08
Observations	208	208	208	208	208	208

Source: *Authors' computation*

Table 4.1d. Summary of descriptive statistics

	TDTA	TANG.	SIZE	GROWTH	RISK	TAX
Mean	185.0544	0.273895	1864287.	10.62033	0.222567	66156.21
Median	0.217440	0.464525	566304.0	8.505800	0.073585	10078.50
Maximum	38424.00	7.172290	26213663	84.14050	13.51818	1395659.
Minimum	0.000000	-28.32256	0.000000	-38.45710	-1.260620	-105047.0
Std. Dev.	2664.203	2.937188	3451290.	19.49095	1.088080	191915.5
Skewness	14.31799	-7.891063	3.843323	0.409270	9.766261	5.040918
Kurtosis	206.0048	73.70636	21.85404	4.069990	112.4365	31.02971
Jarque-Bera	364268.5	45486.70	3592.849	15.72902	107101.5	7690.002
Probability	0.000000	0.000000	0.000000	0.000384	0.000000	0.000000
Sum	38491.32	56.97006	3.88E+08	2209.028	46.29388	13760491
Sum Sq. Dev.	1.47E+09	1785.804	2.47E+15	78638.68	245.0711	7.62E+12
Observations	208	208	208	208	208	208

Source: *Authors' computation*

between total debt to total equity ratio and tangibility, firm size and tax while total debt to total equity ratio has positive relationship with the other explanatory variables. The highest correlation between the variable is between total debt to total assets and short term debt to total debt to total equity ratio with a value of 0.63. Risk is the only explanatory that has positive correlation with other independent variables.

Table 4.2a. White's test for heteroskedasticity result

Model	Test statistic	P-value
Model 1	71.7709	0.005137
Model 2	74.548829	0.002729
Model 3	104.030252	0.000001
Model 4	76.218129	0.001843
Model 5	204.535	0.000000
Model 6	207.999	0.000000
Model 7	53.5129	0.015410
Model 8	119.0215	0.000000

Source: *Authors' computation*

4.2.3.2 Healthcare firms

The correlation matrix in Table 4.2d revealed that the correlation between the independent variables are not high that will result to problem of multicollinearity in the stated models. The correlation between the explanatory variables are not up to 0.20 except for the correlation between risk and tangibility and size and tax having a correlation of 0.57 and 0.59 respectively. The result of the correlation matrix suggests that the models are free from problem of multicollinearity.

Table 4.2b. Ramsey reset specification test result

Model	Test statistic	P-value
Model 1	8.729256	0.000333
Model 2	3.072454	0.050000
Model 3	63.44390	0.000000
Model 4	1.259696	0.288000
Model 5	52.340343	0.000000
Model 6	38371.4463	0.000000
Model 7	4.03771900	0.019100
Model 8	22.883109	0.000000

Source: *Authors' computation*

4.3 Agricultural and Healthcare Firms Analysis

4.3.1 Return on equity and financial structure

The estimation was performed the pooled OLS, fixed and random effect estimation technique. Due 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. Interpretation was dwelt on explanatory variables that were found to be statistically significant. Table 4.3a, 4.3b, 4.3c, 4.3d, 4.3e, 4.3f, 4.3g and 4.3h summarizes the pooled OLS, fixed and random effect estimations for the specific objectives of the study.

Table 4.2c. Test for multicollinearity

	TDTE	STDTE	TDTA	TANG.	Size	Growth	Risk	Tax
TDTE	1.00	0.17	0.42	-0.05	-0.03	0.05	0.17	-0.06
STDTE	0.17	1.00	0.63	0.13	-0.15	-0.10	0.11	0.01
TDTA	0.42	0.63	1.00	-0.03	-0.01	0.03	0.22	-0.03
TANG.	-0.05	0.13	-0.03	1.00	-0.03	-0.03	0.43	0.25
Size	-0.03	-0.15	-0.01	-0.03	1.00	0.02	0.17	0.60
Growth	0.05	-0.10	0.03	-0.03	0.02	1.00	0.25	0.17
Risk	0.17	0.11	0.22	0.43	0.17	0.25	1.00	0.32
Tax	-0.06	0.01	-0.03	0.25	0.60	0.17	0.32	1.00

Source: *Authors' computation*

Table 4.2d. Test for multicollinearity

	TDTE	STDTE	TDTA	TANG.	Size	Growth	Risk	Tax
TDTE	1.00	-0.01	-0.01	0.01	-0.03	-0.05	-0.02	-0.02
STDTE	-0.01	1.00	-0.00	0.02	-0.03	0.01	-0.01	-0.02
TDTA	-0.01	-0.00	1.00	-0.00	0.02	-0.15	-0.01	-0.02
TANG.	0.01	0.02	-0.00	1.00	-0.03	0.09	-0.57	-0.01
Size	-0.03	-0.03	0.02	-0.03	1.00	-0.00	0.00	0.59
Growth	-0.05	0.01	-0.15	0.09	-0.00	1.00	-0.04	0.09
Risk	-0.02	-0.01	-0.01	-0.57	0.01	-0.04	1.00	-0.01
Tax	-0.02	-0.02	-0.02	-0.01	0.59	0.09	-0.01	1.00

Source: *Authors' computation*

Table 4.3a. Pooled OLS, fixed effect and random effect regression for agricultural firms dependent variable: Return on Equity (ROE)

Dependent Variable: ROE
Method: Panel Least Squares
Sample: 1993 2013
Periods included: 21
Cross-sections included: 5
Total panel (balanced) observations: 105

Variables	Pooled OLS		Fixed effect		Random effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	0.137561	0.1970	0.109910	0.3171	0.137561	0.1787
TDTE	0.063464	0.4252	0.026745	0.7402	0.063464	0.4057
STDTE	0.571947	0.0000	0.602157	0.0000	0.571947	0.0000
TDTA	-0.684803	0.0001	-0.767106	0.0001	-0.684803	0.0001
TANGIBILITY	1.41E-06	0.9027	1.21E-06	0.9227	1.41E-06	0.8985
SIZE	-1.72E-08	0.3018	-6.20E-09	0.7565	-1.72E-08	0.2817
GROWTH	0.003295	0.1149	0.006009	0.0062	0.003295	0.1004
RISK	0.251089	0.6680	0.411031	0.4979	0.251089	0.6547
TAX	1.24E-06	0.0408	1.21E-06	0.0633	1.24E-06	0.0331
R-squared	0.276867		0.473483		0.276867	
Adjusted R-squared	0.216606		0.279504		0.216606	
S.E. of regression	0.748212		0.717548		0.748212	
Sum squared resid	53.74290		39.13048		53.74290	
Log likelihood	-113.8267		-97.16796			
F-statistic	4.594464		2.440890		4.594464	
Prob(F-statistic)	0.000091		0.001146		0.000091	
Durbin-Watson stat	1.733817		1.606398		1.733817	
Hausman Specification Test						
	Chi-Sq. Statistic		23.219163			
	Probability		0.0031000			

