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THE EFFECT OF CAPITAL STRUCTURE ON AGRICULTURAL SECTOR PERFORMANCE IN NIGERIA (2007 – 2021)

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ABSTRACT

The practice of Agriculture involves the cultivation of crops and tending of livestock for the purpose of production of food and fiber for humans, and raw materials for agro-allied industries for the overall growth and development of Nigeria. The main objective of this study is to investigate the effect of capital structure on the performance of the agricultural sector in Nigeria and this was carried out for the period between 2007 and 2021. Ex-post facto research design was adopted in the study and the panel data technique was used for the study analysis. Seven agricultural firms were selected for

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this study and secondary data were sourced from their various published accounts. The study used Return on Equity (ROE) as the performance indicator and the capital structure indices were the ratios of Equity to total assets (EQTA), Short-term debt to total assets (STDTA) and Long-term debt to total assets (LTDTA).The result of the study indicated a mixed relationship among the variables and the researcher recognized that although there is mixed relationship among the variables, there is a positive and significant relationship between capital structure and the output of agricultural sector in Nigeria hence it is concluded that capital structure is a good predictor of agricultural sector performance in Nigeria. The recommendations is this study are; the management of quoted agricultural firms should ensure they attain an optimal capital structure in order to increase the agricultural output and investment and this can be achieved by maintaining precaution against the apparent benefits of greater leverage simply as a device for controlling managerial opportunistic behavior.

Keywords*: Capital Structure, Return on Equity, Agricultural Sector, Nigeria*

INTRODUCTION

Capital is the life wire of any business and every firm has several ways of sourcing its capital. Capital structure is one of the major decisions in business finance and any well-meaning management must be very careful in making capital structure decisions because it has a great way of imparting on the performance and overall value of firms.

The choice of a firm's capital structure is an important decision to make not only for its expected returns maximization, but also because this decision has a great impact on a firm's ability to successfully operate in a competitive environment.

According to Adebola (2017), capital structure is concerned with making the array of the sources of the funds in a proper manner, which is in relative magnitude and proportion having the capacity of enhancing the value of a firm. Therefore, it is important to note that the capital structure that a firm decides to adopt is determined by the vision and dream of such firm.

The capital structure of a firm is simply defined as the composition or structure of its liabilities and assets. Ibekwe, Ogini and Ibekwe (2022) observed that capital structure is the way an organization discharges its corporate obligations through some combination of equity, debt or hybrid securities. In line with the above, capital structure is essentially concerned with how the firm decides to divide its cash flows into two broad components, a fixed component that is earmarked to meet the obligations toward debt capital and a residual component that belongs to equity shareholders.

In the words of Muritala (2012), the capital structure of a firm is actually a specific mixture of debt and equity a firm employs in financing its operation.

Jahan (2012) advocates that the capital structure of a firm is what determines her ownership structure and these structures are very importance and have major impact in corporate governance because they contribute in defining the incentives of managers and thereby the economic efficiency of the corporations they manage. According to Rasheed and Aleiman (2015), ownership structure is defined by the distribution of equity with regard to votes and capital as well as the identity of the equity owners and

such can be formed through capitalization which can be obtained through retained earnings, loans from banks, venture capital or going public.

Agriculture is a major sector in Nigerian economy and it is a primary source of food for man and raw materials for agro-based industries. This sector is concerned with all human productive endeavours which is in collaboration with nature to cultivate plants and rear animals for the betterment of the society. According to Ibekwe, Ogini and Ibekwe (2022), agriculture has been the main source of food, gainful employment and sustainability in different nations of the world and Nigeria is not an exception. This is true to the extent that nations can feed its teeming population and provide her industries with local raw materials thereby creating jobs, enhancing productivity and forming a reliable source of government revenue. Proper capitalization in agriculture helps in furthering the level of productivity and performance in the sector hence agricultural firms should go all out in adopting optimal capital structure that will maintain a level of sustainability in the sector despite the low dependence on the agricultural sector.

Statement of the Problem

The impact of a proper capital structure on the performance of Nigeria agricultural sector cannot be overemphasized, the inherent problems notwithstanding.

The major problem that this study has come to address is that previous studies that have been carried out on capital structure and agricultural output in Nigeria has not shown clear compromise regarding the association between capital structure and agricultural

sector performance in Nigeria. The findings in the study of Ibekwe et al (2022) showed positive and significant relationship while Egwu (2019) concluded in his study that agricultural financing has a weak relationship with agricultural output and that there exist a long run relationship among the variables in Nigeria. Also, Nwabueze and Oleka (2020) had contrary findings in their study that capital structure which they proxied with size, asset, total liability, equity to asset ratio is not significant to changes in the performance of agricultural sector in Nigeria.

