EFFECT OF FIRM ATTRIBUTES ON TAX AGGRESSIVENESS OF LISTED INDUSTRIAL GOODS COMPANIES IN NIGERIA

By

Prof. ZUBAIRU, Abdullahi

Department of Accounting
Nasarawa State University, Keffi, Nigeria.
+234(0)7039819962

Dr. ADIGIZEY, John

Department of Business Administration
Nasarawa State University, Keffi, Nigeria.
adigizeyj@gmail.com; +234(0)8026237723

TIVDE, Kanyi Joel

tivdek6@gmail.com; +2348065641663
Ph.D. Accounting Candidate, Nasarawa State University, Keffi, Nigeria.

Abstract

This study examined effect of firm attributes on tax aggressiveness among listed companies in Nigeria. The general research framework adopted was the ex-post facto research design and positivist research philosophy for the purpose of addressing research problem. Data were sourced from the published annual reports of listed industrial goods companies in Nigeria. The study employed multiple regression technique and descriptive statistic as the procedure of analysis with the aid of STATA version 16 as a tool for analysis. The study found that profitability and firm size have positive significant effect on tax aggressiveness, while capital intensity has positive insignificant effect on tax aggressiveness of quoted industrial goods companies in Nigeria. The study concluded that tax aggressiveness is indeed an earnings management strategy towards reducing the tax burden or liability of companies and often made possible by company specific attributes. The study recommended that the Securities and Exchange Commission should continually monitor the profitability of industrial goods companies since it is an intuitive indicator with capacity to influence effective tax rate.

Key words: Tax Aggressiveness, Profitability, Capital Intensity, industrial goods companies, Firm Size

Introduction

The study was premised on the background that, government rely heavily on tax revenue to run the economy, and corporate tax aggressiveness has recently been seen as one of the most challenging issue as it represents a severe loss of revenue to the government of many advanced and growing economies. In Africa, avoiding taxes has been named as one of the factors holding the continent back by starving the government of the revenue it needs for development (Kayode et al., 2020). There is evidence that tax aggressiveness behaviour is practiced and prevalent among listed companies in Nigeria (Onyali & Okafor, 2018). This has undermined the ability of the Nigerian government to raise the targeted tax revenue. Consequently, the Nigerian economic growth and development will be under threat if this situation is not properly addressed. In order to boost tax revenue in Nigeria, the government has made efforts to optimize and support taxpayers by providing various tax incentives to reduce their corporate tax burden with the aim of encouraging business actors to carry out more active businesses to boost their tax base. Despite the advantages that are associated with tax revenues and the government efforts of encouraging taxpayers' voluntary payment, taxpayers still see tax as an undesired compulsory levy imposed on them by government. According to the reports of Federal Inland Revenue Service, the companies income tax revenue fall short of target by 47%, 29%, 20%, 6% and 27% for year 2016, 2017, 2018, 2019 and 2020 respectively. The lack of research momentum to identify gray areas of influence may however form part of evidence on why Nigerian corporations actively engage in tax aggressive schemes. Consequently, the study sought to fill the gap by examining possible factors influencing corporate entities to engage in tax aggressiveness.

Tax aggressiveness therefore refers to the aggressive side of tax avoidance practices (Kayode et al., 2020). In carrying out tax avoidance, a variety of tax strategies may be used, including some that respect the spirit of the law and others that are considered aggressive. In tax assessment and collection, the government experienced strategies employed by corporate entities to carry out tax aggressiveness to include deductions permitted in tax laws which managers can take advantage of to reduce tax cost. They are allowable items which are deductible according to tax laws such as capital allowances, donations, deduction of subsidiary tax in the case of a parent company. Others include sheltering activities, complex financial reporting, thin capitalization, transfer pricing, increasing the number of fixed assets and amount of debt, reporting losses to get fiscal loss compensation, conducting earnings reporting management (Donohoe & Knechel, 2014; Rego & Wilson, 2012). Many scholars

such as Kayode et al. (2020); Onatuyeh and Odu (2019); Ogbebor et al (2019); Ogbeide (2017) assert that, the driving factor for company's tax compliance or non-compliance is the firm attributes, which are characteristics or factors inherent in the company. Some of the firm characteristics that influence companies to engage in tax aggressiveness are profitability, firm size and capital intensity.

Profitability is seen as a firms' intuitive indicator with capacity to influence effective tax rate (Kayode et al., 2020). Firms with high profitability tend to be high in tax aggressiveness, because they can have more resources to invest in tax planning activities and take advantage of tax incentives and tax provisions to reduce taxable income, so that the effective tax rate becomes low (Pratama, 2017).

Onyeka-Iheme (2021), Saludeen and Eze (2018); Nawang and Indria (2020) found capital intensity to be a good tax planning point because the allowances and incentives granted on non-current assets can be enjoyed by the firms. This implies that, firms with high capital intensity or high proportion of tangible non-current assets to total assets tend to reduce their tax burden through an allowable basic depreciation deduction. These allowances tend to have positive impact on liquidity and operating capacity.