Source: *Authors' computation*

For agricultural firm's analysis, the result of the hausman test in Table 4.3a reveals that the fixed effect model estimation is the preferred to the random effect model as the p-value is significant 5% level. The fixed effect estimation shows that short term debt to total equity ratio and growth have significant positive relationship with return on equity while total debt to total assets ratio has negative correlation at a significant level of 5% with return on equity of agricultural firms. On the healthcare sector analysis in Table 4.3b, short term debt to total equity, tangibility, growth and tax have statistically positive relationship with return on equity while risk is significantly and negatively correlated with return on equity.

The level of short term debt to total equity ratio significantly affects the return of equity of both agricultural and healthcare firms. The higher level of short term debt to total equity ratio the higher the return on equity for both agricultural and healthcare firms. This is in line with [21]. A percentage increase in short term debt to total equity ratio would increase return on equity by 0.57% and 0.033% for agricultural and healthcare firms respectively. This infers that firm's with high short term debt in their financial structure tend to have higher return on equity. This findings suggests that short term debt does not expose Nigeria agricultural and healthcare firms to the risk of refinancing as it positively and significantly related with return on equity.

Growth is positively and significantly correlated with return on equity of agricultural and healthcare firms. This implies that firms' with higher growth ratio tends to have higher returns on investment arguably attributed to diversification in investments. The significant correlation between growth and return on equity for indicates that better performance in terms of return on equity of agricultural and healthcare firms in Nigeria is associated with high growth opportunities. Furthermore, high growth rates lowers cost of capital and maximizes performance. Growth increases return of equity of agricultural and healthcare firms in Nigeria by

a factor of 0.006 and 0.007 respectively. This is consistent with [9].

Tangibility is positively and significantly correlated with return on equity of healthcare firms but no for agricultural firms. This indicate that firms' with high tangibility have better performance. It would be inferred that the investment of healthcare firms in fixed assets relative to non-tangible assets is in a proportion that positively influence their return on equity but this is not the case for the agricultural firms. In other words, the healthcare firms have a far better investment in fixed assets relative to non-tangible assets as it statistically affect their performance measured by return on equity compared to agricultural firms. A percentage rise in tangibility ratio would lead to 0.05% surge in return on equity. This supports the result of [9].

Tax has a significant positive relationship with return equity of healthcare firms but not for agricultural firms signalling that healthcare firm's performs better in return on equity when they pay high tax. This tends to supports the argument firms that pays high tax have higher profit due to investment diversification to cater for the tax burden. This could not be said for the firms in agricultural sector.

The significant negative correlation between return on equity and total debt to total assets of agricultural firms only suggests that the higher total debt to total assets ratio the lower the return on equity on agricultural firms but not for healthcare firms. This agrees with the works of [9] and [11]. However, it refutes the findings of [23] and [13]. Return in equity of agricultural firms only will decrease by 0.68% given a unit increase in total debt to total assets ratio. This indicates that firm's that highly geared are likely to have witness depreciation in return on equity owing to agency conflicts. This argument cannot be verified for healthcare firms as a result of insignificant relationship between total debt to total assets ratio and healthcare firms return on equity.

Table 4.3b. Pooled OLS, fixed effect and random effect regression for healthcare firms dependent variable: Return on Equity (ROE)

Dependent Variable: ROE
Method: Panel Least Squares
Sample: 1993 2013
Periods included: 21
Cross-sections included: 10
Total panel (balanced) observations: 208

Variables	Pooled OLS		Fixed effect		Random effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	0.113343	0.0149	0.066937	0.1738	0.102149	0.0436
TDTE	1.30E-06	0.7659	2.64E-06	0.5513	1.58E-06	0.7105
STDTE	0.000314	0.0000	0.000331	0.0000	0.000319	0.0000
TDTA	8.82E-06	0.4893	9.39E-06	0.4649	8.63E-06	0.4872
TANGIBILITY	0.056439	0.0001	0.053198	0.0002	0.055553	0.0001
SIZE	-4.94E-08	0.0222	-1.75E-08	0.4986	-4.28E-08	0.0506
GROWTH	0.007329	0.0001	0.008041	0.0001	0.007540	0.0000
RISK	-0.812892	0.0000	-0.810622	0.0000	-0.812369	0.0000
TAX	9.98E-07	0.0105	6.45E-07	0.1251	9.29E-07	0.0158
R-squared	0.842189		0.869037		0.844622	
Adjusted R-squared	0.835845		0.848551		0.838376	
S.E. of regression	0.481485		0.462476		0.469369	
Sum squared resid	46.13369		38.28529		43.84116	
Log likelihood	-138.5158		-119.1221			
F-statistic	132.7508		42.42125		135.2186	
Prob(F-statistic)	0.000000		0.000000		0.000000	
Durbin-Watson stat	1.430556		1.455464		1.485344	
Hausman Specification Test						
	Chi-Sq. Statistic		13.96876			
	Probability		0.082600			

Source: *Authors' computation*

Table 4.3c. Pooled OLS, fixed effect and random effect regression for agricultural firms dependent variable: Return on Asset (ROA)

Dependent Variable: ROA
Method: Panel Least Squares
Sample: 1993 2013
Periods included: 21
Cross-sections included: 5
Total panel (balanced) observations: 105