Again, the issue of low dependency on agricultural sector in Nigeria which has resulted to lack of interest and poor funding of the sector hence this research is been carried out to establish that agriculture still holds great potentials if adequately capitalized.

According to Ibekwe et al (2022), until the discovery of oil in Nigeria, agriculture was the most important sector of the economy accounting for more than two-thirds of colonial-Nigeria's export earnings but all of a sudden the contributions of agriculture to national development declined drastically during the civil war (1967-1970) and after the discovery of oil in Nigeria due to lack of proper capitalization and visionary planning for sustainable development. They further asserted that the glory of agriculture has eluded Nigeria for many years now and this is due to lack of interest, poor investment and low credit to agriculture.

Laying credence to the above, Rasheed and Aleiman (2015) also observed that agriculture was a major contributor of Nigeria's GDP and small-scale farmers play a

dominant role in this contribution but their productivity and growth are hindered by low capital and limited access to credit facilities. Egwu (2019) averred that individual Nigerians have diverted attention from agriculture to oil related businesses hence farm capitalization and credit which is identified as a major input that is expected to play a critical role in agricultural development has failed and this has resulted in the current down-time in the agricultural sector in Nigeria. The researcher believes that agriculture still holds a lot of potentials for future economic development of the nation, all the above has informed the opinion of the researcher to carry on this work.

Objectives of the Study

This study investigates the impact of capital structure on the performance of the agricultural sector in Nigeria. Specifically, the study intends to:

1. ascertain the impact of the ratio of equity to total assets on return on equity of agricultural firms in Nigeria
2. evaluate the relationship between the ratio of short term debt to total assets and return on equity of agricultural firms in Nigeria;
3. determine the effect of the ratio of long term debt to total assets on return on equity of agricultural firms in Nigeria

Research Questions

Based on the objectives, the following research questions are postulated to guide this study:

1. What is the impact of the ratio on equity to total assets on return of equity of agricultural firms in Nigeria?
2. What is the effect of the ratio of short term debt to total assets on the return on equity of agricultural firms in Nigeria?
3. To what extent does the ratio of long term debt to total assets impact on return on equity of agricultural firms in Nigeria?

Research Hypotheses

The following hypotheses are postulated to guide this study;

H_{o1}: There is no significant relationship between the ratio on equity to total assets and return of equity of agricultural firms in Nigeria

H_{o2}: The ratio of short term debt to total assets has no significant effect on return on equity of agricultural firms in Nigeria

H_{o3}: The ratio of long term debt to total assets does not significantly affect return on equity of agricultural firms in Nigeria

Scope of the Study

This study examines the impact of capital structure on the performance of agricultural firms in Nigeria from 2015 to 2021. The capital structure indicators used in this study are; Ratio on Equity to total assets (EQTA), Ratio of Short-term debt to total assets (STDTA) and Ratio of Long-term debt to total assets (LTDTA) while agriculture sector performance was measured by Return on Equity (ROE) of firms in this sector. The

study is limited to firms in Nigeria agricultural sector and has purposefully selected the following firms which include; Flour Mills NigPlc, Ellah lake, Fin cocoa Processing plc, Livestock feeds plc, Okomu oil, Prescoplc and Okitipupa Oil Palm for the purpose of this study.

Significance of the Study

The findings of this study will no doubt be of immense relevance and benefit to investors, company top management and policy makers towards informing their funding and investment decisions.

This study is also expected to add to the body of knowledge and provide further empirical literature evidence to scholars for subsequent research work.

Review of Related Literature

Capital Structure

Capital structure is the way companies build up array of funds that they use in financing their business activities. It consists of the debt and equity of the firm. The debt is composed of long-term debt and short-term debt giving rise to total debt of a firm while the equity is made up of common stock and preferred stock that is used to finance the firm's projects.

In support to this, Baker and Martin (2011) posited that capital structure is the mixture of debt and equity that the firm employs to finance its productive activities.

Equity

According to Ibekwe et al (2022), Equity is a share in the ownership of a company and it represents a claim on the company's assets and earnings. They further posit that as you acquire more equity, your ownership stake in the company becomes greater.

When you buy shares of a company, you basically own a part of the equity of that company. To buy a share of the company means to own a fractional portion of the whole company thereby expecting to earn a dividend whenever the company profits.

There are two basic types of equity or shares that any company can issue. They are; common stock or shares and preference shares (Jahan, 2012).