Another factor that influences tax aggressiveness of companies is firm size. Dyreng et al. (2008) shows that the company's size plays a role in tax management as larger firms are more visible and receive higher levels of scrutiny. This will increase the likelihood that any tax manipulations would be detected and thus give incentive to be less tax aggressive in consideration of the firm's reputation and its growth.

Several studies on tax aggressiveness phenomenon in Nigeria to the best of researcher's knowledge focused on other sectors. This study focused on non-oil tax revenue sources, specifically companies income tax. The choice of the industrial goods sector is based on the obvious fact that in Nigeria, the sector provides a major component of the country's Gross Domestic Product (GDP) which in turn contribute significant portion on non-oil revenue generation in Nigeria (FIRS, 2021). The study therefore seeks to examine the effect of firm attributes (profitability, capital intensity and firm size) on tax aggressiveness among listed industrial goods companies in Nigeria.

Objectives of the Study

Specific objectives of this study include to:

i. Ascertain the effect of profitability on tax aggressiveness among listed industrial goods companies in Nigeria.
ii. Examine the effect of capital intensity on tax aggressiveness among listed industrial goods companies in Nigeria.
iii. Assess the effect of firm size on tax aggressiveness among listed industrial goods companies in Nigeria.

Statement of Hypotheses

The study tested the following hypotheses:

$H_0$1: Profitability has no significant effect on tax aggressiveness among listed industrial goods companies in Nigeria.

$H_0$2: Capital intensity has no significant influence on tax aggressiveness among listed industrial goods companies in Nigeria.

$H_0$3: Firm size has no significant effect on tax aggressiveness among listed industrial goods companies in Nigeria.

Literature Review

Concept of Firm Attributes

Firm attributes refer to specific financial and operational firm characteristics that affect both internal and external decisions of companies, like determination of effective tax rate (Ogbeide, 2017). Firm attributes are often analyzed in relation to varying aspects of a company such as financial performance, firm value, corporate social responsibility disclosure, assets disclosure including intangible assets with a view to determining their contribution to shareholders wealth. Management may exploit tax reducing activities considering the influence of firm attributes on tax aggressiveness hence, firm attributes should be considered as key factor determining tax payers' compliance behavior (Richardson et al, 2013).

The earlier empirical studies on corporate tax aggressive activities was anchored by Gupta and Newberry (1997) who has focused more on the interplay between firm-specific characteristics such as size, leverage, profitability, capital intensity, amongst others in determining corporate tax avoidance. The findings of this study drew attention of many researchers such as Ahmed and Khaoula (2013); Uwuigbe et al (2016), Ogbeide (2017),

Sasiska et al (2018), Salaudeen and Ejeh (2018), Elena et al (2019), Kabiru et al (2019), Aburajab et al (2019) to further broadened the scope of investigation. This study is interested in the influence of profitability, capital intensity, and firm size on effective tax rates.

Profitability

Tanko (2020) defined profitability as the stage at which business entity's inflows of resources are more than outflows of resources. This implies the ability of a company to use its resources to generate revenues in excess of its expenses. Therefore, profitability is seen as a firms' intuitive indicator with capacity to influence effective tax rate (Kayode et al, 2020). Investors usually acquire shares in companies with the aim of getting returns consisting of yields and capital gains. Hence, the greater the profits earned by the company, the greater the return expected by investors. Consequently, firms with high profitability tend to be high in tax aggressiveness, because they can have more resources to invest in tax planning activities and take advantage of tax incentives and tax provisions to reduce income taxed and income taxes so that the effective tax rate becomes low (Pratama, 2017).

Capital Intensity Ratio

Onyeka-Iheme (2021) sees Capital Intensity as the level of a company's investment in fixed assets and by implication the level of capital assets related incentives a company can enjoy. It has been found to be a good tax planning point because allowances and incentives based on capital intensity can be enjoyed by the firms (Ohaka & Agundu, 2012). This implies that, firms that are more capital intensive (high level of property, plant and equipment) tend to reduce their tax burden through allowable basic depreciation deduction. Such firms benefit more from depreciations deductibility which causes a reduction in ETR. Due to the existence of different depreciation methods, more capital-intensive firms can easily manage taxes by accelerating or deferring depreciation expense and, consequently, they can take advantage from temporary book difference (Kraft, 2014).

Firm Size

Firm size is the scale of a company reflected by the total assets owned measured as the natural logarithm of year-end total assets (Onatuyeh & Odu, 2019). Dyreng et al (2008) revealed that company's size plays a role in tax management as larger firms are more visible and receive higher levels of scrutiny. This will increase the likelihood that any tax manipulations would be detected and thus give incentive to be less tax aggressive in consideration of the firm's reputation and its growth objective.

