

TAX PLANNING AND FINANCIAL PERFORMANCE OF NIGERIAN MANUFACTURING COMPANIES

^{1*}Ogundajo, Grace Oyeyemi and ²Onakoya, Adegbemi Babatunde
¹goyen01@yahoo.com, +2347065263796. ²adegbemionakoya@yahoo.com, +2348035550124.
¹Department of Accounting, School of Management Sciences
²Department of Economics, Veronica Adeleke School of Social Sciences
Babcock University, Ilishan-Remo, Ogun State, Nigeria.

Abstract

The study examined the influence of corporate tax planning on the financial performance of manufacturing firms quoted on Nigerian Stock Exchange using annual reports and accounts of 10 selected firms out of 28 firms listed under consumer goods sector. The study employed Generalized Least Square (GLS) method of regression based on the outcome of Hausman's model estimation test. The study established that aggressive tax planning such as thin capitalization, tax law incentives and other benefits of loopholes in Nigerian tax laws have not been fully utilized by the Nigerian firms. The study recommended that manufacturing firms in Nigeria should make tax planning as part of the firm's strategic financial planning, employ the service of expertise in tax practices due the complexity and dynamitic of Nigeria tax laws and also to effectively utilize all-inclusive tax planning strategies available in order to further influence financial performance positively.

Keywords: Effective Tax Rate (ETR), Financial Performance, Thin Capitalization, Tax Practitioners, Nigeria Tax Laws.

1.0 Introduction

One of the most important responsibilities for corporate tax manager is to strategize on minimizing a company's overall tax liability. Theoretically, firm's tax liability is proportionally related to its profitability; attaining firm's wealth maximization objective through diverse means of increasing profitability poses more challenge on firm's ability to reduce its tax liability. Effective tax planning is defined by Scholes, Wolfson, Erickson, Maydew, & Shevlin, (2009) as strategies that maximize the firm's expected discounted after-tax cash flows. Apart from being vast in the tax laws, the tax consultants of any organisation should have extensive knowledge of the company, its history and how the organisation operates. It extends to the coordination of parties with diverse interests and information, involving domestic and foreign operations across multiple segments of the business including finance and financial reporting, management and technology (Maydew & Shackelford, 2005).

According to Morien (2008), in well-organized economies, paying taxes in business is almost unavoidable. Effective tax planning strategies should produce benefits in terms of wealth creation for the company. Hence, tax planning is actually a subset of the overall financial planning of a company which needs to take into account investment, financing and wealth

building strategies of the company. Majority of Nigerian firms are highly financed through equity, thus unable to enjoy the benefits of tax shield as related to thin capitalization.

Tax planning in essence involves the application of relevant incentive provisions for corporate tax payers based on enabling laws such as the CITA, PITA, VAT and other enactments. An in-depth understanding of the tax policies and other regulations as clearly stated in the nation's government fiscal policies is required for effective tax planning. The Corporate tax planning incentives as contained in the CITA, PPTA and other laws include: pioneer status incentive, commencement rule, cessation rule, investment allowance, roll-over loss relief. Others include business location or area of operation (free trade zone, rural area investment allowances), tax exemption benefits on interest on a loan granted by a foreign company to any business in Nigeria, asset acquisition timing for claims of capital allowances. Several other tax shelters and incentives which a company can take advantage of based on the provisions of CITA CITA CAP C21 LFN 2004, Fowokan (2009); Ezejelue and Ihendinihu (2006). Indeed, Companies Income Tax Act, LFN 2004 contain varying provisions that give the corporate tax manager the opportunity to mitigate the company's tax liability.

Consequently, the tax planning strategy tends to give a positive impact on a firm's cash flow and its after tax rate of returns; however, tax planning strategies have a negative impact on the government's revenue and further, increase the compliance cost of collecting taxes. This concept is therefore significant for firms listed on the NSE who may seek to improve on all their tax savings. Given the importance of this concept of tax planning for corporate organizations in Nigeria, there is a gap that the present study seeks to bridge by exploring different tax planning mechanisms available to firms listed on Nigeria stock exchange and the influence of corporate tax management on the financial performance of manufacturing firms quoted on Nigerian Stock Exchange using annual reports and accounts of 10 selected firms out of 28 listed under consumer goods sector.