- **Common Stock or Shares**

Common stock is the most popular kind of equity. Ibekwe et al (2022) states that; common shares represent ownership in a company, and a claim of dividends on a portion of the company's profits. They further observed that investors get one vote per share to elect the board members, who oversee the major decisions made by management. Over the long term, common stock, by means of capital growth, yields higher returns than almost every other investment. This higher return comes at a cost since common stocks entail the most risk. If a company goes bankrupt and liquidates, the common shareholders will not receive money until the creditors, bondholder's and preferred shareholders are paid.

- **Preference Equity**

Ihejirika et al (2020) posited that preference shares capital is another constituent part of a firm's capital that possesses both the features of debt and equity making it a hybrid form of financing.

Ogbulue and Emenini (2019) stated that preferred equity is a class of financing that also represents ownership interest in a company and gives the holders upside and downside

exposure. Preferred equity typically comes without voting rights and does not pose much financial risk to the firm but it has a stated percentage of income as dividend. Its claims on the company's assets and profits come behind those of debt holders and ahead those of common stock holders. Nwude, Itiri, Agbadua and Udeh (2016) asserted that preferred equity obligates management to pay its holders a predetermined dividend before paying dividends to common shareholders if the firm liquidates.

Debt

The company debt refers to all forms of borrowed fund that such company has invested into its business operations. Ebaid (2009) averred that debt finance that a firm employs depends on several factors including the company's capital policy and credit policy, cost of capital and the how immediate the fund may be needed.

According to Ibekwe et al (2022), wherever and whatever way a firm sources its finance, it cannot change the operating income levels but that financial leverage can, at a great extent, have an impact on the net income or the Earning per Share (EPS) hence affecting the performance and value of such firm. Ebaid (2009) analysed that changing the financing mix means changing the level of debts and change in levels of debt can impact the interest payable by that firm. He further stated that the decrease in interest would increase the net income and thereby the EPS and it is a general belief that the increase in EPS leads to increase in the value of the firm. Apparently, under this view, financial leverage is a useful tool to increase value but at the same time, nothing comes without a cost. Financial leverage increases the risk of bankruptcy. It is because the higher the level of debt, the higher would be the fixed obligation to honor the interest payments to the debts providers. Discussion of financial leverage has an obvious objective of finding an optimum capital structure leading to maximization of the value of the firm. The two major types of debt financing are discussed below.

- **Long-Term Debt**

Long-term debt covers all company debts that usually take more than one year to repay. Debts on real estate, equipment and leasehold improvements have long term nature because they last more than one year. By using long term financing to fund long-term asset investments, you can preserve your cash and liquid business assets to fund day-to-day expenses (Ibekwe et al, 2022).

Unlike short-term debt, long-term debt is typically paid off according to well defined repayment terms. Good examples of long-term debts are bonds, debentures etc.

- **Short Term Debt**

Short-term debt is sometimes referred to as revolving debt. This is because they are used in funding short-term financial obligations of a firm and they do not last more than one year. Variable and recurring expenses like utilities and rent are usually funded using short term debts.

Ibekwe et al (2022) defined short-term debts as those company debts that will be used, liquidated, mature or paid off within one year. He also observed that according to the matching principle of finance, short-term assets should be financed with short-term liabilities and long-term assets should be financed with long-term liabilities.

Return on Equity (ROE)

ROE reveals how much profit a company earned in comparison to the total amount of shareholder equity found on the balance sheet. By measuring how much earnings a company can generate from equity, ROE offers a gauge of profit-generating efficiency. The ultimate purpose for any profit-seeking organisation is to create wealth for its owners. According to Adeshina and Ebele (2012) shareholders value is created when the equity returns of a company exceed the cost of that equity. It is the present value of all future cash flows less the cost of debt.

ROE is calculated by taking the profit after tax and preference dividends of a given year and dividing it by the book value of equity (ordinary shares) at the beginning of the year.

It offers a useful signal of financial success since it might indicate whether the company is growing profits without pouring new equity capital into the business. They further observed that the reason behind the adoption of ROE as a measure of performance is that it gives more reliable results than earnings per share (EPS) and a steadily increasing ROE is a hint that management is giving shareholders more for their money. In support to this, Abore (2011) simply put it that ROE indicates how well management is employing the investors' capital invested in the company.

Agricultural Sector in Nigeria

Rasheed and Aleiman (2015) states that; agriculture is the systematic raising of useful plants and livestock under the management of man and for the benefit of man.

Agricultural practice involves the cultivation of crops and raising of livestock for the purpose of production of food and fiber for humans and raw materials for the industries. It embraces all aspects of farming, fishing livestock, rearing, poultry and forestry.