Tax Aggressiveness

Tax aggressiveness has been defined by several authors in different ways. According to Onyali and Okafor (2018) tax aggressiveness is a strategy employed by the management of corporate organizations, which are set of processes, practices, resources and choices whose objective is to maximize income after all corporate liabilities owed to the state and other stakeholders. The implementation of this kind of strategies is geared towards reducing expenses and increasing returns which creates a positive signal to potential investors. Tax aggressiveness is generally seen as an action of corporate entities, aimed at minimizing taxable income through tax planning practices (Kayode et al., 2020). As such, a variety of tax strategies would be used, including some that respect the spirit of the law and others that are considered aggressive.

Empirical Review

Athifah and Mahpudin (2021) examined the effect of liquidity, company size, and independent commissioner on tax aggressiveness of food and beverage subsector of consumer goods companies listed on the Indonesian Stock Exchange. The study used ex-post facto research design and published annual reports of consumer goods companies for the period of 2014-2018 were used. The study used multiple linear regressions as data analysis technique. Based on the research results, it was discovered that, firm size had a significant effect on tax aggressiveness while liquidity had no significant effect on tax aggressiveness. The applicability of these findings in Nigeria may not be guaranteed because; the study was anchored on Indonesian companies. Thus, the current study was anchored on Nigerian listed companies.

Kayode et al. (2020) investigated the impact of firm specific attributes on corporate tax aggressiveness of listed manufacturing companies in Nigeria. Firm attributes in this study were measured by profitability, leverage, capital intensity, firm growth and firm size. While corporate tax aggressiveness was proxy using effective tax rate (ETR). The study used correlational research design. Hypothesis was tested using data obtained from annual report of 48 listed manufacturing companies on Nigeria Stock Exchange from 2015 to 2019. The study was anchored on agency theory and political cost theory. Applying robust fixed effect regression, the result showed that capital intensity has a significant positive influence on corporate tax aggressiveness, while profitability has a significant negative influence on corporate tax aggressiveness. However, firm size was found to have insignificant relationship

with corporate tax aggressiveness. This study was well researched; however manufacturing sector as used should have been specific to the sub sector. Hence the current study specifically used a more precise sector (industrial goods).

Nawang and Indra (2020) carried out a study that aimed at ascertaining the effect of capital intensity on tax aggressiveness, and simultaneous influence of capital intensity and leverage towards tax aggressiveness of mining companies, registered on the Indonesia Stock Exchange. Quantitative descriptive method was used. Data were obtained from 45 mining companies for the period 2014–2018. Data was analysed using descriptive statistic and multiple linear regression. The study revealed that, capital intensity had effect on tax aggressiveness. However, the study was anchored on Indonesian companies and the precise effect of capital intensity on tax aggressiveness was not ascertained. Therefore, the current study ascertained a clearer and more precise effect of capital intensity on tax aggressiveness using listed companies in Nigeria.

Muhamad et al. (2020) examined factors influencing tax avoidance in Indonesia, to prove the influence of profitability, size, leverage, and capital intensity either partially or simultaneously on tax avoidance in food and beverage companies during 2014-2016 period. The study used purposive sampling technique with 195 data processed. Data were analyzed using multiple linear regression with the aid of SPSS package. The results proved that, partially, profitability did not influence tax avoidance, size influenced tax avoidance, leverage had no influence on tax avoidance, and capital intensity had no effect on tax avoidance. This study suffers from methodological drawback as it fails to state clearly the research design adopted for the work.

Santini and Indrayani (2020) examined the effect of profitability, liquidity, leverage, capital intensity and firm size on tax aggressiveness with market performance as an intervening variable. Descriptive research design was employed, while analytical technique used was Structural Equation Model (SEM) path analysis and self-test with the software AMOS. The study used financial statements of 43 banks registered on the Indonesia Stock Exchange in 2014 - 2018. Profitability was proxied with Return on Asset (ROA), liquidity with current ratio, leverage with Debt to Equity Ratio (DER), capital intensity with CAP, Size with (Total Assets), market performance with Tobin's q and tax aggressiveness proxied with Effective Tax Rate (ETR). The results of this study indicated that profitability, liquidity, leverage, capital intensity and firm size affect tax aggressiveness. The study used foreign based data

whose findings cannot be generalized in Nigeria. The current study was anchored on listed companies in Nigeria.

Bashiru and Ba'ba (2020) examined the impact of corporate governance attributes on tax planning of listed Nigerian conglomerate companies. The study adopted ex-post facto research design and utilized panel data from annual reports and accounts of listed conglomerate companies for the period of five years (2014-2018). The Data were analyzed using a panel regression technique. Hausman specification test was conducted to choose between fixed and random effect estimation. Results from random effect estimation model indicate a negative and significant relationship between firm size and effective tax rate (ETR).

Yoseph et al. (2020) investigated the impact of profitability and capital intensity on tax avoidance, moderating with the competence of the board of commissioners. The research design adopted was quantitative approach. Secondary data was obtained from the annual reports of manufacturing companies listed on Indonesia Stock Exchange for 2016-2018. Panel regression data analysis was employed with the help of STATA version 13. The results indicate that profitability had a significant effect on tax avoidance, while capital intensity had no significant effect on tax avoidance. This study documented that the competence of the board of commissioners weaken the effect of profitability on tax avoidance. However, the study is foreign based in Indonesia and the conclusions cannot be generalized in Nigeria.