Tax planning is an integral part of financial planning and the area of financial structure decisions offers a tax manager and the company an opportunity to mitigate the company's tax liability and improve on the financial performance of the firm. The main objective of this study is to conduct inferential review of the effect of tax planning on the financial performance of firms. The paper argues that effective tax planning would enhance after tax returns of manufacturing firms in Nigeria.

The rest of this paper is organized as follows: In section 2, we review related literature and highlight the theoretical base for the study. Section 3 presents the methodology of the study. The empirical results and discussions are presented in section 4, while we conclude the study in section 5.

2.0 Review of Related Literature

The presentation in this section is in two parts: the theoretical review and the summarized review of relevant studies.

2.1 Underpinning theories

Three theories will serve as the bedrock for this study. These are the Hoffman's tax planning theory, the Agency view of tax avoidance and political cost theory. According to

Hoffmann (1961), taxation, mostly are based on business or accounting concepts, thus a firm can modify such activities towards the attainment of reduction in tax liability. Hoffmann identified some ambiguity and loopholes in tax laws due to unclear intentions of the legislators and concluded that successful tax schemes work with the legal concepts and precise wording of the statute and complying with these concepts very precisely as it relates to individual firm tends to be advantageous to firms in form of tax savings.

The agency view of tax avoidance on the other hand emphasized on the inability of the tax savings through tax planning strategies to transform into enhancement of after tax return due to agency problem of managerial opportunism or resource diversion. Desai and Dharmapala (2009) opined that complex tax avoidance transactions can provide management with the tools, masks, and justifications for opportunistic managerial behaviours, such as earnings manipulations, related party transactions, and other resource-diverting activities thus, tax savings may not actually result to increase on firms' after tax rate of return.

Salamon and Siegfried (1977) asserted that larger firms have economic and political power advantage over the small firms. Larger firms effectively utilizes their economic and political power to lessen their tax liability being able to engage in aggressive tax planning due to their broad resources and also, he's of the opinion that large firms are opportunistic in manipulating the political principles for the enhancement their after tax returns.

These theories are relevant to this study, a firm which maximizes the loopholes in the corporate tax laws and which maintain an optimal gearing thus having tax shield on the deductible interest tends to lessen its tax burden and increases its after tax returns (Hoffman's theory). From the agency point of view, a firm might utilized all the strategies in reducing its tax burden but the savings not transformed into corporate financial benefit due to agency problem. The agency view theory is of the assertion that managers with their personal interest in conflict with the global interest of the entity might divert such savings to other investment for personal gains. Lastly, the political cost theory believed that larger firms tends to be more matured and possesses expansive resources thus have the capacity of engaging professionals in the formulations and implementations of their corporate strategies with tax liability inclusive.

Based on these theories, effective tax rate (ETR), leverage (LEV), firm's size (SIZE) and age (AGE) are selected as the explanatory variables for the study.

2.2 Empirical Review

Correlative-description design using cross sectional method of analysis was conducted by Desai and Hines (2002), Chen, Chen, Chen and Shevlin (2010). They established that intensive tax planning is associated with higher firm performance. On the other hand, the study reported that tightening of the tax system is positively associated with higher market performance of firms. The same positive association was reported between tax planning savings and performance for well-governed firms by Desai and Dharmapala (2009). They concluded that corporate governance mediates the tax planning-firm performance relationship.

Mahfoudh & Ku Nor Izah (2015) conducted a library research on Corporate Tax Planning Activities and concluded that there are several approaches to tax planning such as

income shifting, modify of characteristics of income, organizational structure and tax-exemption. The study opined that the primary motivations for undertaking tax planning are the expected financial benefits.

Rohaya, Nur Syazwani and Nor'Azam (2010) are of the opinion that larger companies endure higher effective tax rates (ETR) in the examination of Malaysian public companies listed on Bursa Malaysia. This conclusion was established during official assessment system and self-assessment system tax regimes. The study also concluded that lower ETRs are significantly related to highly leverage companies, greater investment in fixed assets and lower investment in inventory. The results of the investigation by Abdul-Wahab and Holland (2012) which sought to know the relationship between tax planning savings of firms and their value utilised the regression model was negative. Indeed, relationship between firm value and tax planning activities from the perception that as tax planning activities increase, the tax costs and risks outweighs the benefits.