Variables	Pooled OLS		Fixed effect		Random effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	0.065170	0.7133	0.067696	0.7204	0.065393	0.7221
TDTE	0.015798	0.9052	-0.031552	0.8207	0.009522	0.9427
STDTE	0.363510	0.1085	0.342077	0.1514	0.360556	0.1108
TDTA	-0.452711	0.1123	-0.504433	0.1064	-0.457705	0.1092
TANGIBILITY	1.07E-05	0.5782	1.04E-05	0.6303	1.08E-05	0.5766
SIZE	-6.50E-09	0.8142	2.23E-09	0.9485	-5.44E-09	0.8465
GROWTH	0.003833	0.2705	0.006330	0.0896	0.004134	0.2352
RISK	0.164909	0.8660	0.348252	0.7391	0.190908	0.8451
TAX	5.83E-07	0.5598	4.62E-07	0.6774	5.63E-07	0.5750
R-squared	0.069148		0.275622		0.072771	
Adjusted R-squared	-0.008423		0.008746		-0.004498	
S.E. of regression	1.249482		1.238800		1.230462	
Sum squared resid	149.8757		116.6316		145.3475	
Log likelihood	-167.6705		-154.5042			
F-statistic	0.891422		1.032771		0.941792	
Prob(F-statistic)	0.526869		0.439950		0.486187	
Durbin-Watson stat	1.393597		1.489179		1.395638	
Hausman Specification Test						
	Chi-Sq. Statistic		6.711982			
	Probability		0.568000			

Source: *Authors' computation*

Risk is negatively and significant correlated with and return on equity of healthcare firms but not for agricultural firms. This is not in line with the risk-return trade off argument that firms' with variability in net income would have higher. A percentage increase in risk causes return on equity of healthcare firms to depreciate by a factor of 0.81. For Nigeria healthcare firms, higher variability in net income lowers return on equity. This may be attributed to financial difficulty associated with variations in cash flows. It would be inferred that healthcare firms in Nigeria have bankruptcy risk that affects their return on equity but such cannot be empirically verified for the agricultural sector firms.

The F-statistic values of 2.44 and 135.21 show that the explanatory variable are jointly significant in explaining the variations in return on equity of both agricultural and healthcare firms. The adjusted R-square value of 0.2795 shows that the explanatory variables jointly accounted for 27.95% variations in return on equity of agricultural firms within the period of the study. For the healthcare firms, the adjusted R-square value 0.838376 indicates that the explanatory variables jointly accounted for 83.83% variations in return on equity. On a comparable note, the contribution of the explanatory variables to changes in return on equity is higher in the healthcare sector than in agricultural firms. The margin of greatness of explanatory variables influence on return of equity of healthcare sector over agricultural firms is about 55.88%. The Durbin Watson statistic of 1.60 and 1.48 for model 1 and 5 respectively suggests the absence of autocorrelation in the models as the calculated Durbin Watson (d*) of 1.60 and 1.48 are within the tabulated upper limit (du) and lower limit (dl) of 1.862 and 1.484 respectively.

4.3.2 Return on assets and financial structure

From Table 4.3c, the random effect model is the best estimator as the p-value of the hausman test is insignificant at 5% for agricultural firm's analysis. On the other hand, the fixed effect is appropriate for Healthcare firms as evidenced in

Table 4.3d. Pooled OLS, fixed effect and random effect regression for healthcare firms dependent variable: Return on Asset (ROA)

Dependent Variable: ROA						
Method: Panel Least Squares						
Sample: 1993 2013						
Periods included: 21						
Cross-sections included: 10						
Total panel (balanced) observations: 208						
Variables	**Pooled OLS**		**Fixed Effect**		**Random Effect**	
	Coefficient	**Prob.**	**Coefficient**	**Prob.**	**Coefficient**	**Prob.**
C	-87.53282	0.1757	-169.5843	0.0164	-87.53282	0.1685
TDTE	0.107244	0.0000	0.107545	0.0000	0.107244	0.0000
STDTE	0.002181	0.9554	-0.004613	0.9090	0.002181	0.9546
TDTA	0.005943	0.7384	0.006959	0.7045	0.005943	0.7341
TANGIBILITY	-6.115649	0.7542	-9.200944	0.6495	-6.115649	0.7502
SIZE	-4.14E-06	0.8900	5.30E-05	0.1509	-4.14E-06	0.8881
GROWTH	4.030251	0.1055	6.613255	0.0227	4.030251	0.0997
RISK	4.693204	0.9289	-5.786167	0.9159	4.693204	0.9276
TAX	9.77E-05	0.8563	-0.000639	0.2870	9.77E-05	0.8539
R-squared	0.609581		0.660517		0.609581	
Adjusted R-squared	0.593886		0.607413		0.593886	
S.E. of regression	671.8116		660.5284		671.8116	
Sum squared resid	89814845		78097289		89814845	
Log likelihood	-1644.614		-1630.076			
F-statistic	38.83866		12.43828		38.83866	
Prob(F-statistic)	0.000000		0.000000		0.000000	
Durbin-Watson stat	2.006207		2.040951		2.006207	
Hausman Specification Test						
	Chi-Sq. Statistic		19.092596			
	Probability		0.014400			

Source: *Authors' computation*

Table 4.3d. It would be observed that from the random effect estimation in Table 4.3c, none of the explanatory variables significantly relates with return on assets of agricultural firms. On the contrary, the fixed effect estimation in Table 4.3d for healthcare firms revealed that it is only total debt to total equity ratio and growth that have significant positive relationship with return on assets of healthcare firms. From the results in Table 4.3c and 4.3d, financial structure has no impact on return on assets of agricultural firms but has positive effect on return on assets of healthcare firms.

The significant positive effect of total debt to total equity ratio on return on assets of only healthcare firms indicates the idea that high gearing ratio negatively impact on performance due to agency conflict is not true in the Nigeria healthcare firms. This could not be establish for the agricultural firms due to insignificant correlation between the regressand and regressors. A percentage increase in leverage ratio increases return on assets of healthcare firms by a factor of 0.10. This consistent with [13] and [22].

Growth is positively and significantly correlated with return on assets of healthcare firms but not for agricultural firms at 5% level of significance suggesting that higher growth opportunities lead to better performance of firms. In other words, healthcare firms have better growth opportunities compared to agricultural firms in Nigeria. A unit increase in growth would result to 6.6 factor increase in return on assets of agricultural firms.

Going by the adjusted R-squared of -0.004498 in Table 4.5c, it is crystal clear that the explanatory variables accounted for only -0.4% changes in return on assets. Put differently, financial structure has not in any way impacted positively on return on assets of agricultural firms. However, the healthcare adjusted R-squared of 0.607413 in Table 4.3d indicates that the explanatory variables accounted for only 60.74% changes in return on assets of healthcare firms. F- Statistic of 0.94 reveals that the variations in

return on assets of agricultural firms were not jointly statistically accounted by the explanatory variables but that of healthcare firms were jointly statistically accounted by the explanatory variables with an F- Statistic of 12.43.

