



Corporate tax-mix, firm attributes and firm performance of listed non-financial companies in Nigeria

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Abstract

This study is centered on the prevalent contemporary issue of corporate tax mix, firm attribute and firm performance of listed non-financial companies in Nigeria. It used a panel research design and secondary source of data for 36 selected samples of non-financial companies trading at the Nigeria stock exchange group which make accounts to 31st December each year. The study covered an eight years period from 2015 to 2022. The study used descriptive methods and inferential statistical analytical techniques to determine the reliability and predictive power of the model in enhancing judgment of acceptance or rejection of the null hypothesis using a panel least square regression method. The inferential statistics required the use of the panel least square regression that has random effect which is used to test the hypothesis with the aid of the P-Value. The result shows that company income tax, leverage has a positive association and significant impact on firm performance. Firm size determines firm performance but the association negative with coefficient, effective tax rate has a negative relationship with an insignificant impact on firm performance with coefficient value of -0.094057 and a P-value of 0.2958. Tangibility and firm age exhibited a positive association and an insignificant impact on firm performance of listed non-financial companies. This study recommends that corporate managers of listed firms should use the service of tax consultants that has requisite knowledge of loopholes in the Finance Act (2021) that reduces company income tax liabilities through tax incentive strategies, tax wavers, tax avoidance strategies which enhances firm performance.

Keywords: Firm Performance, Effective Tax Rate, Firm Size, Leverage, Firm Age

1. Introduction

In recent years, there has been a significant decrease in foreign investment in Nigeria, and the Nigerian Stock Exchange (NSE) has experienced a surge. These developments have been encouraged by various fiscal policies aimed at increasing economic activities in the non-oil sector. One notable fiscal policy has been the introduction of tax incentives, such as pioneer status incentives and investment tax relief, which are designed to stimulate investment in specific industries and geographic areas. Additionally, following the crash in oil prices in the 1980s, which

led to structural adjustment programs in 1986, the government has implemented various tax policy and administration reforms to improve the efficiency and equity of the tax system and establish a stable source of government revenues from non-oil sectors. These fiscal policies can be seen as a shift away from the previous oil-induced strategy towards the development of the non-oil sectors and the enhancement of interaction between firms and the government. This shift has been justified by the high correlation between various tax rates and national economic performance. These factors have influenced the decision



to focus on the non-oil sectors in this study. Therefore, the study will examine the tax mix of corporate income tax and VAT, as these are the major sources of government revenues in recent years. It will also analyze the net effective tax rate in relation to various fiscal incentives and firm attributes in order to explain firm performance in the non-financial companies.

Nigeria is an economically viable country in Africa characterized by a high effective tax rate, which stems from high nominal rates due to low tax avoidance and tax evasion (World Bank, 2021). This has led to heavy reliance on oil and gas revenues, as there is low tax compliance in non-oil sectors, resulting in a narrow tax base outside the oil sector. The modern Nigerian economy is overly dependent on crude oil, which contributes about 40% of the nation's Gross Domestic Product (GDP) and 80% of its fiscal revenues. Since the resources boom of the early 1970s, which occurred after Nigeria gained independence in 1960, the Nigerian economy has experienced unstable and slow economic growth. Efforts have been made to revamp the non-oil sectors in order to diversify the production base and reduce dependence on oil resources. However, these efforts have been hindered by the heavy import substitution industrialization strategy, particularly during the period from 1972 to 1980, which has yielded mixed results and faced frequent changes in policy direction. Despite the oil boom of the 1970s, the structural weaknesses inherent in the Nigerian economy have not been overcome. This is evident in the crowding out effect of the oil sector, which has prevented the non-oil sectors from making significant contributions to national development.

The issue of taxation as a major determinant of doing business is of great interest both for policy makers and business executives. Taxation is crucial for the functioning of modern societies, as it provides the necessary funding for public goods and services, helps regulate economic activity,

and promotes social well-being and economic stability.

Corporate tax mix is defined as all public finance-related liabilities borne by a company, which includes not only profit taxes, but also non-profit taxes such as real-estate taxes and labour-related taxes such as social security charges. Without a proper classification and understanding of the concept, many corporate managers have strayed in formulating the appropriate tax plans as regards the available corporate tax mix which encompasses corporate income tax, deferred tax, and tax incentives. (Sebastian & Costel, 2018). Corporate tax mix refers to consideration of corporate tax payout and the available tax incentives as well as policies that allow for tax deferral by corporate managers in order to make effective tax plans and decisions. These are neglected as a result of the dicey nature of finding perhaps the right corporate tax mix; how much tax is to be paid, and what tax incentive is available to be enjoyed. Taking into consideration this tax issues, there is no doubt about the importance of corporate tax mix when making corporate tax plans, the purpose of which is to cushion the perceived adverse effect of corporate tax payment on net income of firms (Citron, 2014). The concept of corporate tax mix has a certain history, development and experience in Nigeria but it cannot be said that in its practical application it is a self-evident and seamless part of current financial practice. Literature on corporate tax in Nigeria and scholars often neglect to put forth arguments that pertain to corporate tax mix; they are more likely concerned with a singular view of each of these aspects of corporate tax mix.