On the other hand, Kawor & Kportorgbi (2014) found that tax savings enhanced after tax earnings of Ghanaian firms but does not reflect in the firm's value. The result is consistent with the Agency theory notion that not all management strategies tends towards the achievement of wealth maximization objectives. In a similar vein, the adoption of the Generalized Least Squares (GLS) regression model by Ftouhi, Ayed & Zemzem (2014) to examine the relationship between firms' value and tax planning with firm size, leverage, capital intensity, dividend and earnings management as control variables found a significant and negative relationship between firm value and tax planning also supports the Agency cost theory of tax planning.

The relation between the firm cost of equity and corporate tax avoidance was examined by (Goh, Lee, Lim & Shevlin, 2013) using three measures that capture less extreme forms of corporate tax avoidance: book-tax differences, permanent book-tax differences, and long-run cash effective tax rates. The study found that less aggressive forms of corporate tax avoidance significantly reduces a firm's cost of equity. Further analysis reveals that this effect is stronger for firms with better outside monitoring. It is also applicable to firms that likely realize higher marginal benefits from tax savings, and firms with better information quality.

Heitzman & Ogneva (2015) evaluated the relationship between Corporate Tax Planning and Stock Returns of all U.S. firms traded on NYSE, AMEX or Nasdaq from 1988 to 2013 using panel regression analysis; they concluded that high tax planning firms do indeed earn higher returns, but only during periods when tax enforcement is low; the study also discovered that small firms have less diversified tax strategies than large, complex firms due to: lack of scale and complexity, high exposure to adverse consequences of government actions inability to finance high fixed costs of tax planning strategies. The study found that large firms are less exposed to tax policy risk due because they are consistently audited. The study suggested that boards and managers should primarily focus on the expected incremental cash flows from tax planning. Similarly, the study of Armstrong, Blouin & Larcker (2012) on the relationship between the incentives of the tax director and GAAP and cash effective tax rates, the book-tax gap, and measures of tax aggressiveness, revealed that: tax directors are provided with incentives to reduce the level of tax expense reported in the financial statements, hiring of experts for tax services complements "aggressive" tax planning, more profitable firms have greater probability

of participating in tax shelters and thus enhancing their after tax returns, that large firms tends to engage in tax shelter compared to small firms due to huge fixed costs of entering into tax shelter transactions.

From the previous studies reviewed, Desai and Hines (2002), Chen, Chen, Chen and Shevlin (2010). Blouin & Larcker (2012), Heitzman & Ogneva (2015), Desai and Dharmapala (2009) supported the assertion that tax savings enhances the financial performance of an entity; while Kawor & Kportorgbi (2014) found that tax savings enhanced after tax earnings does not reflect in the firm's value, this allied with the studies of Abdul-Wahab and Holland (2012) and Ftouhi, Ayed & Zemzem (2014). Also, Rohaya, Nur Syazwani and Nor'Azam (2010) opined that larger companies endure higher effective tax rates (ETR) as supported by the studies of Heitzman & Ogneva (2015) and Armstrong, Blouin & Larcker (2012). The findings of these studies corroborated the proposition of political cost theory. Finally, thin capitalization effect was found in the study of Rohaya, Nur Syazwani and Nor'Azam (2010) in their conclusion that lower ETRs are significantly related to highly leverage companies, greater investment in fixed assets and lower investment in inventory.

The rationale for this study is to corroborate the findings of previous studies as discussed under the empirical review. The next section of this paper deals with the methodology adopted.

3.0 Methodology

This section deals with the method employed to obtain relevant information on implication of tax planning on financial performance of Nigerian firms.

3.1 Data Source and Descriptions

Secondary data (audited annual reports and accounts) for a period of ten-year period from 2005 to 2014 obtained from the official websites of the 10 selected firms were used for the study.

3.2 Model Specification

This study is an empirical survey and ex-post-facto in nature. The empirical analysis of this study is based on the study of Kawor and Kportorgbi (2014). Twenty eight companies listed under consumer goods sector were used as the population out of which 10 are selected as samples of the study using judgmental sampling technique. The 10 firms selected are sufficient to for the study to draw a generalized decision because they represent approximately 40% of the study population which is above the 30% general threshold.