Salaudeen and Akano (2018) examined possible non-linearity in the determinants of corporate effective tax rate (ETR). Panel data was obtained from the annual reports of 122 sampled firms for a period of four years (2012–2015). The results generally indicate that the examined determinant, firm size is the most influential variable of ETR. IFRS brings in new measurement requirements for items in the financial statement different from the local GAAP hitherto applied. This may result into lack of comparability of figures before the adoption. Since it is not a study that is made up of several years, there might be lack of sufficient data to determine the impact of corporate attributes on tax aggressiveness. The current study employed an ex-post facto study phenomenon, which would be more suitable for panel data.

Theoretical Framework

Political Cost Theory

This theory was developed from the works of Watts (1977) by Watts and Zimmerman (1978) to understand better the source of the pressures driving the accounting standard-setting

process, the effects of various accounting standards on different groups of individuals and the allocation of resources, and why various groups are willing to expend resources trying to affect the standard setting process. The theory argues that, managers have greater incentives to choose accounting standards which report lower earnings (thereby increasing cash flows, firm value, and their welfare) due to tax, political, and regulatory considerations than to choose accounting standards which report higher earnings and, thereby, increase their incentive compensation. However, this prediction is conditional upon the firm being regulated or subject to political pressure. In small, (i.e. low political costs) unregulated firms, we would expect that managers do have incentives to select accounting standards which report higher earnings, if the expected gain in incentive compensation is greater than the forgone expected tax consequences.

Political cost theory considers effective tax rates as a metric for political costs because taxes paid are a means of transferring wealth from companies to other social groups. Effective tax rates are a metric for the success of companies, thus, if larger firms are more successful than smaller firms, they will be subject to more political scrutiny by tax authorities, therefore more hesitant to lower effective tax rates using aggressive tax planning. In accordance with the political cost theory, this study suggests a positive relation between company size and Effective Tax Rate (ETR). Similarly, looking at the political cost theory, profitable firms would aim to preserve their reputation to enhance investor confidence and minimize the use of aggressive earnings management techniques (Scott, 2006).

Methodology

Research Design

This study adopted ex-post facto research design. The population comprised of 13 industrial goods companies listed on the Nigerian Exchange Group (NGX) as at October 1, 2021. Given that the sector being studied consists of few elements, a census approach was employed. The data used for this study were extracted from the published annual financial statements of 13 sampled industrial goods companies quoted on the Nigerian Exchange Group over a period of ten (10) years from 2011 to 2020 producing 130 financial year observations.

Technique of Data Analysis

This study employed multiple regression technique as the procedure of analysis and descriptive statistic with the aid of STATA16 as a tool for data analysis. In order to check for endogeneity, the Hausman specification test was employed. Additional robustness tests

carried out include the test for Multicollinearity using the Variance Inflation Factor (VIF) and heteroscedasticity to check for the fitness of model and reliability of findings.

Model Specification and Variable Measurement

The multiple regression model was adapted and modified from the work of Kayode et al (2020):

$CTA_{it} = f(ETR)$ ..…….....…….. i

$\mathbf{ETR_{it} = \beta_0 + \beta_1 PROF_{it} + \beta_2 CIR_{it} + \beta_3 FS_{it} + \varepsilon_{it}}$ ...……..……..…….. ii

Where:

CTA = Corporate Tax Aggressiveness

ETR = Effective Tax Rate (ETR)

PROF = Profitability

CIR = Capital Intensity Ratio

FS = Firm Size

β_0 = Intercept;

$\beta_1, \beta_2, \beta_3$ = Coefficients of the respective independent variables;

ε = Error term;

it = Subscript indicating ith firm in time t.

Table 2: Measurement of research variables

Variable	Variable Type	Definition/Measurement	Sources
Tax Aggressiveness	Dependent	Cash flow effective tax rate measured as cash taxes paid divided by operating cash flow. ETR= $\frac{cash\ taxes\ paid}{operating\ cash\ flow}$	Aronmwan & Okaiwele (2019); Gebhart (2017)
Profitability (PRO)	Independent Variable	Profitability as measured by return on asset, ROA = $\frac{PAT}{TA}$	Irianto et al (2017); Kayode et al (2020)
Firm Size (FS)	Independent Variable	Natural logarithm score of market value of equity for company I, in beginning of year t.	Ogbeide (2017), Onatuyeh and Odu (2019).
Capital Intensity Ratio (CIR)	Independent variable	Capital Intensity represents the allocation of capital that the company has used in the form of fixed assets. Measured as the ratio of fixed assets (property, plant, and equipment) divided by total assets.	Yoseph et al (2020), Kayode et al (2020)

Results and Discussion

This section begins with the discussion of the descriptive statistics, and then correlation matrix of the variables of the study, followed by the presentation, interpretation and discussion of the regression results and test of hypotheses of the study as well as the result of the regression diagnostics tests.