While corporate income tax is seen as a source of revenue to the government and a burden on the part of firms, deferred tax ameliorates the current tax burdens by legally shifting a current tax burden of a firm to a future specific period when it will be more convenient for the firm to pay, as well sustain their business operation. Also,



in a bid to cushion the tax burden of firms and encourage business productivity that in turn enhances economic growth, the government offers tax incentives to the firms to help achieve the aim of economic growth. Within this purview, corporate tax managers have used the various provisions of tax laws to make financial plans ranging from investment plans to dividend policies which are hinged on the net income realized after tax deductions. The knowledge of corporate tax mix encompasses the effective application of tax management skills which entails the strategic structuring of business operations to minimize tax liabilities. Tax mix activities of firms are designed by tax consultants of firms seeking to avoid huge tax payment and its negative effects on net income of firms. Mucai, et. al., (2014) asserted that tax incentives as a part of tax planning is in a way a tax mix used by an entity's financial planners without violating the law or as per the stipulated requirements geared towards profit maximization. As part of the efforts by the government to provide an environment that is conducive for the growth and development of industries, inflow of foreign direct investment, shielding of existing investment from unfair competition and stimulating the expansion of domestic production capacity, tax incentive is been allowed by the government to foster such policy plans. The various tax incentives allowed by the Federal Government of Nigeria for various sectors has encouraged an overall development in the Nigerian economy (Onuorah & Chigbu, 2013).

Sebastian and Costel, (2018) suggested that the Nigerian tax system acts as a deterrent to private investment. This evidence includes; businesses in Nigeria are actively seeking and obtaining tax concessions, indicating the tax environment is unfavorable; the presence of multiple taxes and varied tax rates has led to significant differences in the effective tax burdens faced by companies; businesses are

engaging in tax planning and shifting tax burdens across different factors of production in response to this variability, which suggests the tax system, is impacting investment decisions.

2. Literature Review

Firm Performance

Firm performance refers to the overall effectiveness and efficiency of a company in achieving its objectives and generating value for its stakeholders. It is typically measured using a range of financial and non-financial metrics, such as profitability, productivity, market share, customer satisfaction, and innovation. Firm performance is a multidimensional concept that encompasses various aspects of a company's operations and competitiveness. It reflects the company's ability to generate revenue, control costs, utilize its resources efficiently, and create value for its shareholders and other stakeholders.

Firm performance refers to the ability of a company to achieve its goals and objectives, generate profits, and create value for its stakeholders. It is a multidimensional concept that can be measured using various financial and non-financial indicators (Schmettow, et. al., 2018). Measuring firm performance involves analyzing financial metrics such as profitability, return on investment, return on assets, and market value indicators like stock price and market capitalization. Additionally, non-financial indicators such as customer satisfaction, employee productivity, and innovation levels are also considered to evaluate firm performance comprehensively.

Concept of Corporate Tax Mix

The corporate tax mix refers to the composition of a country's corporate tax system, including the different types of taxes and levies that companies are required to pay. This can include the corporate income tax, as well as other taxes such as property taxes, payroll taxes, and taxes on specific business activities or transactions. The corporate tax mix can vary significantly



across countries and jurisdictions, reflecting differences in tax policies, economic structures, and revenue needs. Some countries may rely more heavily on corporate income taxes, while others may have a more diverse mix of corporate taxes and levies.

Researchers such as (Tatu, 2006; Savka and Radojka, 2013; Iormbagah et al., 2020) who have written on corporate taxes focus their studies on one or the other aspects of corporate taxes; ranging from corporate income tax to deferred tax and tax incentives. This has streamlined the knowledge of most readers to think each aspect of corporate tax is in its' sense mutual of the other, which in most cases if tax burdens from corporate income tax become high, failure on corporate managers to explore other aspects of corporate tax as a result of limited knowledge leads to a possibility of tax evasion.