Panel regression model is adopted for data analysis while generalized ordinary least square (GLS) method of regression is used.

$$\text{Tobins } q_{it} = \alpha_{it} + 1(\text{Tax savings})_{it} + 2(\text{Sgrowth})_{it} + 3(\text{Fsize})_{it} + 4(\text{fLev})_{it} + 5(\text{Age})_{it} + \varepsilon_{it}$$

Kawor and Kportorgbi (2014) studied effect of tax planning on firms market performance using Tobins q as a surrogate for market performance, tax savings as surrogates for tax planning while sales growth, leverage, Age were used as mediating variables. This study reviewed the model thus:

$$\text{ROA}_{it} = \beta_0 + \beta_1 \text{ETR}_{it} + \beta_2 \text{LEV}_{it} + \beta_3 \text{SIZE}_{it} + \beta_4 \text{AGE}_{it} + \varepsilon_{it}$$

Return on assets is used as dependent variable because the present study is on financial performance and not market performance, effective tax rate is used as a measure of tax planning because both effective tax rate and tax savings figures yield the same result since statutory tax rate is constant over the years of the study, the control variables were reduced to leverage, size and Age in order to capture the association between the dependent variable and the independent variable clearly. The leverage, size and age are used as control variables in line with the study adapted (Kawor and Kportorgbi, 2014) and also in line with the underpinning theories of the study, that is Hoffmann's theory and political cost theory. Also, the Ramsey Reset test did not indicate that there were omitted variables.

Where:

ROA = Return on Assets = profit before tax/total assets

ETR = Effective Tax Rate = (corporate income tax expense (excluding deferred tax expense)/profit before tax)

LEV = Non-current Debt – to – Shareholders' Fund Ratio

SIZE = Natural Logarithm of Total Assets

AGE = the difference between current year and the year of incorporation in ratio

3.3 Model Estimation Procedure

The study employs three-phase procedural steps: pre-estimation, estimation and post estimation. Pre-estimation tests; the first step in the pre-estimation phase is the use of descriptive statistics in order to understand the nature of the data. It also helps to know if the data are normally distributed through their averages and *Jarque-Bera* values (Gujarati, 2010). The second step in this phase is the correlation matrix and variance inflation factor tests to check for the existence or otherwise of auto correlation among the explanatory variables. The third step was to determine the stationarity of the series and also to predict the existence of long-run relationship between the dependent variable and the explanatory variables, the study carried out panel unit root tests and panel co-integration tests using Levin, Lin & Chu t, Breitung t- stat, Im, Pesaran and Shin W- stat, ADF-Fisher Chi-square and PP-Fisher Chi-square test; and Kao (Engle- Granger Based) test. Prior to the panel co-integration test, the optimal lag length was ascertained using Akaike Information Criterion (AIC) and Schwarz Information Criterion (SIC) in order to confirm if lagging of the series is necessary and the required optimal lag for most appropriate results. Lastly, Ramsey RESET test was carried out to detect the possible omission of any significant variable which could affect or impair the dependent variable (ROA) of the model

In the estimation phase, based on the stationarity of the series, Ordinary Least Squares technique was employed. The Hausman test was applied to determine the appropriate estimator between fixed and random effect. In order to confirm the robustness and validity of regression model result some post estimation tests are conducted in the third phase.

The post estimation tests conducted are the Heteroscedasticity test, cross sectional dependence test and Serial Correlation test. These tests were carried out using Modified Wald test, Pesaran CD test and Wooldridge test. These tests is to determine whether the residuals of the model are constant over the time frame, if there are issues of dependence across the residuals of the model and multi-collinearity problem among the model residuals.

In the event that results of the heteroscedasticity, cross sectional dependence and auto correlation tests being significant, the OLS, fixed effect and random effect would not be an appropriate

estimator for the model. The Generalized Least Square (GLS) was used to estimate the relationship between the effective tax rate, leverage, size, age and return on asset

The significance or otherwise of the isolated effect on independent variable on dependent variable was evaluated at 5% level of significance employing the T-statistics. The apriori expectations based on the underpinning theories is that effective tax planning will reduce Nigerian firms' tax burdens thus enhance their financial performance while ineffective will react otherwise.

The estimations are carried out with the aid of E-views version 8.0 and StataIC 11 software. Having described the estimation procedure, the next section discusses the results of the pre-estimation procedure, regression result and post-estimation procedures

4.0 Result and Discussion of Findings

4.1. Preliminary Analysis

The preliminary characteristics of the data and summary of the statistics of the variables, the result of the correlation matrix and Variance Inflation Factor (VIF) showing the level of association among the explanatory variables are presented in Table1, Table 2 and Table 3.