Descriptive Statistics

This section contains the description of the properties of the variables ranging from the mean of each variable, minimum, maximum and standard deviation. The summary of the descriptive statistics of the variables are presented in table1 below:

Table1: Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
cta	130	.147766	.0873997	0	.6913747
prof	130	.1918693	.15833	-.1075834	.6650773
cir	130	.4254116	.2198814	.3867434	.8977286
fs	130	6.994208	.7025078	4.307432	8.994238

Source: STATA 16 Output (2022)

Table1 indicates that the measure of corporate tax aggressiveness (CTA), which is the cash effective tax rate has an average value of 0.147766 and a corresponding standard deviation of 0.0873997. This implies that the deviation between the listed industrial goods companies within the period does not significantly differ. It is an indication that corporate aggressive tax planning stands at an average of 14.8% which is comparatively lower than Nigeria's income tax rate (30%). This is an indication that the sampled companies were very tax-aggressive during the reporting period. Also, the minimum and maximum values stood at 0 and 69.13% respectively. The firms tend to record a significantly higher aggressive tax planning in some years than in others.

Table1 also indicates the mean profitability of 0.1918693 which signifies that, on the average 19% of the sampled companies were consistently making profit within the period of the study. Meanwhile, the value of the standard deviation which is 0.15833 (15.83%) is close to the mean implying certain level of agreement with the claim that at least 19% of the companies registered profit at various periods in the ten years captured by this study. The profitability shows a minimum and maximum value of -0.1075834 and 0.6650773 respectively. The minimum figure indicates that 10% of the companies make losses while a maximum of 66% made profit during the reporting periods.

Again, Table 1 shows that on average, the proportion of non-current assets to the total assets of companies during the period of the study is 42.54%, with an accompanying standard deviation of 21.98%. This indicates that on average 42.54% of the firms' assets constitute non-current asset. The value of the standard deviation which is relatively far from the mean show that there is a reasonably significant difference in assets composition of the industrial goods companies in Nigeria. This is substantiated by the minimum and maximum value of 0.03867434 and 0.8977286 respectively.

The table also indicates that the sampled firms have an average firm size as logged stand at 6.994208 with standard deviation of 0.7025078. This means that the average value of firm

size within the period of the study is 6.99 billion. The figure of the standard deviation means that there is a high level of variance in assets composition of the companies. The minimum and the maximum as shown by the table is 4.307432 and 8.994238. This implies that the least amount of firm size is 4.30 billion and the largest is 8.99 billion.

Correlation Matrix

This section shows the correlation between the dependent variable and the independent variables as well as among the independent variables themselves on the other hand. According to Gujarati (2004), a correlation coefficient between two independent variables 0.80 is considered excessive and thus certain measures are required to correct that anomaly in the data. Table 2 presents the correlation matrix for all the variables.

Table 2: Correlation for Firm Attributes and Tax Aggressiveness

	cta	prof	cir	fs
cta	1.0000			
prof	-0.0440	1.0000		
cir	0.0485	0.0489	1.0000	
fs	-0.0546	-0.0504	-0.1070	1.0000

Source: STATA 16 Output (2022)

Table 2 reveals a negative correlation between the explanatory variables of profitability and firm size but positive correlation with capital intensity and firm size as evidenced by coefficients of -.0440, -.0546 and .0485 respectively. This implies that of the three explanatory variables only capital intensity ratio that is positively associated with tax aggressiveness. Based on this result the variables are not said to be highly autocorrelated.

Regression Diagnostics Test

The following regression diagnostics tests were carried out to the reliability and validity of data used for analysis.

Test for Multicollinearity

Non-existence of Multicollinearity is a key assumption of linear regression analysis. Multicollinearity occurs when the explanatory variables are not independent of each other. Multicollinearity is examined using tolerance and variance inflation factor (VIF) values. The result of Multicollinearity test is shown in the table below:

Table 3: Tolerance and VIF Values

Variable	VIF	1/VIF
fs	1.01	0.986510
cir	1.01	0.986663
prof	1.00	0.995542
Mean VIF	1.01	

Source: STATA 16 Output (2022)

The evidence presented in Table 3 indicates that, there is no multicollinearity problem. This is because the mean VIF value is less than 10 and the tolerance values for all the variables are greater than 0.10 (rule of thumb).

Test for Heteroscedasticity

This test was conducted to check whether the variability of error terms is constant or not. The presence of heteroskedasticity signifies that the variation of the residuals or term error is not constant which would affect inferences in respect of beta coefficient, coefficient of determination (R^2) and F-statistic of the study. Heteroscedatiscity was tested using Breusch Pagan's Test. The results are presented in table 4 below:

Table 4: Test for Heteroscedasticity

```
Breusch-Pagan/Cook-Weisberg test for heteroskedasticity
         Ho: Constant variance
         Variables: fitted values of cta
         chi2(1)      =     1.36
         Prob > chi2  =   0.2435
```

Table 4 shows the results of heteroscedasticity for the aggregated variables of the study. The goodness of fit test which is a statistical hypothesis test to show how sample data fit a distribution from a population with a normal distribution shows Pearson Chi^2 value of 1.36 and a corresponding probability of 0.2435. This indicated that the adjustment of the observations problems is well and no errors exist underlining the general fitness of the model.