Ibekwe et al (2022) defined agriculture as the art and science of growing plants and other crops and the raising of animals for food, other human needs or economic gain while Muritala (2012)sees it as the production of food and livestock and the purposeful tendering of plants and animals. He stated further that agriculture is the mainstay of many economies and it is fundamental to the socio-economic development of a nation because it is a major element and factor in national development. Ibekwe et al (2022) also asserted that agriculture is an enterprising activity or practice that is based on systematized body of knowledge (science) and requires skill (art).

Agriculture has been an important sector of Nigerian economy as it primarily provides food for man and raw materials for agro-based industrial production which results in gainful employment and economic well-being of Nigerians.

Before the discovery of oil in the country in the late 1950sand early 1960s, agriculture was the dominant sector of Nigeria economy and accounted for more than two-third of the colonial-Nigeria's export earnings (Ibekwe et al 2022). It constituted over 65% of the country's Gross Domestic Product (GDP) and provided the bulk of the foreign exchange earnings through the export of cash crops. They further posited that agriculture declined drastically during the civil war (1967-70) and after the discovery of oil in Nigeria due to poor capitalization and lack of visionary planning for sustainable development. The oil boom also devastated agriculture and lowered it from 60% of GDP in the 1960's to 31% by the early 1980's.The above factors negatively affected Nigeria. Nigeria is a nation that had been esteemed as a major exporter of agricultural products which made her to be largely self-sufficient in food production but today the same Nigeria has quickly become a net importer of agricultural commodities.

Akinola and Adeyemo (2013) agreed that agriculture is a major contributor of Nigeria's GDP and small-scale farmers play a dominant role in this contribution but their productivity and growth are hindered by Nigerians' most interest in oil and limited access to credit facilities. Muritala (2012) stated that agricultural credit is expected to play a critical role in agricultural development and has as such identified it as a major input in the development of the agricultural sector in Nigeria.

The point here is that agriculture still holds a lot of potentials for future economic development of the nation, having played a dominant role as a major source of government revenue and foreign exchange earner in the remote past. But it will take national re-interest and reinvestment in the sector for it to come up and sustainably contribute to enhanced availability food and agro raw materials, employment and overall economic growth and development.

Theoretical Review

This research is anchored on the Market-Timing Theory and the Agency Theory.

- The market-timing theory is adopted in the study for the fact that it talks about the expert professional act of the managers to take advantage of and exploit temporary fluctuations in the cost of equity relative to the cost of other forms of capital which they exercise by issuing shares at high prices and repurchasing at low prices. If this is wisely and efficiently done with consideration of both equity issuance and repurchase costs, such firms may be tending to optimal capital that will enhance their overall performance. According to Nwude et al (2016), the market timing theory suggests that managers, depending on their definition of firm value, tend to issue equity when they feel that the market overvalues their company. He examined the effect of market timing on capital structure and found that low leverage firms are those that raise funds when their market valuations are high, while high leverage firms are those that raise funds when their market valuations are low. Ubesi (2016) posited that market timing is sometimes classified as part of the behavioural finance literature which motivates managers to possibly study and time the current market position with a view of catching into opportunities of making good returns from sale of equity at times when their companies are highly valued and priced in the market place.

Borrowing from the views of Ubesi (2016), when firms efficiently study the market tendencies and judiciously exploit the positive opportunities, they are bound to earn income from sale and repurchase of shares that may go to a good extent in sustaining their operations with little or no need for leveraging.

- Again, the Agency Theory which is adopted in this study argued that due to a continuous dilution of equity ownership of large corporations, ownership and control become more separated.

This theory was proposed to examine the influence of capital structure and also demonstrate the conflicts between the parties to a company under the perspective of corporate governance. These parties include the outside stockholders, creditors and managerial insiders.

In the theory, shareholders are the only owners of a company and the task of its directors is merely to ensure that shareholders' interests are maximized. More specifically, the duty of directors is to run the company in a way which maximizes the long term return to the shareholders, and thus maximizes the company's profit and cash flow. Ogbulie and Emenini (2019) asserted that the agency theory is based on the notion that ownership of a firm is different from its management and that managers will not always act in the best interest of the shareholders and they are tempted to pursue the profits of the firms they manage to their own personal gain at the expense of the shareholders.

This situation gives professional managers an opportunity to pursue their interest instead of that of shareholders. The problem is that the interest of the principal and the agent are never exactly the same, thus the agent, who is the decision-making part, tends always to pursue his own interests instead of those of the principal. It means that the agent will always tend to spend the free cash flow available to fulfill his need for self-aggrandizement and prestige instead of returning it to shareholders (Jahan, 2012). Hence, the main problem faced by shareholders is to ensure that managers will return excess cash flow to them (e.g. through dividend payouts), instead of having it invested in unprofitable projects.