4.3.3 Earnings per share and financial structure

For agricultural firm's analysis, the hausman specification test p-value of 0.25 in Table 4.3e infers the suitability of the random effect model of estimation as it is insignificant at 5% level of significance. It is observed that total debt to total equity ratio and tangibility have significant negative relationship with earnings per share while total debt to total assets ratio, firm size and risk have positive relationship earnings per share of agricultural firms at 5% level of significance. For the healthcare analysis in Table 4.3f, the fixed effect is the appropriate estimator considering the hausman test p-value of 0.044 and the result revealed that it is only risk and tax that is significantly correlated with earnings per share, however, the relationship between earnings per share and risk is negative.

The significant negative correlation between debt ratio and earnings per share lays credence to the fact that earnings per share of high leverage firms are likely to derail as a result of high level of debt ratio that may arise from agency conflicts for agricultural firms. On the other hand, this argument cannot be empirically ascertained for the healthcare firms. This confirms the study of [13]. A percentage increase in debt ratio would reduce firm's earnings per share of agricultural firms by ₦0.75 but not for healthcare firms.

Tangibility also has a statistically negative relationship with earnings per share of agricultural firms but does not negatively correlates with earnings per share of healthcare firms. This implies that agricultural firms invest more in fixed assets in such a way that it negatively impact on their performance. This is not the case for the healthcare firms who are invest efficiently in fixed assets in proportion that

Table 4.3e. Pooled OLS, fixed effect and random effect regression for agricultural firms dependent variable: Earnings per Share (EPS)

Dependent Variable: EPS
Method: Panel Least Squares
Sample: 1993 2013
Periods included: 21
Cross-sections included: 5
Total panel (balanced) observations: 105

Variables	Pooled OLS		Fixed effect		Random effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	-68.36278	0.1076	-68.38077	0.1378	-68.36278	0.1104
TDTE	-62.81438	0.0489	-75.19556	0.0280	-62.81438	0.0500
STDTE	27.95396	0.6019	13.80443	0.8097	27.95396	0.6048
TDTA	244.5743	0.0004	287.4790	0.0002	244.5743	0.0005
TANGIBILITY	-0.010200	0.0279	-0.004881	0.3505	-0.010200	0.0291
SIZE	1.47E-05	0.0277	2.05E-05	0.0160	1.47E-05	0.0289
GROWTH	-0.676120	0.4135	-0.655323	0.4642	-0.676120	0.4172
RISK	936.7092	0.0001	813.4712	0.0019	936.7092	0.0001
TAX	0.000102	0.6693	-4.65E-05	0.8625	0.000102	0.6718
R-squared	0.436192		0.546481		0.436192	
Adjusted R-squared	0.389208		0.379395		0.389208	
S.E. of regression	297.3897		299.7692		297.3897	
Sum squared resid	8490303.		6829480.		8490303.	
Log likelihood	-742.2635		-730.8355			
F-statistic	9.283834		3.270653		9.283834	
Prob(F-statistic)	0.000000		0.000022		0.000000	
Durbin-Watson stat	2.227398		2.273500		2.227398	
Hausman Specification Test						
	Chi-Sq. Statistic		10.184240			
	Probability		0.252300			

Source: *Authors' computation*

their performance are enhanced. This result also confirms the significant positive impact of tangibility on performance of healthcare firms as evidenced regression outcome in Table 4.3b for healthcare firms. It is also agrees with the work of [9].

The earnings per share of agricultural firms and total debt to total assets are significantly and positively correlated but such correlation was not evidenced for healthcare firms. The earnings per share of agricultural firms would appreciate by ₦2.87 given a percentage increase in total debt to total assets ratio but of magnitude of appreciation in earnings per share given a unit increase in total debt to total assets for healthcare firms would not be empirical ascertained.

For both agricultural and healthcare firms, tax and earnings per share is significantly and positively related. A percentage increase in tax would boost firms' ability to increase investment as it would result to 0.036% appreciation in earnings per share. This tends to supports the argument firms that pays high tax have higher probability of earning more profit due to various investment outlets to cater for the tax burden. The significance of tax would suggests that Nigeria healthcare performance with respect to earnings per share is related to higher corporate tax payment to government agency coupled with growth opportunities available to them.

There is a significant positive relationship between agricultural firm's size and earnings per share of agricultural firms but no statistical relationship between firm's size and earnings per share of healthcare firms. This entails that a unit increase in size would increase earnings per share of agricultural firms by ₦0.02. Firm size is an important factor for performance of agricultural firms but not so for the healthcare firms. It is observed from this finding that bankruptcy costs of agricultural firms decreases with size. However, this assertion would not be empirically determined for the healthcare firms. In addition, it suggest that large firms earns higher return presumably due to diversification of investments.

Table 4.3f. Pooled OLS, fixed effect and random effect regression for healthcare firms dependent variable: Earnings per Share (EPS)

Dependent Variable: EPS
Method: Panel Least Squares
Sample: 1993 2013
Periods included: 21
Cross-sections included: 10
Total panel (balanced) observations: 208

Variables	Pooled OLS		Fixed effect		Random effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	17.23658	0.1143	16.90371	0.1610	17.23658	0.1142
TDTE	0.000294	0.7751	-0.000386	0.7225	0.000294	0.7751
STDTE	0.001659	0.8008	0.002220	0.7485	0.001659	0.8007
TDTA	0.000800	0.7898	-0.000304	0.9230	0.000800	0.7897
TANGIBILITY	-1.400108	0.6710	-3.402200	0.3277	-1.400108	0.6709
Size	-7.82E-06	0.1225	-6.57E-06	0.2988	-7.82E-06	0.1224
Growth	0.046542	0.9115	0.047512	0.9234	0.046542	0.9115
Risk	-27.54790	0.0021	-27.77791	0.0035	-27.54790	0.0021
Tax	0.000371	0.0001	0.000363	0.0005	0.000371	0.0001
R-squared	0.208123		0.288185		0.208123	
Adjusted R-squared	0.176289		0.176839		0.176289	
S.E. of regression	113.3453		113.3074		113.3453	
Sum squared resid	2556584.		2298105.		2556584.	
Log likelihood	-1274.470		-1263.385			
F-statistic	6.537714		2.588203		6.537714	
Prob(F-statistic)	0.000000		0.000088		0.000000	
Durbin-Watson stat	1.626176		1.640018		1.626176	
Hausman Specification Test						
	Chi-Sq. Statistic		15.859744			
	Probability		0.044400			

Source: *Authors' computation*

Table 4.3g. Pooled OLS, fixed effect and random effect regression for agricultural firms dependent variable: Profit before Tax (PBT)