Hausman Specification Test

The Hausman Test was conducted because of the homogeneity of data used in this study, to determine which of the two models (fixed effects or random effects) is more efficient. The result for the Hausman Specification Test is presented in the table below:

Table 5: Hausman Specification Test

```
                 ---- Coefficients ----
             |      (b)          (B)            (b-B)
sqrt(diag(V_b-V_B))
             |       F            R          Difference          S.E.
-------------+----------------------------------------------------------
        prof |   -.0690834    -.0488039       -.0202795        .0112819
         cir |    .0365907     .0277397         .008851        .0069138
          fs |   -.0056986    -.0063149        .0006163        .0055496
------------------------------------------------------------------------
     b = consistent under Ho and Ha; obtained from xtreg
     B = inconsistent under Ha, efficient under Ho; obtained from xtreg

    Test:  Ho:  difference in coefficients not systematic
                  chi2(3) = (b-B)'[(V_b-V_B)^(-1)](b-B)
                          =      4.04
                Prob>chi2 =      0.2577
```

Source: STATA 16 Output (2022)

The result of the Hausman Test revealed that the value of Chi^2 is 4.04 and a corresponding probability ($prob>Chi^2$) of 0.2577. This insignificant value favoured the random effect model. Consequently, to meet the condition that one or more equations have to be satisfied exactly by the chosen values of the variables, the Breusch and Pagan Lagrangian Multiplier Test for random effect was conducted to discern between the random effect result and pooled OLS regression which is more appropriate. The result revealed that the $prob>Chi^2$ value is 0.0000. From this result, the $prob>Chi^2$ is less than 0.05 indicating that random effect regression model was the best model to be interpreted.

Table 6: Regression Result

```
Random-effects GLS regression                   Number of obs      =       370
Group variable: firms                           Number of groups   =        37

R-sq:  within  = 0.1624                         Obs per group: min =        10
       between = 0.1130                                        avg =      10.0
       overall = 0.2367                                        max =        10
                                                Wald chi2(3)       =    115.15
corr(u_i, X)   = 0 (assumed)                    Prob > chi2        =    0.000
------------------------------------------------------------------------------
         cta |      Coef.   Std. Err.      z    P>|z|     [95% Conf. Interval]
-------------+----------------------------------------------------------------
        prof |   .0262472   .0060911    -4.31   0.000     .0143089    .0381855
         cir |   .0277397   .0208682     1.33   0.184    -.0131612    .0686405
          fs |   .0495806   .0077902    -6.36   0.000     .0341871    .0649741
       _cons |   .1894971    .055121     3.44   0.001      .081462    .2975322
-------------+----------------------------------------------------------------
```

Source: STATA 16 Output (2022)

In regression analysis, the result of the R-squared value shows the level at which the explanatory variables explain the dependent variable. Table 6 revealed that the R-squared is 0.2367. This means that the firm attributes in the study explained tax aggressiveness to the tune of 23.67%. The value of F - statistic is 115.15 with probability of chi^2 = 0.000. The probability of chi^2 is significant at 5%, indicating that the model is fit. This serves as substantial evidence to conclude that the firm attributes selected for the study are suitable and can be used to predict the behaviour of the dependent variable.

Based on the individual explanatory variables the regression result from table 6 shows that, profitability positively, and significantly determine the level of tax aggressiveness of quoted companies in the Nigeria. This is evidenced by the value of coefficient which is 0.262472 and a p-value of 0.000 indicating a strong likelihood that profitability predict the level of tax aggressiveness. The positive coefficient infers that the more profits a firm makes the more are its tax planning. Based on this, the study rejects the hypothesis that profitability has no significant effect on tax aggressiveness of listed industrial goods companies in Nigeria.

The study also, examined whether capital intensity can determine the level of tax aggressiveness. The result obtained from the random effect regression indicates that capital intensity has a positive but insignificant effect on tax aggressiveness. This is evidenced by the value of coefficient and probability which is 0.277397 and 0.184 respectively, indicating that capital intensity has a positive contribution to tax aggressiveness. This means the higher the

level of fixed assets in the firm the higher the level of aggressive tax planning. However, since the p-value is above the 5% level of significance, the study lacks evidence to reject the null hypothesis which states that capital intensity has no significant effect on tax aggressiveness of listed industrial goods companies in Nigeria.

Table 6 also shows that firm size has a significant positive effect on tax aggressiveness, from the coefficient of .0495806 and a p-value of 0.000 which is statistically significant at 5% level of confidence. This result suggests that, an increase in firm size will increase the level of tax aggressiveness of firms. Also, looking at the p-value such increase is considered significant. Hence, the study rejects the assertion that firm size has no significant effect on tax aggressiveness among listed industrial goods companies in Nigeria.