Empirical Review

Few empirical literatures are examined in this study and they are as follows;

Akinola and Adeyemo (2013) examined the effect of property rights and other factors on the outputs of maize, yam and cassava in three zones of Osun State in Nigeria. This study employed a multi-stage sampling technique to select 105 farmers involving growers of maize, yam and cassava in the study area. Data were analyzed with the aid of descriptive statistics, budgetary techniques and a multiple linear regression model. The results of budgetary analysis showed that variable cost was highest in yam production. The average revenues per hectare for maize, yam and cassava were N104, 487.50, N583, 846.20 and N438, 208.50, respectively.

However, the average net incomes were N19, 908.40, N432, 079.00 and N96, 543.90 for maize, yam and cassava, respectively. Based on the rates of returns, N1 invested in each of maize, yam and cassava production yielded N1.2, N3.4 and N3.1, respectively implying that yam was the most profitable crop in the study area. The result of the multiple regression model revealed that farm size significantly affect the outputs of the three crops. Land rights type (having either use right and transfer right) and security of land defined by duration of land use affected maize output while duration and ownership type affected yam output, whereas, duration only affect cassava output. The researcher recommended that there is the needs to review the land use decree to enable Nigerians have free access to land.

Egwu, (2019) investigated the impact of agricultural financing on agricultural output, economic growth and poverty alleviation in Nigeria. The researcher collected secondary data on Commercial Bank Credit to Agricultural sector (CBCAS), Agricultural Credit Guarantee Scheme Fund Loan to Nigeria' Agricultural Sector (ACGSFAS) as the independent variables while Agricultural Sector Output percentage to Gross Domestic Product (ASOGDP) was the dependent variable. In data analysis, he adopted the ordinary least square regression technique and employed T-test, R-Square, Standard Error Test and Durbin Watson test. ADF/PP unit root and co-integration test in the data analysis and the research findings revealed that Commercial Bank Credit to Agricultural sector (CBCAS) and Agricultural Credit Guarantee Scheme Fund Loan to Nigeria's

Agricultural sector (ACGSFAS) were insignificant to Agricultural Sector Output percentage to Gross Domestic Product (ASOGDP) thereby alleviating poverty rate and inducing economic growth in Nigeria, The researcher concluded capital structure has a weak relationship with agricultural output and that there exist a long run relationship among the variables in Nigeria under the study period. In the light of the research findings, the researcher recommended that there is the need for the Central Bank of Nigeria to reduce the cash reserve ratio. However, funds that accrue from such policies must be added to the agricultural credit portfolios. This will consequently increase the farmers that could eventually serve as collateral for credit facilities from the banking system.

Finally, agricultural commercialization has been found in the study to be of high significance. To this extent, there is need for government to put in place policies to stimulate agricultural commercialization through cooperative system, agricultural subsidies and zero tariff for importation of agricultural inputs.

Hakeem and Babalola (2019) studied the relationship between capital structure and performance of firms listed on Nigerian Stock Exchange for the period of 2002 to 2017. The study tested the hypotheses, that there is meaningful link between capital structure and return on equity ROE, there is meaningful link between capital structure and return on asset ROA, there is meaningful link between capital structure and return on stock, ROS and that there is meaningful link between capital structure and earnings before tax

to sales ratio, EBT. The study applied the data of 117 corporations on Nigerian Stock Exchange for the period 2002 - 2017. The study variables were capital structure (independent) measured by debt ratio and firm performance (dependent) measured by ROE, ROA, EBT and ROS. The study used the ARDL analytical technique and the results obtained in the study indicated that capital structure influences financial performance as measured by the four dependent variables and thus, the significance of the influence belonged to measures of adjusted value, market value and book value. The study therefore proposed that market value should be taken more into consideration in evaluating capital structure.

Nwabueze, M. and Oleka, C.U. (2020) conducted a study titled; Is Capital Structure a Determinant in the Nigerian Agricultural Sector and used secondary data from six agricultural firms covering the period 2010 to 2015. The study used size, asset, total liability, equity to asset ratio for capital structure and return on asset (ROA) for agricultural performance in Nigeria. They adopted the panel data tool to analyse the association between the variables and found out that size, asset and equity to asset ratio has insignificant influence over ROA and total liability significantly affected ROA. Their study concluded that capital structure is not a good determinant of agricultural sector performance in Nigeria and also recommended that Nigerian should go all out in formulating policies that will help in boasting agricultural efficiency in Nigeria.