4.1.1. The characteristics of the data and the summary of the descriptive statistics of the variables are presented in Table 1.

Table 1: Descriptive Statistics

	ROA	ETR	LEV	SIZE	lnAGE
Mean	0.159126	0.269338	0.817822	7.326345	1.723013
Median	0.125456	0.251760	0.5 11161	7.513203	1.698970
Maximum	0.468611	1.706462	4.812020	8.447541	1.963788
Minimum	0.009149	0.024451	0.030618	5.923663	1.518514
Std. Dev.	0.106107	0.174329	0.932342	0.694419	0.097078
Skewness	1.032211	5.673455	2.774669	-0.539863	0.790576
Kurtosis	3.523426	47.55201	11.15211	2.114809	3.504165
Jarque-Bera	18.89921	8806.807	405.2169	8.122387	11.47593
Probability	0.000079	0.000000	0.000000	0.017228	0.003221

Source: Authors' Computation, 2016.

Interpretations

In Table 1, considering the mean values and the standard deviation, it revealed that the series are not widely dispersed from the mean value. The mean value of ETR depicts that the firms have ETR is lower than the statutory tax rate that is, the firms' actual tax liability exceeds their effective tax rate; this is an indication that tax is not properly managed thus resulting into paying more tax than expected. When ETR is less than the statutory tax rate, it reflects tax loss instead of tax savings; this is an indication that firms have not been taken advantages of tax planning strategies opened to them within the regulatory framework of Nigerian tax laws. The P-value of the Jarque-Bera test revealed that all the series are not normally distributed; this is expected in a panel data due to differences in the characteristics of the firms that constitute the panel thus

Testing for normality of the series is not applicable in panel data due the heterogeneity of the different firms contained in the panel; therefore, further test to correct the abnormality is not conducted (Gujarati, 2010).

4.1.2. Series Correlation Tests

The study estimated whether the series are correlated using correlation matrix and Variance Inflation Factor (VIF) as shown in Table 2 and table 3.

Table2: Correlation Matrix

	ETR	LEV	SIZE	AGE
ETR	1.0000			
LEV	-0.0222	1.0000		
SIZE	-0.3150	-0.1390	1.0000	
AGE	-0.2274	-0.2053	0.3971	1.0000

Source: Authors' Computation (2016)

Table 3: Result of the Variance Inflation Factor test

Variable	VIF	1/VIF
SIZE	1.28	0.783
AGE	1.24	0.805
ETR	1.14	0.881
LEV	1.06	0.946
Mean VIF	1.18	

Source: Authors' computation, StataIC 11, (2016).

Table 3 depicts the Correlation results. As shown from the correlation matrix, the correlation coefficients between various independent (effective tax rate) and control variables (leverage, size and log of Age) are less than the threshold of 0.8; while Table 3 revealed the variance inflation factor test result, the explanatory variables are uncorrelated with Mean Variance Inflation Factor (VIF) of 1.18 less than the threshold of 5 (Gujarati, 2010).

The results of the correlation matrix and the variance inflation factor reveal that the explanatory variables are uncorrelated (Gujarati, 2010).

4.1.3 Stationarity Test Results

The results of the Panel unit root test summary comprising of Levin, Lin & Chu t^* , Breitung t -stat, Im, Pesaran and Shin W -stat, Adf-Fisher Chi-square and PP-Fisher Chi-square are presented in Table 4.

Table 4. Panel Unit Root Test Results

Series	Levin, Lin & Chu t*	Breitung t-stat	Im, Pesaran and Shin W-stat	Adf-Fisher Chi-square	PP Fisher Chi-square	Equation Specification	Order of integration
Roa	0.00		0.00	0.00	0.00	Intercept	I(0)
Etr	0.00		0.00	0.00	0.00	Intercept	I(0)
Lev	0.00		0.00	0.00	0.00	Intercept	I(0)
Size	0.00		0.00	0.00	0.00	Intercept	I(0)
Age	0.00	0.01	0.15	0.02	0.01	Intercept and Trend	I(0)

Source: Authors' computation using E-Views 8.0 (2016)

The result in Table 4 shows that all the variables were stationary at levels and intercept except the variable, age which was stationary at intercept and trend since their respective probability values were less than the 5% significance level. In order to determine the possibility of long run relationship among the series, the Panel co-integration test is conducted using Kao (Engle-Granger Based) and this was achieved after the determination of the optimal lag length in the next section

4.1.4 Optimal Lag Length Selection

The implication of the lag length selected explains the effect of the outcome of previous year on the current year. The selection of an optimal lag length was very essential before carrying out a Panel co-integration test, the result of which is presented in Table 5.