Conclusion and Recommendations

Conclusion

Aggressive tax planning and its effect on the activities of firms have become a topical issue in the literature of accounting and finance. Attempt has been made in this study to examine the effect of three firm attributes on tax aggressiveness of listed industrial goods companies in Nigeria. The study formulates three hypotheses that firm size, capital intensity and profitability have no significant effect on tax aggressiveness of listed industrial goods companies in Nigeria. Based on the result obtained, the study concludes that in so far, the combined firm attributes are concerned; their combined influence significantly affects tax aggressiveness of listed industrial goods companies in Nigeria. This effect however gets diluted as the variables are considered on individual basis. Specifically, this study showed no statistical evidence to conclude that profitability greatly determines the level of tax aggressiveness in the area covered by the study. This conclusion aligned with the argument that profitable firms can benefit from tax exemptions and use tax deductions and tax credits in a more efficient manner and as a result, exhibit greater book-tax differences (Aronmwam & Okafor, 2019).

The capital intensity has insignificant effect on tax aggressiveness and as such there is no statistical evidence to conclude that, it can influence aggressive tax planning behaviour of managers. Contrary, the findings of the study revealed that, capital intensive (high level of property, plant and equipment) companies tend to reduce their tax burden through allowable basic depreciation deduction. Such firms benefit more from depreciations deductibility which causes a reduction in ETR. Due to the existence of different depreciation methods, more

capital-intensive firms can easier manage taxes by accelerating or deferring depreciation expense and, consequently, they can take advantage from temporary book difference

The study also concludes that firm size has a significant influence on tax aggressiveness in the industrial goods sector. This conclusion is supported theoretically in the sense that the larger the company size, the greater possibility to act in aggressive tax avoidance. Pratama (2017) document that larger firms are associated with higher cash effective tax rates as explained by the political cost theory. The political cost theory's view is that cash effective tax rates are a proxy for political cost by virtue of the fact that taxes paid are a means of wealth transfer from firms to other social groups. Cash effective tax rate is a proxy for firms' success therefore, if larger firms are more successful than smaller firms, they will be exposed to more political scrutiny from tax authorities, hence more reluctant in reducing cash effective tax rates using aggressive tax.

Recommendations

Basically, profitability ratios measure earnings capacity of the firm and it is considered as an indicator for its growth, success and control. Therefore, profitability is seen as a firms' intuitive indicator with capacity to influence cash effective tax rate. Specifically, when profitability is measured based on pre-tax income, it is expected that more firms will have higher earnings and consequently, pay more taxes. The study therefore recommended that, Securities and Exchange Commission should continually monitor the profit of industrial goods companies because it is sensitive to manipulation in a bid to pay less tax.

The study also recommends that the regulatory bodies should monitor firm with large assets-base. Because larger firms are associated with higher cash effective tax rates as explained by the political cost theory. This is by virtue of the fact that taxes paid are a means of wealth transfer from firms to other social groups.

References

Aburajab, L., Maali, B., Jaradat, M., & Alsharairi, M. (2019). Board of directors' characteristics and tax aggressiveness: Evidence from Jordanian listed firms. *Theoretical Economics Letters,* 9, 2732-2745.

Aronmwan, J. E., & Okaiwele, I. M. (2019). Measuring tax avoidance using effective tax rate: Concepts and implications. *Journal of Taxation and Economic Development*, 18(1), 1-13.

Athifah, L.N., & Mahpudin, E. (2021). The effect of liquidity, company size, and independent commissioner on tax aggressiveness. *E-Jurnal Ekonomi Dan Bisnis Universitas Udayana,* 10(2), 53 – 60.

Bashiru, M., Ba'ba, S., & Bukar, M. (2020). The impact of corporate governance attributes on tax planning of listed Nigerian conglomerate companies. *International Journal of Academic Research in Business and Social Sciences,* 10(5), 229 –238.

Donohoe, M., & Knechel, R. (2014). Does Corporate Tax Aggressiveness Influence Audit Pricing? *Contemporary Accounting Research,* 31(1), 284–308.

Dyreng, S., Hanlon, M., & Maydew, E. (2008). Long-run corporate tax avoidance. *The Accounting Review,* 83, 61-82.

Elena, F., Roberto, G., & Antonio, M. (2019). Influence of ownership structure on the determinants of effective tax rates of Spanish companies. MPDI Sustainability, 11(1441); doi:10.3390/su11051441.

FIRS (2021). Tax statistics and report. Planning, Research and Statistics Department.

Gebhart, M. S. (2017). Measuring corporate tax avoidance: An analysis of different measures. *Junior Management Sciences,* 3, 43-60.

Irianto, B.S., Sudibyo, Y.A., & Abim, W.S. (2017). The influence of profitability, leverage, firm size and capital intensity towards tax avoidance. *International Journal of Accounting and Taxation,* 5(2), 33-41.