Ihejirika, Ndugbu, Mbagwu and Ojiegbe (2020) examined Capital Structure Decisions and Financial Viability of Firms on the Premium Board Segment of the Nigerian Stock Exchange from 2010 to 2018. The study was a longitudinal research design for panel data and a type of quasi-experimental research design was adopted. The debt-to-equity ratio (DER), long-term debt-to-total assets ratio (LTDTA), total debt-to-total assets ratio (TDTA) and short-term debt-to-total assets ratio (STDTA) to measure capital structure decisions return on assets (ROA) was used for performance of firms and firm size measured as the natural log of total assets was introduced as a control variable. Secondary data on these variables as it related to seven firms listed on the Premium Board Segment of the Nigerian Stock Exchange as at December 31st, 2018 were obtained from published annual reports of firms and complimented by data sourced from the Nigerian stock exchange and the security and exchange commission who maintain data banks for quoted firms in Nigeria and the Cash craft Asset Management Limited, a registered dealer and broker with the Nigerian stock exchange through their website especially data on stock price movements of firms. The panel data analysis was used to analyze the data and the fixed effects model as well as the random effects model were estimated. The Fixed Effects model was adopted for the interpretation of the result as suggested by the Hausman test. The result showed mixed relationships between capital structure decisions and financial viability of firms. The study specifically found that long-term liability to total assets ratio exhibit a positive and significant association

with return on assets while total liability (current plus non-current) to total assets ratio suggests a negative and significant effect on return on assets. The researchers therefore recommended that quoted Companies on the Premium Board should target achieving optimal combination of debt and equity to enhance returns on capital employed as well as sustain their long-term debt profile to continue to improve the level of return on assets. Finally, listed companies on Premium Board should re-examine their working capital policy to minimize the negative effect of short-term debt on return on total assets.

Ibekwe, Ogini and Ibekwe (2022) studied Ownership Structure and Agricultural Firms in Nigeria using agricultural out (AOT) as the dependent variable and ordinary shares (ODS), retained earnings (RTE), long term debt ratio (LTDR) and short term debt ratio (STDR) as the independent variables. The study was an Ex post facto research design due to the nature of the secondary data which were sourced from the annual reports of the six agricultural firms quoted in Nigerian stock exchange. The data was analyzed with econometric techniques involving the Augmented Dickey Fuller tests for Unit Roots and the Ordinary Least Square (OLS). The result of the study indicates that ordinary share, retained earnings, short term debt ratio and long term debt ratio has positive and significant effect on agricultural output. The study therefore concludes that ownership structure has positive effect on the output of agricultural firms in Nigeria. Amongst the recommendations in this study is that the management of quoted

agricultural firms should work very hard to optimize the capital structure of the quoted agricultural firms in order to increase the agricultural output and investment, quoted agricultural firms should increase their commitments into ownership structure in order to improve agricultural output and the management of quoted agricultural firms must caution against the apparent benefits of greater leverage simply as a device for controlling managerial opportunistic behaviour.

METHOD

Research Design

Due to the nature of the data, this study adopted the ex-poste factor research design to investigate the relationship between capital structure and the performance of agricultural firms in Nigeria.

Sources of Data

Secondary data from the audited annual financial reports of the seven agricultural firms listed on the Nigerian Stock Exchange for the period under review were used in this study (specifically their income statement and statement of financial position).

Model Specification

In this study, the functional form of the model is specified thus;

ROE = f (EQTA, STDTA, LTDTA) …….. (1)

The econometric format of equation (1) can be explicitly written as;

$$ROE_{it} = b_0 + b_1EQTA_{it} + b_2STDTA_{it} + b_3LTDTA_{it} + U_{it}$$

Where ROEit = Return on Equity of agricultural firms in Nigeria

EQTAit= Ratio of Equity to total assets of agricultural firms in Nigeria

STDTAit= Ratio of Short-term debt to total assets of agricultural firms in Nigeria

LTDTAit= Ratio of Long-term debt to total assets of agricultural firms in Nigeria

Utit = Stochatic error term (unexplained variables in the model)

b_0 = Constant

b_1 -b_3 = the unknown parameters to be estimated

Method of Data Analysis

Given the fact that the study is a cross-sectional time series analysis, the researcher adopted the panel data analytical technique and the Hausman test specification was carried out in order to effectively choose the best performing effects between the random effects and the fixed effects. The E-view 10.0 econometric software was used for the analysis.

Data analysis and interpretation of results

All the variables are measured in ratios and the data are arrayed in cross-sections of seven years each for the agricultural firms sampled in this study.