Table 5: Optimal Lag Length Selection Criteria

Lag length	LogL	LR	FPE	AIC	SC	HO
0	-406.59	NA	0.02	10.29	10.44	10.35
1	227.83	1173.66*	4.90e-09*	-4.05*	-4.05*	-4.69*
2	246.01	31.36	5.86e-09	-3.14	-3.14	-4.12

Source: Authors' computation using E-views 8.0 (2016)

* indicates lag order selected by the criterion

LR: sequential modified LR test statistic (each test at 5% level)

FPE: Final prediction error

AIC: Akaike information criterion

SC: Schwarz information criterion

HQ: -Hannan- Quinn information criterion

The result in Table 2 portrays different lag length criterion (LR, FPE, AIC, SC and HQ). The Schwarz information criteria depicting lag order length of (1) for the model is selected.

Due to the result of the optimal lag length; the model of the study is restructured thus:

$$ROA_{it-1} = \beta_0 + \beta_1 ETR_{it-1} + \beta_2 LEV_{it-1} + \beta_3 SIZE_{it-1} + \beta_4 AGE_{it-1} + \varepsilon_{it}$$

After establishing the lag order length, the Co-integration, and long-run equation results was estimated and explained in the next section.

4.1.5 Panel Cointegration Test Result

Kao (Engle- Granger Based) were conducted to test the existence of long run relationship between the ROA and the explanatory variables (ETR, LEV, SIZE, AGE). The result of the panel co-integration is shown in Table 6.

Table 6: Result of Kao Residual Cointegration Test

	T-Statistic	Prob.
ADF	-4.18	0.00
Residual Variance	0.00	
HAC Variance	0.00	

Source: Authors' Computation using Eviews8.0 (2016)

The result in table 6 depicts that there is co-integration among the variables with a probability value of 0.00 which is less than the 5% level of significance, indicating that a long run relationship subsists between the ETR, LEV, SIZE, AGE and ROA.

4.1.6. Omitted Variable Test

Also, the study test for the possibility of having variables that may influence return on asset aside effective tax rate, leverage, size and Age; that is, variables which could have affected or impaired on the dependent variable (ROA) that is not being captured in the model using ramsey RESET test as shown in table 7.

Table 7: Ramsey RESET Test Result.

F(3, 202)	2.32
Prob	0.081

Source: Authors' Computation Using StataIC 11, (2016).

The P-value of the test at 0.081 (8.1%) reveals that there are no omitted important independent variables besides effective tax rate, leverage, size and Age that can impair or impact on return on asset as captured in the model of this study. The result of the ramsey RESET test depicts the exhaustiveness of the model as explanatory variables is concerned.

4.2 Estimation Results

4.2.1. Regression results

The main estimation tests conducted were the OLS, Fixed effect regression and random effect GLS. The comparative results are shown in Table 8:

Table 8: Regression results using OLS, Fixed Effect and Random Effect

Method	OLS				Fixed effect				Random effect			
	Varaibl	Coeff	Std.Er	t-stat	Pro	Coeff	Std.E	t-stat	Prob	Coeff	Std.E	t-stat
ETR	-.024	.062	-0.40	0.69	-.032	.035	-0.91	0.36	-.027	.037	-0.74	0.460
LEV	.020	.011	1.76	0.08	.005	.009	0.61	0.54	.008	.009	0.86	0.392
SIZE	.053	.016	3.22	0.00	-.261	.056	-4.65	0.00	-.090	.036	-2.46	0.014
AGE	.000	.001	0.09	0.92	.014	.004	3.50	0.00	.003	.002	1.29	0.196
Constan	-.241	.122	-1.98	0.05	1.313	.242	5.43	0.00	.650	.198	3.28	0.001
	Adj R-squared = 0.11				R-sq overall = 0.034				R-sq overall = 0.059			
	F(4, 95) = 4.04				F(4, 86) = 6.36				Wald chi2(4) = 8.54			
	Prob > F = 0.005				Prob > F = 0.0002				Prob > F = 0.0738			

Source: Authors' Computation using StataIC 11 (2016).