Kabiru, S., Ibrahim, A., & Ibrahim, M.A. (2019). Company attributes and firm value of listed consumer goods companies in Nigeria. *Journal of Research in Humanities and Social Science,* 7(5), 40-49.

Kayode, I.A., Saheed, O.I., & Yusuf, D.Y. (2020). Impact of firm specific attributes on corporate tax aggressiveness of listed manufacturing firms in Nigeria. *Gusau Journal of Accounting and Finance,* 1(2), 1-18.

Minnick, K. & Noga, T. (2010). Do corporate governance characteristics influence tax management? *Journal of Corporate Finance,* 16(5), 703-718.

Muhamad, N.H.R., Rihfenti, E. Purwo, A., Dwi, S., & Nina, I. (2020). Factors influencing tax avoidance in Indonesia. Humanities & Social Sciences Reviews, 8(1), 366-372.

Nawang, A., & Indria, M. (2020). The Effect of Capital Intensity and Leverage against Tax Aggressiveness (The Empirical Studies at Mining Companies which have been registered on Indonesia Stock Exchange during the Period of 2014-2018*). International Journal of Innovative Science and Research Technology*, 5(3), 1024-1032.

Ogbebor, R.O., Onomuhara, O.G., & Evbota, C.I. (2019). Corporate attributes and tax aggressiveness in listed Nigerian companies. *Journal of Accounting, Business and Social Sciences,* 2(1), 119-135.

Ogbeide, S.O. (2017). Firm characteristics and tax aggressiveness of listed firms in Nigeria: Empirical evidence. *International Journal of Academic Research in Public Policy and Governance,* 4(1), 556-569.

Ohaka, J., & Agundu, P. U.C. (2012). Tax incentive for industry synergy in Nigeria: A pragmatic proprietary system advocacy. *African Research Review: An International Multidisciplinary Journal,* 6(3), 42 – 58.

Onatuyeh, A.O., & Odu, V. (2019). Corporate board characteristics and tax aggressiveness: A study of manufacturing firms in Nigeria. *GJRA - Global Journal for Research Analysis,* 8(4), 245-251.

Onyali, C.I., & Okafor, T.G. (2018). Effect of corporate governance mechanisms on tax aggressiveness of quoted manufacturing firms on the Nigerian stock exchange. *Asian Journal of Economics, Business and Accounting,* 8(1), 1-20.

Onyeka-Iheme, C.V. (2021). Tax Planning Strategies and Liquidity of Manufacturing Companies Quoted in Nigeria. *American Journal of Humanities and Social Sciences Research (AJHSSR),* 5(2), 138-148.

Pratama, A. (2017). Company characteristics, corporate governance and aggressive tax avoidance practice: A study of Indonesian companies. *Review of Integrative Business and Economic Research,* 6(4), 70 – 81.

Rego, S., & Wilson, R. (2012). Equity Risk Incentives and Corporate Tax Aggressiveness. *Journal of Accounting Research,* 50(3), 775–810.

Richardson, G., Taylor, G., & Lanis, R. (2013). The impact of board of director oversight characteristics on corporate tax aggressiveness: An empirical analysis. *Journal of Accounting and Public Policy,* 32, 68-88.

Salaudeen, Y.M., & Akano, R.O. (2018). Non-linearity in determinants of corporate effective tax rate: Further evidence from Nigeria. *International Journal of Economics and Financial Research,* 4(3), 56-63.

Salaudeen, Y.M., & Eze, U.C. (2018). Firm specific determinants of corporate effective tax rate of listed firms in Nigeria. *Journal of Accounting and Taxation,* 10(2), 19-28.

Santini, A.L., & Indrayani, E. (2020). The effect of profitability, liquidity, leverage, capital intensity and firm size on tax aggressiveness with market performance as an intervening variable. *Jurnal Ilmiah Ekonomi Bisnis,* 25(3), 290-303.

Sasiska, R., Didik, S., & Luke, L.F. (2018). The effects of the corporate's characteristics on tax avoidance moderated by earnings management (Indonesian evidence). *Journal of Accounting, Finance and Auditing Studies,* 4(3), 149-169.

Scott, W. R. (2006). Financial Accounting Theory, 6th ed., Prentice Hall, New York.

Uwuigbe, R.O., Uwuigbe, U., Adeyemo, K., & Ogunbanjo, D.O. (2016). The influence of corporate attributes on business success in Nigeria. *International Business Management,* 10(13), 2564-2569.

Watts, R. L., & Zimmerman, J. L. (1978). Towards a positive theory of the determination of accounting standards. *The Accounting Review,* 53(1), 112–134.

Watts, R., & Zimmerman, J. (1986). Towards a Positive Theory of Accounting, Prentice-Hall, New Jersey.

Yoseph, T.M., Dianwicaksih, A., & Noegrahini, L. (2020). Profitability, capital intensity and tax avoidance in Indonesia: The effect of board of commissioners' competencies. *Journal of Contemporary Accounting*, 2(3), 129-140.