Analysis and Results

Unit Root/Stationarity Test

ıit root test: Summary
ɔ: 2007 2021
ıous variables: Individual effects
ıtic selection of maximum lags
ıtic lag length selection based on SIC: 0
-West automatic bandwidth selection and Bartlett kernel
ed observations for each test

l	tatistic	rob.**	ross-ctions	Obs
nit root (assumes common unit root process)				
Lin & Chu t*	7.4131	0.0000	49	200
nit root (assumes individual unit root process)				
saran and Shin W-stat	0.0991	0.0000	49	200
Fisher Chi-square	00.420	0.0000	49	200
sher Chi-square	19.413	0.0000	49	200

abilities for Fisher tests are computed using an asymptotic Chi
quare distribution. All other tests assume asymptotic normality.

The unit root result above specified the four test (Levin, Lin & Chu statistics, Im, Pesaran and Shin W-statistic, ADF-Fisher Chi-square and PP- Fisher Chi-square tests) and their associated test statistics and probabilities. The summary results indicate that the series were all stationary at level. This is enough evidence to reject the null hypothesis of a unit root.

Estimated Results

The Random and Fixed Effects methods were used to estimate the relationship between return on equity of firms and capital structure indices (EQTA, STDTA and LTDTA) of Agricultural sector in Nigeria and the Correlated Random Effects - Hausman Test was used to compare the two sets of estimates, one of which is consistent.

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Based on the results below, there is a significant difference between the random effects specification and that of the fixed effects specification with a chi-square value of 11.318124 at 5 degrees of freedom and 0.0247 probability. Going by the summary test result, the fixed effects specification is superior to the random effects specification; so we reject the random effects model as inconsistent and adopt the fixed effects model instead.

ated Random Effects - Hausman Test
OOL01
oss-section random effects

ummary	hi-Sq. Statistic	Chi-Sq. d.f.	Prob.
section random	11.318124	5	0.0247

section random effects test comparisons:

Variable	Fixed	Random	Var(Diff.)	Prob.
EQTA?	-0.144216	0.118924	0.032413	0.0722
STDTA?	0.101933	0.336192	0.021190	0.1153
LTDTA?	0.139913	0.500141	0.022599	0.0127

Following the Correlated Random Effects - Hausman Test results, the estimated relationship between return on equity of firms and capital structure of Nigerian agricultural sectorusing the fixed effects model is presented in the table below.

ts of Estimated Fixed Effects Model
dent Variable: ROE?
l: Pooled Least Squares
1/08/23 Time: 18:23
: 2007 2021
d observations: 7
sections included: 7
ool (balanced) observations: 49

Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	20.21581	25.01273	0.573334	0.3522
EQTA?	0.151219	0.311240	0.491323	0.1981
STDTA?	0.102243	0.413310	0.239416	0.0354
LTDTA?	0.139151	0.402209	0.310364	0.0332
red	0.884124n dependent var			14.12494
d R-squared	0.843520 dependent var			8.403011

regression	2.481284ke info criterion	4.120137
quared resid	221.1149varz criterion	4.922604
elihood	-102.2044ıan-Quinn criter.	5.102100
tic	33.14630in-Watson stat	1.317337
-statistic)	0.000000	

From the table above, the regression equation can be presented as;

b_0ROE =20.21581 + b_1EQTA0.151219 + b_2STDTA0.102243 + b_3LTDTA0.139151.

The constant parameter (bo) has a positive value of 20.21581 which implies that if all the independent variables are held constant, the dependent variable (ROE) will increase by 20.21581 units per annual.

Conversely, keeping all conditions constant, a unit increase in EQTA, STDTA and LTDTA will cause ROE to increase by 0.151219, 0.102243 and 0.139151 respectively

- **T-test Result (Individual Test)**

  The researcher adopted the t-test statistical tool to test for the individual significance of the estimated parameters.

From the result, all the capital structure variables in this study; EQTA, STDTA and LTDTA recorded positive coefficients of 0.151219, 0.102243 and 0.139151, with t-test statistic values of 0.491323, 0.239416and 0.310364 and probability values of 0.1981, 0354 and 0.332 respectively This indicated that STDTA and LTDTA have a positive and significant relationship with Return of Equity (ROE)but EQTA exhibited a positive and insignificant impact on ROE with the probability of 0.1981.Based on this result, the null hypotheses which states that STDTA and LTDTA have no significant relationship with ROE is rejected while the null hypothesis on EQTA is accepted having an insignificant influence over ROE.