Dependent Variable: PBT
Method: Panel Least Squares
Sample: 1993 2013
Periods included: 21
Cross-sections included: 5
Total panel (balanced) observations: 105

Variables	Pooled OLS		Fixed effect		Random effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	-1214176.	0.1069	-1787010.	0.0228	-1214176.	0.0929
TDTE	-76276.08	0.8916	-22346.51	0.9686	-76276.08	0.8870
STDTE	1259464.	0.1865	1975916.	0.0437	1259464.	0.1685
TDTA	-1113744.	0.3524	-1508975.	0.2347	-1113744.	0.3322
TANGIBILITY	-20.00954	0.8053	38.99013	0.6576	-20.00954	0.7972
SIZE	0.154870	0.1867	0.535977	0.0003	0.154870	0.1687
GROWTH	24190.56	0.1006	20554.16	0.1752	24190.56	0.0870
RISK	3837873.	0.3529	-255727.9	0.9522	3837873.	0.3328
TAX	-0.142187	0.9731	-5.216774	0.2511	-0.142187	0.9719
R-squared	0.088082		0.336079		0.088082	
Adjusted R-squared	0.012088		0.091476		0.012088	
S.E. of regression	5271307.		5055073.		5271307.	
Sum squared resid	2.67E+15		1.94E+15		2.67E+15	
Log likelihood	-1769.452		-1752.789			
F-statistic	1.159073		1.373980		1.159073	
Prob(F-statistic)	0.331958		0.139521		0.331958	
Durbin-Watson stat	1.892253		1.997529		1.892253	
Hausman Specification Test						
	Chi-Sq. Statistic		22.362528			
	Probability		0.004300			

Source: *Authors' computation*

For the agricultural firms analysis risk has positive and significant correlation with earnings per share but a negative and significant relationship with earnings per share of healthcare firms. 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. This reveals that agricultural firms have higher variability in net income which increases their earnings per share while healthcare firms have lower variability in net income which decreases their earnings per share Furthermore, it reveals that Nigeria agricultural firms are not prone to problem of liquidity as there is no signal of risk of default that may arise from fluctuation in cash flow. On the other hand, it could be inferred that healthcare firms in Nigeria have bankruptcy risk that affects their earnings per share. This may be attributed to financial difficulty associated with variations in cash flows. The negative impact of risk on earnings per share of healthcare firms also confirm the result in Table 4.3b risk is negatively and significant correlated with and return on equity of healthcare firms but not for agricultural firms.

The F-statistic values of 9.28 and 2.58 suggest that the explanatory variable are jointly significant in explaining the variations in earnings per share of both agricultural and healthcare firms. The adjusted R-square value of 0.3892 shows that the explanatory variables jointly accounted for 38.92% variations in earnings per share of agricultural firms within the period of the study. For the healthcare firms, the adjusted R-square value 0.176839 infers that the explanatory variables jointly accounted for 17.68% variations in earnings per share. On a comparable note, the contribution of the explanatory variables to changes in earnings per share is greater in the agricultural firms than in healthcare sector. The margin of greatness of explanatory variables influence on earnings per share of agricultural firms over healthcare sector is about 21.24%. The Durbin Watson statistic of 2.22 and 1.64 for both models suggests the absence of autocorrelation in the models as the calculated

Durbin Watson (d*) of 1.64 is within the tabulated upper limit (du) and lower limit (dl) of 1.862 and 1.484 respectively.

4.3.4 Profit before tax and financial structure

From Table 4.3g, the hausman specification test p-values of 0.0043 and 0.009 in Table 4.3g and 4.3h reflects the acceptability of the fixed effect estimation for both agricultural firms and healthcare firms. From the fixed effect estimation in Table 4.3g it is observed that it is only short term debt to total equity and firm's size that have significant and positive relationship with profit before tax of agricultural firms. On the contrary, the fixed effect estimation in Table 4.3g for healthcare firms revealed that it is risk has negative and significant relationship with profit after tax while tax has significant positive relationship with profit after tax.

The level of short term debt to total equity ratio significantly and positive influence the profit before tax agricultural firms but would not positively and significantly affect that of the healthcare firms. The higher level of short term debt to total equity ratio the higher the profit before tax of agricultural firms. This is in line with [21]. A percentage increase in short term debt to total equity ratio would increase profit before tax of agricultural firms by ₦1, 975, 916. This infers that firm's with high short term debt in their financial structure tend to have higher profit before tax. However, this is not the case for the healthcare firms. This findings suggests that short term debt does not expose Nigeria agricultural firms to the risk of refinancing as it positively and significantly related with profit before tax but for healthcare firms, such assertion could not be empirically determined. This result also confirms the significant and positive impact of short term debt to total equity on return on equity of agricultural firms in Table 4.3a.

Table 4.3h. Pooled OLS, fixed effect and random effect regression for healthcare firms dependent variable: Profit before Tax (PBT)

Dependent variable: PBT
Method: Panel Least Squares
Sample: 1993 2013
Periods included: 21
Cross-sections included: 10
Total panel (balanced) observations: 208

Variables	Pooled OLS		Fixed effect		Random effect	
	Coefficient	Prob.	Coefficient	Prob.	Coefficient	Prob.
C	-19885.55	0.2271	-21996.20	0.2201	-19885.55	0.2204
TDTE	0.673983	0.6646	0.287521	0.8588	0.673983	0.6600
STDTE	2.471678	0.8034	1.525557	0.8823	2.471678	0.8006
TDTA	3.865134	0.3944	2.408631	0.6073	3.865134	0.3875
TANGIBILITY	9235.913	0.0646	4473.034	0.3872	9235.913	0.0608
SIZE	-0.015711	0.0403	-0.016827	0.0747	-0.015711	0.0375
GROWTH	541.7465	0.3920	892.8361	0.2260	541.7465	0.3851
RISK	-44189.83	0.0011	-45166.68	0.0015	-44189.83	0.0010
TAX	3.301625	0.0000	3.343348	0.0000	3.301625	0.0000
R-squared	0.925464		0.934877		0.925464	
Adjusted R-squared	0.922468		0.924690		0.922468	
S.E. of regression	171150.4		168679.7		171150.4	
Sum squared resid	5.83E+12		5.09E+12		5.83E+12	
Log likelihood	-2797.001		-2782.961			
F-statistic	308.8568		91.77291		308.8568	
Prob(F-statistic)	0.000000		0.000000		0.000000	
Durbin-Watson stat	1.307093		1.365467		1.307093	
Hausman Specification Test						
	Chi-Sq. Statistic		20.289099			
	Probability		0.0093000			

Source: *Authors' computation*

There is a significant positive relationship between agricultural firm's size and profit before tax of agricultural firms but no statistical relationship between firm's size and profit before tax of healthcare firms. This entails that a unit increase in size would increase profit before tax of agricultural firms by a factor of 0.54. Firm size is an important factor for performance of agricultural firms but not so for the healthcare firms. It is observed from this finding that bankruptcy costs of agricultural firms decreases with size. However, this assertion would be empirically determined for the healthcare firms. In addition, it suggest that large firms earns higher return presumably due to diversification of investments. This also confirms the result in Table 4.3e on the positive and significant impact of size on earnings per share of agricultural firms but not for healthcare firms.