Based on the OLS result, the effective tax rate has negative but insignificant effect on return on assets with P-value of 0.694 which is greater than the 5% significance level; while LEV, SIZE and AGE have positive influence on ROA although only SIZE has significant effect, LEV and AGE have insignificant effect with P-values of 0.081 and 0.928 respectively. The explanatory power of ETR, LEV, SIZE and AGE combined on the ROA (that is the coefficient of determination) is 11% and the effect is significant with Prob of 0.5%, this implies that the 11% changes in the ROA is caused by the combined influence of the explanatory variables while the remaining 89% is caused by other determining variables that are not within the scope of this study.

The fixed effect result reveal that both the ETR and SIZE have negative but only the SIZE has negative significant effect on ROA; while LEV and AGE have positive but insignificant influence on return on asset. The explanatory power of ETR, LEV, SIZE and AGE combined on the ROA (that is the coefficient of determination) is 3.4% and the effect is significant with Prob of 0.0%, this implies that only 3.4% changes in the ROA is caused by the combined influence of the explanatory variables while the remaining 96.6% is caused by other determining variables that are not within the scope of this study.

From the result of the random effect both the ETR and SIZE have negative but only the SIZE has negative significant effect on ROA; while LEV and AGE have positive influence on

ROA although only AGE has positive significant effect. The explanatory power of ETR, LEV, SIZE and AGE combined on the ROA (that is the coefficient of determination) is 5.9% and the effect is insignificant with Prob of 7.4%, this implies that only 5.9% changes in the ROA is caused by the combined influence of the explanatory variables while the remaining 96.6% is caused by other determining variables that are not within the scope of this study.

Having established the relationship between ETR, LEV, SIZE, AGE and ROA using Ordinary Least Square (OLS) linear regression technique, testing for fixed effect and random effect, the study tested for the most appropriate model estimator using Durbin-Wu-Hausman test also called Hausman specification test.

The result of the Hausman fixed random test is presented in Table 9.

Table 9: Hausman Fixed Random Test

Variables	Fixed (b)	Random (B)	Difference (b-B)	Sqrt (diag(V _b -V _B)) S.E
ETR	-.032	-.027	-.005	-
LEV	.005	.008	-.003	-
SIZE	-.261	-.090	-.171	.043
AGE	.014	.003	.011	.003
Chi2 (4) = 26.99				
Prob> chi2 = 0.0000				

Source: Authors' Computation using StataIC 11 (2016).

The result of the test reveals that fixed effect model is the most appropriate estimator with the P-value of 0.00 percent which is less than the 5 percent level of significance chosen for the study.

It is still necessary to confirm the validity and robustness of the model. To achieve this, the study conducted post estimation test such as the modified Wald test for group-wise heteroscedasticity test, Pesaran test of cross sectional independence and Wooldridge test for autocorrelation. The results of the post estimation tests for the confirmation of the estimation results are reported in the next sub-section.

4.3. Post Estimation Results

The model was tested for heteroscedasticity, cross sectional dependence and auto correlation to examine the robustness of the model. The results of the tests are presented in table 10.

Table 10: Results of the Wald Test, Pesaran Test and Wooldridge Test

Wald test	Pesaran CD test	Wooldridge test
Chi2 (21) = 2822.29	Cross sectional = 3.913	F (1, 9) = 24.124
Prob> chi2 = 0.000	Pr = 0.000	Prob >F = 0.001

Source: Authors' Computation using StataIC 11 (2016).

The results of the heteroscedasticity cross sectional dependence and auto correlation tests as shown in table 10 reveal that the resids of the model are not constant over time, there is presence of cross sectional dependence and serial correlation problem among the resids of the model. Due to these econometric errors in the model; the OLS, Fixed effect and random effect would not be an appropriate estimator for the model; thus to correct the presence of heteroscedasticity, cross sectional dependence and auto correlation among the model resids, the Generalized Least Square (GLS) was used to estimate the relationship between the ETR, LEV, SIZE, AGE and ROA.