- **F-test Result (Joint Test)**

The F-test result with f-statistic value of 33.14630and probability value of 0.0000 indicates that the explanatory variables have a joint and significant impact on the dependent variable hence it can be concluded that the model has predictive value.

- **Coefficient of Determination (R^2)**

The Coefficient of Determination (R^2) indicates that the model has a good fit at 0.884124 or 88.41%. This means that equity to total assets; short-term debt to total assets and long-term debt to total assets explain 88.41% of the changes in the return on equity of firms sampled.

- **Coefficient of Determination R^2- Adjusted**

Also, the Adjusted R-squared value of 0.843520 or 84.35% still indicates that the capital structure decisions variables explain about 84.35% of the variation in return on equity of firms sampled while the remaining 15.65% is due to other stochastic variables.

- **Serial or Auto-Correlation Test**

The Durbin-Watson statistic of 1.317337is closer to 1 than 2 and therefore indicates that there may be serial or auto-correlation in the residuals of the estimated model.

Discussion of Findings

In this study, the following findings were made and discussed hereunder;

1. There is a mixed relationship among the capital structure indices and agricultural sector performance in Nigeria.

The result revealed that two capital structure indices (STDTA and LTDTA)have positive and significant relationship with Return of Equity (ROE) while EQTA maintained a positive but insignificant association with ROE.

This finding suggest that agricultural firms in Nigeria prefer to use leverage in some cases and it aligns with that of Al-Taani (2013) who also found positive coefficients of debt variables and concluded that debt is a good predictors of firms' performance.

The Agency Theory which is adopted in this study also gives credence to these findings. This theory was proposed to examine the influence of capital structure and also demonstrate the conflicts between the parties to a company under the perspective of corporate governance. These parties include the outside stockholders, creditors and managerial insiders. By this theory, stockholders are the owners of a company and the Directors merely ensure that shareholders' interests are maximized but the managers who are the firms' agents are more interested in their personal gratification for which reason they can easily seek to access fund in order to operate and make personally related gains without minding the cost of such fund. This is further supported by the assertion of Nguyen and Dang (2017) who stated that the agency theory is based on the notion that ownership of a firm is different from its management and that managers will not always act in the best interest of the shareholders and they are tempted to pursue the

profits of the firms they manage to their own personal gain even through unverified fund sources at the expense of the shareholders.

2. The Capital structure variables indicated a joint impact on ROE as revealed by the F-test result in this study and this further confirms that capital structure is a good predictor of agricultural sector performance in Nigeria. The study of Ibekwe et al (2022) is relevant here and also aligns with the findings in this study as their result similarly indicated that ordinary share, retained earnings, short term debt ratio and long term debt ratio have positive and significant effect on agricultural output and similarly concluded that ownership structure has positive effect on the output of agricultural firms in Nigeria.
3. The Durbin-Watson statistic indicated that there may be serial or auto-correlation in the residuals of the estimated model.

The summary of the findings is based on the adjusted R squared coefficient which explained that the explanatory variables accounted for about 84.35% variations in return on equity (ROE) of the agricultural firms sampled in this study.

Summary

The findings from the above analytical methods are summarized below;

1. The summary results of the pooled unit root text indicated that the series were all stationary at level.

2. The study showed mixed relationship among the individual capital structure indices and agricultural firms' performance in Nigeria as two out of the three independent variables showed positive association with ROE with only one recording a negative relationship.
3. The capital structure variables showed joint influence on ROE
4. The Durbin-Watson statistic indicates that there may be serial or auto-correlation in the residuals of the estimated model.

CONCLUSION

In line with the result of the study which indicated a mixed relationship among the variables, the researchers concluded that capital structure is a good determinant of agricultural sector performance in Nigeria.

RECOMMENDATIONS

Given the study findings, the following recommendations are made;

1. The Nigerian government should continually formulate policies that will encourage the citizens to invest more in agriculture so as to return Nigeria to the former days of having agriculture as the main source of the nation's export earnings.

2. The government should be ready to train and sponsor well-meaning individuals that will have interest in effective agricultural involvement.

3. The management of quoted agricultural firms should work very hard to optimize their capital structure in order to increase their agricultural output and maximize their investment.

4. The management of quoted agricultural firms in Nigeria must take precaution against the apparent benefits of greater leverage simply as a device for controlling managerial opportunistic behaviour.

5. Investors and stakeholders of quoted agricultural firms in Nigeria should also consider the leverage level of any firm before having any investment in any firm as the strength of a firm's financing mix is what determines her level of returns.

6. Government should increase the national budget for the agricultural sector and as well lessen the bank lending conditions for agricultural ventures so as to attract more investors to the sector.

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