Risk is negatively and significant correlated with and profit before tax of healthcare firms but not for agricultural firms. This is not in line with the risk-return trade off argument that firms' with variability in net income would have higher. A percentage increase in risk causes profit before tax of healthcare firms to depreciate by a factor of ₦ 45, 166.68. For Nigeria healthcare firms, higher variability in net income lowers profit before tax. This may be attributed to financial difficulty associated with variations in cash flows. It would be inferred that healthcare firms in Nigeria have bankruptcy risk that affects their profit before tax but such conclusion cannot be drawn for agricultural firms as it could not be empirically and significantly verified. This also confirms the result in Table 4.3b that risk negatively impact on return on equity of healthcare firms.

Tax has a significant positive relationship with profit before tax of healthcare firms but not for agricultural firms signalling that healthcare firm's performs better in profit before tax when higher tax is paid to government. This tends to supports the argument firms that pays high tax have higher profit due to investment diversification to cater for the tax burden. This could not be said for the firms in agricultural sector. It also supports the result in Table 4.3b healthcare firms performs better in return on equity when higher tax are paid.

Going by the adjusted R-squared of 0.091476 in Table 4.5g, it is obvious that the explanatory variables accounted for only 9% changes in profit before tax. In other words, financial structure has impacted on profit before tax of agricultural firms by just 9%. However, the healthcare adjusted R-squared of 0.9246 in Table 4.3h indicates that the explanatory variables accounted for only 92.46% changes in profit before tax of healthcare firms. This infers that financial structure and control variable has to a very high extent impacted healthcare firms profit before tax. F-Statistic of 1.373980 discloses that the variations in profit before tax of agricultural firms were not jointly statistically accounted by the explanatory variables but that of healthcare firms were jointly statistically accounted by the explanatory variables with an F- Statistic of 91.77.

4.4 Granger Causality Test Result

4.4.1 Agricultural and healthcare firms

To determine the impact of financial structure on performance and test the hypothesis formulated, the study applied the pairwise granger causality test. Table 4.4a, 4.4b, 4.4c, 4.4d, 4.4e, 4.4f, 4.4g and 4.4h summarizes the results.

From Table 4.4a, it is observed that none of the regressors granger cause return on equity of agricultural firms. On the contrary, it is only a control variable-risk that granger cause return on equity of healthcare firms as shown in Table 4.4b. Risk is an important factor that affect the return on equity of agricultural firms but not so for the healthcare firms. The p-value of the F-statistic in the pairwise granger causality performed with a maximum lag of 3 in Table 4.4a and 4.4b indicate that none of the financial structure variables granger cause return on equity for both agricultural and healthcare firms. That is, causality does not flow from financial structure to return on equity and vice versa. Therefore, no causal relationship between dependent and explanatory variables at 5% level of significance. Thus, financial structure does not impact on return on equity of agricultural and healthcare firms in Nigeria. The null hypothesis that financial structure does not granger cause return on equity of Nigeria agricultural and healthcare firms is upheld.

In Table 4.4c and 4.4d it is vivid that none of the financial structure variables granger cause return on assets of agricultural and healthcare firms. However, tangibility was found to granger return on equity of agricultural firms but not for healthcare firms. Invariably, tangibility is a very critical factor for performance of agricultural firms expressed by return on assets but not a critical

factor for the healthcare firms. The p-value of the F-statistic in the pairwise granger causality performed with a maximum lag of 3 in Table 4.4c and 4.4d suggest that none of the financial structure variables granger cause return on assets for both agricultural and healthcare firms. That is, causality does not flow from financial structure to return on assets and vice versa. Therefore, no causal relationship between dependent and explanatory variables at 5% level of significance. Thus, financial structure does not impact on return on assets of agricultural and healthcare firms in Nigeria. The null hypothesis that financial structure does not granger cause return on assets of Nigeria agricultural and healthcare firms could not be rejected.

Table 4.4a. Causality test of financial structure and ROE for agricultural firms

Null hypothesis	Obs	F-statistic	Prob.
TDTE does not Granger Cause ROE	100	0.08981	0.7651
ROE does not Granger Cause TDTE		0.12369	0.7258
STDTE does not Granger Cause ROE	100	1.38540	0.2421
ROE does not Granger Cause STDTE		3.36744	0.0696
TDTA does not Granger Cause ROE	100	0.00360	0.9523
ROE does not Granger Cause TDTA		0.10208	0.7500
TANGIBILITY does not Granger Cause ROE	100	24.0533	4.E-06
ROE does not Granger Cause TANGIBILITY		0.48252	0.4889
SIZE does not Granger Cause ROE	100	0.08008	0.7778
ROE does not Granger Cause SIZE		0.07355	0.7868
GROWTH does not Granger Cause ROE	100	0.00360	0.9523
ROE does not Granger Cause GROWTH		1.15727	0.2847
RISK does not Granger Cause ROE	100	3.70018	0.0573
ROE does not Granger Cause RISK		0.15585	0.6939
TAX does not Granger Cause ROE	100	1.94502	0.1663
ROE does not Granger Cause TAX		0.52464	0.4706

Source: *Authors' computation*

Table 4.4b. Causality test of financial structure and ROE for healthcare firms

Null hypothesis	Obs	F-statistic	Prob.
TDTE does not Granger Cause ROE	200	0.01200	0.9129
ROE does not Granger Cause TDTE		0.01260	0.9107
STDTE does not Granger Cause ROE	200	0.68985	0.4072
ROE does not Granger Cause STDTE		0.00253	0.9599
TDTA does not Granger Cause ROE	200	0.09487	0.7584
ROE does not Granger Cause TDTA		0.01772	0.8942
TANGIBILITY does not Granger Cause ROE	200	0.92968	0.3361
ROE does not Granger Cause TANGIBILITY		91.8397	4.E-18
SIZE does not Granger Cause ROE	200	0.38134	0.5376
ROE does not Granger Cause SIZE		1.20170	0.2743
GROWTH does not Granger Cause ROE	200	0.05925	0.8079
ROE does not Granger Cause GROWTH		0.07622	0.7828
RISK does not Granger Cause ROE	200	5.60433	0.0189
ROE does not Granger Cause RISK		1.83181	0.1775
TAX does not Granger Cause ROE	200	0.04028	0.8411
ROE does not Granger Cause TAX		0.19765	0.6571