Table 11: Regression Result (Generalized Least Square (GLS))

Variables	Coeff	Std.Err	t-stat	Prob
ETR	-.069	.003	-18.89	0.000
LEV	.005	.001	7.07	0.000
SIZE	.023	.003	6.68	0.000
AGE	-.000	.000	-1.70	0.090
Constant	.024	.021	1.16	0.245
Wald chi2(4) = 400.52 Prob > F = 0.000 Correlation = 0.69				

Source: Authors' Computation using StataIC 11 (2016).

The regression analysis result of the Generalized Least Square (GLS) revealed that ETR has negative and significant effect on ROA with P-value of 0.000 which is less than the 5% significance level; AGE also has no significant influence of return on asset with coefficient of -0.000; both LEV and SIZE have significant positive influence on ROA with P-values of 0.000 and 0.000 respectively which is within the range of acceptable 5% significance level. A change in the firm's age causes no change in return on asset; this implies that the return on assets could change irrespective of the number of years it had been in operation. The Probability of the Wald test of 0.000 revealed that tax savings rate, leverage, size and age combined significantly influenced return on assets.

4.4. Discussions

The result showed that a change in the ETR leads to 6.9% decrease in ROA, this implies that as the ETR increases, there is a reduction of 6.9% in the ROA; this contradicts the findings of Desai and Hines (2002), Chen, Chen, Chen and Shevlin (2010). Blouin & Larcker (2012), Heitzman & Ogneva (2015), Desai and Dharmapala (2009). We are of the opinion that this adverse relationship is as a result of Nigerian firms not been able to utilize the loopholes embedded in the Nigerian tax laws effectively and that majority of the entities are solely equity financed thus unable to enjoy the benefits of tax shield on debt interest.

It was found that a change in the leverage yield 0.5% increase in the return on assets; this indicates that highly geared firms tends to improve on their ROA; this is in line with proposition on thin capitalization, it is an indication of tax shield on the interest payable to debt holders

which is categorized as tax deductible expenses in Nigeria tax law; the findings supported the findings of Rohaya, Nur Syazwani and Nor'Azam (2010).

The result of the relationship between firm's size and return on assets revealed that a change in the size of the firm result into 2.3% increase in the return on asset, thus as the total assets of the firm increases, there tends to be 2.3% increase in its return on asset. The findings aligned with the reports of Rohaya, Nur Syazwani and Nor'Azam (2010), Armstrong, Blouin & Larcker (2012) and Heitzman & Ogneva (2015) which supported the assertion of political cost theory, implying that large firm has the ability to manage their tax liability compared to small firms.

The results of the model support the proposition of Hoffman's Tax Planning Theory and Political Cost Theory. Also, the findings corroborate the reports of Abdul-Wahab and Holland, (2012), Oluwakayode and Arogundade (2011), Williams (2009) and Fowokan, (2009).

The conclusion of the findings and suggested recommendations are discussed in the next section.

5.0. Conclusions and Recommendations

It was deduced from the empirical studies that majority of Nigerian firms do not engage the service of tax consultants in their tax management thus not efficiently utilizing various tax benefits accrued to them under the Nigeria tax laws (Abdul-Wahab and Holland, (2012); Oluwakayode and Arogundade (2011); Williams (2009); Fowokan, (2009). Also, from the result of the analysis, most of Nigerian firms are majorly financed by equity, they do not issue debt as a means of finance and thus loose the benefits of tax shield on the interest; they lack deep understanding of the importance of thin capitalization. Thus, instead of having savings in their tax rates, the computations of the effective tax rate revealed that the firms have tax loss as against tax savings when compared the corporate tax with the effective tax rate computed. The findings of this study supported the proposition of Hoffman's theory that tax savings could be derived at through deep understanding with legal concepts of lots of ambiguity and loopholes in tax laws thus reducing the tax liability and enhanced after tax returns. Also, the result of the effect of size as a mediating variable supported the assertion of political cost theory that large firm has the ability to manage their tax liability compared to small firms.

The following recommendations are made based on the findings:

1. Nigerian firms should engage the services of tax practitioners in managing their tax computations and remittances;
2. They should adopt a moderate debt financing for the benefit of tax shield and also to tighten their management control;
3. The issue of thin capitalization should be critically reviewed in order to maximize its advantages; and
4. Effective management of their total assets as this positively influenced their financial performance.

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