Source: *Authors' computation*

Table 4.4e reveals that a financial structure variable: short term debt to total equity ratio granger cause earnings per share of agricultural firms and also earning per share granger cause financial structure. That is, causality flows from financial structure to earnings per share of agricultural firms and from earnings per share agricultural firms to financial structure. Therefore, there is bidirectional relationship between performance measured by earnings per share of agricultural firms and financial structure at 5% level of significance. On the contrary, the p-value

of the F-statistic in the pairwise granger causality in Table 4.4f shows that total debt to total assets ratio, a financial structure variable granger cause earnings per share of healthcare firms. That is, causality flows from financial structure to earnings per share of healthcare firms. Therefore, there is unidirectional relationship between performance measured by earnings per share of healthcare firms and financial structure at 5% level of significance. This result shows that that there is a bidirectional relationship between financial structure and earnings per share of agricultural firms whereas there is a unidirectional relationship between financial structure and earnings per share of healthcare firms. To this effect, financial structure significantly impact on earnings per share of both agricultural and healthcare firms in Nigeria. The null hypothesis that financial structure does not granger cause earnings per share of Nigeria agricultural and healthcare firms is rejected.

Table 4.4c. Causality test of financial structure and ROA for agricultural firms

Null hypothesis	Obs	F-statistic	Prob.
TDTE does not Granger Cause ROA	100	0.01651	0.8980
ROA does not Granger Cause TDTE		0.22339	0.6375
STDTE does not Granger Cause ROA	100	0.00298	0.9566
ROA does not Granger Cause STDTE		0.63793	0.4264
TDTA does not Granger Cause ROA	100	0.02413	0.8769
ROA does not Granger Cause TDTA		0.07597	0.7834
TANGIBILITY does not Granger Cause ROA	100	10.8823	0.0014
ROA does not Granger Cause TANGIBILITY		0.32196	0.5717
SIZE does not Granger Cause ROA	100	0.01725	0.8958
ROA does not Granger Cause SIZE		0.06193	0.8040
GROWTH does not Granger Cause ROA	100	3.41511	0.0676
ROA does not Granger Cause GROWTH		0.51043	0.4767
RISK does not Granger Cause ROA	100	2.30323	0.1324
ROA does not Granger Cause RISK		0.00690	0.9340
TAX does not Granger Cause ROA	100	1.92456	0.1685
ROA does not Granger Cause TAX		0.03431	0.8534

Source: *Authors' computation*

Table 4.4d. Causality test of financial structure and ROA for healthcare firms

Null hypothesis	Obs	F-statistic	Prob.
TDTE does not Granger Cause ROA	200	0.02110	0.8846
ROA does not Granger Cause TDTE		0.02022	0.8871
STDTE does not Granger Cause ROA	200	0.00505	0.9434
ROA does not Granger Cause STDTE		0.00505	0.9434
TDTA does not Granger Cause ROA	200	0.33526	0.5632
ROA does not Granger Cause TDTA		0.00559	0.9405
TANGIBILITY does not Granger Cause ROA	200	0.00145	0.9697
ROA does not Granger Cause TANGIBILITY		0.00394	0.9500
SIZE does not Granger Cause ROA	200	0.06043	0.8061
ROA does not Granger Cause SIZE		0.63065	0.4281
GROWTH does not Granger Cause ROA	200	0.06557	0.7982
ROA does not Granger Cause GROWTH		0.47605	0.4910
RISK does not Granger Cause ROA	200	0.00693	0.9337
ROA does not Granger Cause RISK		0.02402	0.8770
TAX does not Granger Cause ROA	200	0.03572	0.8503
ROA does not Granger Cause TAX		0.10143	0.7505

Source: *Authors' computation*

Table 4.4e. Causality test of financial structure and EPS for agricultural firms

Null hypothesis	Obs	F-statistic	Prob.
TDTE does not Granger Cause EPS	100	0.01663	0.8977
EPS does not Granger Cause TDTE		0.33951	0.5615
STDTE does not Granger Cause EPS	100	13.5630	0.0004
EPS does not Granger Cause STDTE		4.67901	0.0330
TDTA does not Granger Cause EPS	100	42.9147	3.E-09
EPS does not Granger Cause TDTA		0.51608	0.4742
TANGIBILITY does not Granger Cause EPS	100	0.04641	0.8299
EPS does not Granger Cause TANGIBILITY		0.08511	0.7711
SIZE does not Granger Cause EPS	100	0.40734	0.5248
EPS does not Granger Cause SIZE		0.71396	0.4002
GROWTH does not Granger Cause EPS	100	0.10019	0.7523
EPS does not Granger Cause GROWTH		0.04345	0.8353
RISK does not Granger Cause EPS	100	1.26818	0.2629
EPS does not Granger Cause RISK		0.09103	0.7635
TAX does not Granger Cause EPS	100	1.84866	0.1771
EPS does not Granger Cause TAX		1.48734	0.2256

Source: *Authors' computation*

Table 4.4f. Causality test of financial structure and EPS for healthcare firms

Null hypothesis	Obs	F-statistic	Prob.
TDTE does not Granger Cause EPS	200	0.00594	0.9386
EPS does not Granger Cause TDTE		0.01948	0.8891
STDTE does not Granger Cause EPS	200	0.02872	0.8656
EPS does not Granger Cause STDTE		0.27702	0.5993
TDTA does not Granger Cause EPS	200	5.44250	0.0207
EPS does not Granger Cause TDTA		0.00694	0.9337
TANGIBILITY does not Granger Cause EPS	200	0.06257	0.8027
EPS does not Granger Cause TANGIBILITY		3.90821	0.0494
SIZE does not Granger Cause EPS	200	8.38206	0.0042
EPS does not Granger Cause SIZE		0.00957	0.9222
GROWTH does not Granger Cause EPS	200	10.6757	0.0013
EPS does not Granger Cause GROWTH		0.63206	0.4276
RISK does not Granger Cause EPS	200	0.03628	0.8491
EPS does not Granger Cause RISK		2.89444	0.0905
TAX does not Granger Cause EPS	200	11.5501	0.0008
EPS does not Granger Cause TAX		0.03972	0.8422

Source: *Authors' computation*

It is important to note that firm size, growth opportunities and tax granger cause earnings per share at 5% level of significance. Consequently, firms' size, growth opportunities and tax significantly impacts on earnings per share of healthcare firms but insignificant in determining earnings per share of agricultural firms. Furthermore, Table 4.4f shows that tangibility of healthcare firms is dependent also on earnings per share but this is not the case for agricultural firms.

In Table 4.4g none of the financial structure variables granger cause profit before tax of agricultural but from Table 4.4h, total debt to total assets ratio granger cause profit before tax of healthcare firms. Thus, financial structure does

not impact on profit before tax of agricultural and but impacts on profit before tax of healthcare firms in Nigeria. The null hypothesis that financial structure does not granger cause profit before tax of Nigeria agricultural firms could not be rejected but that of the healthcare firms is rejected.

It is imperative to note that from Table 4.4h that tangibility, risk and tax are very critical in determining the level of profit before tax of healthcare firms as they all granger cause profit before tax of healthcare firms. For the agricultural firm's performance with regards to profit before tax, risk is a crucial factor. It can be inferred from the analysis that tangibility and tax does not impact on profit before tax of agricultural firms in Nigeria. The relationship between tax and profit before tax of healthcare is bidirectional that is, tax granger cause profit before tax and profit

Table 4.4g. Causality test of financial structure and PBT for agricultural firms

Null hypothesis	Obs	F-Statistic	Prob.
TDTE does not Granger Cause PBT	100	0.03787	0.8461
PBT does not Granger Cause TDTE		0.19469	0.6600
STDTE does not Granger Cause PBT	100	0.28053	0.5976
PBT does not Granger Cause STDTE		0.85670	0.3570
TDTA does not Granger Cause PBT	100	0.08128	0.7762
PBT does not Granger Cause TDTA		0.16376	0.6866
TANGIBILITY does not Granger Cause PBT	100	0.89341	0.3469
PBT does not Granger Cause TANGIBILITY		0.03271	0.8568
SIZE does not Granger Cause PBT	100	2.34633	0.1288
PBT does not Granger Cause SIZE		0.24909	0.6188
GROWTH does not Granger Cause PBT	100	0.23025	0.6324
PBT does not Granger Cause GROWTH		1.50170	0.2234
RISK does not Granger Cause PBT	100	5.31586	0.0233
PBT does not Granger Cause RISK		0.36575	0.5467
TAX does not Granger Cause PBT	100	2.55414	0.1133
PBT does not Granger Cause TAX		0.34347	0.5592

Source: *Authors' computation*

Table 4.4h. Causality test of financial structure and PBT for healthcare firms

Null hypothesis	Obs	F-statistic	Prob.
TDTE does not Granger Cause PBT	200	0.00483	0.9447
PBT does not Granger Cause TDTE		0.04314	0.8357
STDTE does not Granger Cause PBT	200	0.01009	0.9201
PBT does not Granger Cause STDTE		0.15927	0.6903
TDTA does not Granger Cause PBT	200	9.45477	0.0024
PBT does not Granger Cause TDTA		2.4E-05	0.9961
TANGIBILITY does not Granger Cause PBT	200	15.3121	0.0001
PBT does not Granger Cause TANGIBILITY		2.50410	0.1152
SIZE does not Granger Cause PBT	200	2.29351	0.1316
PBT does not Granger Cause SIZE		20.9451	8.E-06
GROWTH does not Granger Cause PBT	200	0.00839	0.9271
PBT does not Granger Cause GROWTH		0.20290	0.6529
RISK does not Granger Cause PBT	200	15.4558	0.0001
PBT does not Granger Cause RISK		0.97696	0.3242
TAX does not Granger Cause PBT	200	15.9440	9.E-05
PBT does not Granger Cause TAX		22.5264	4.E-06

Source: *Authors' computation*

before tax also granger cause tax. Health firms have been able to perform better in profit before tax due to tax payment and at the same time they have been able to pay tax effectively due to better performance in profit before tax. The existence of this kind of relationship is not evidence in the agricultural sector performance measured in profit before tax.

5. CONCLUDING REMARKS

The focal intent of the study is to examine the impact of financial structure on performance of agricultural and healthcare Nigerian firms for a period of twenty one (21) years that is, 1993 to 2013. The study selected fifteen (15) out of the sixteen (16) firms listed on the agricultural and healthcare sectors on the Nigerian Stock Exchange. Financial structure was surrogated by total debt to total equity ratio, short term debt to total equity and total debt to total assets ratio while firm performance was measured by return on assets, return on equity, earnings per share and profit before tax. Prior estimation, the models were subjected to diagnostic test of heteroscedasticity, normality, ramsey RESET and multicollinearity in compliance to basic econometric assumption of relative use of model. The pooled OLS, fixed and random effect models were applied in estimation and the hausman specification test was performed in determining the choice of fixed and random effect models. The analysis for the agricultural firms revealed that financial structure significantly impact on earnings per share but does not impact on return on equity, return on assets and profit before tax. For healthcare firms, financial structure significantly impact on earnings per share and profit before tax but does not impact on return on equity and return on assets. On the impact of the control variables on performance, it was observed that it is only risk that is significant in determining performance of agricultural firms while tangibility, size, growth and tax are significant factors that impacts on performance of healthcare firms. Other factors such as trading on equity, capital gearing, cost of fund, maximum control flexibility may also impact on corporate performance of firms. In the agricultural firms estimation, the Adjusted R-square for the performance measures are 27.95%, -0.4%, 38.92% and 9% for return on equity, return on assets, earnings per share and profit before tax respectively. For the healthcare firms, it is 83.83%, 60.74%, 17.68% and 92.46% respectively for return on equity, returnon assets, earnings per share and profit before tax. This suggest that variation in performance as a result of changes in financial structure is more reflected in healthcare firms compared to agricultural firms. Summarily, financial structure impact on firms' performance, particularly on earnings per share followed by profit before tax. To this effect, we suggests that it is very crucial for firm's management to carefully look at the debt-equity mix, which according to the result of the study, significantly impacts on performance of firms in agricultural and healthcare sectors.

COMPETING INTERESTS

Authors have declared that no competing interests exist.

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