Effective tax rate

The effective tax rate (ETR) is the average rate at which a company or individual is taxed on their taxable income. It is calculated by dividing the total amount of taxes paid by the companies or individuals' total taxable income. The effective tax rate differs from the statutory tax rate, which is the official tax rate set by the government. The ETR can be lower than the statutory rate due to various tax deductions, credits, and loopholes that reduce a company's or individual's actual tax liability. The effective tax rate is a crucial indicator that reflects the actual tax burden faced by individuals or businesses after considering tax credits, exemptions, and other factors. It can be calculated by dividing the total tax paid by the taxable income (Hanlon, et. a., 2020).

The World Bank's "Doing Business" report (2021) includes an analysis of the effective tax rates for different countries. It compares the statutory tax rates with the effective rates and discusses how these variations influence the ease of doing business.

Company Income Tax

Company income tax is a direct tax imposed on the net income or profits of a company or corporation. It is a major source of government revenue in many countries. The company income tax rate varies by jurisdiction, but typically ranges from 20-30% of a company's taxable income. Company income tax is levied on the profits or net income of a company after deducting allowable business expenses. It applies to all types of business entities, including public and private companies, partnerships, and other corporate structures. The tax is generally calculated based on a company's annual financial statements and paid periodically, such as quarterly or annually.

The conceptual framework on company income tax in Nigeria provides the foundation for understanding and interpreting the tax laws and regulations governing the taxation of companies.

Theoretical Review

Ability to pay theory

According to Smith (1776), the proposition on the ability to pay theory holds that "taxes are based on taxpayers' ability to pay; there is no quid pro quo". Taxes paid are seen as a sacrifice by taxpayers (individuals and firms) who rise the issues of what the sacrifice of each taxpayer should be and how it should be measured (Iormbagah, Nwaorgu & Ihendinihu 2020). The ability-to-pay principle is a principle of taxation that suggests that individuals and businesses should be taxed according to their ability to bear the tax burden. It is based on the notion that those who have a higher income or wealth should pay a higher proportion of taxes compared to those with lower incomes. The ability-to-pay principle is often attributed to Adam Smith, a prominent economist and philosopher of the 18th century. Smith argued that taxes should be levied based on an individual's ability to contribute without causing undue hardship.



He believed that those who have more economic resources should shoulder a larger tax burden to maintain social justice and equity.

However, this work is anchored on ability to pay theory reasons being that corporate tax mix is crucial in a firms' bid to maximize profit. Firms must consider their available resources and effectively carry out a tax plan that minimizes the firms' tax burden and maximizes the firms' net income (profit)

Empirical Review

Effective Tax Rate and Firm Performance

Stewart and Webb, (2006) looked at the impact of changes in ETRs on firm performance using data from the US Tax Reform Act of 1986. The study finds that firms experiencing lower ETRs due to the tax reform experienced improvements in performance indicators such as profitability and stock returns. Desai, and Dharmapala, (2009), investigated the relationship between ETRs and CEO compensation, focusing on the potential incentives for tax avoidance. The study finds that firms with higher levels of tax avoidance tend to have lower CEO compensation, implying a negative association between ETRs and firm performance. Hanlon and Slemrod, (2009), looked at the market reaction to news about tax aggressiveness, including the impact on firm value. It finds that firms engaged in tax-avoidance activities experience negative stock price reactions, suggesting that tax aggressiveness could signal lower firm performance. Tang and Firth, (2012), focused on the relation between book-tax differences, which can reflect tax planning and earnings management activities, and firm performance in China. The findings suggest that firms with larger positive book-tax differences (indicating tax management) have poorer performance, indicating a negative association between ETRs and firm performance. Chen, et. al., (2010), investigates the tax aggressiveness of family firms compared to non-family firms and its impact on firm performance. The findings suggest that family firms tend to exhibit

higher tax aggressiveness, and such behavior is associated with lower firm performance. Ogundele and Abiola, (2018) examined the impact of effective tax rates on firm performance using a sample of Nigerian firms. The findings indicate a negative relationship between effective tax rates and financial performance, suggesting that higher tax rates can lead to lower profitability and reduced firm performance. Ovia and Ekundayo, (2017) investigated the relationship between corporate taxes and firm performance in Nigeria. The findings suggest a negative impact of corporate taxes on firm performance, indicating that higher tax burdens can adversely affect profitability, investment, and overall performance of Nigerian firms. Uwuigbe, et al. (2017) looked at the effects of corporate tax policies on firm performance using a sample of selected manufacturing firms in Nigeria. The results suggest that corporate tax rates have a negative impact on firm profitability and performance, indicating that higher tax burdens can reduce the financial performance of Nigerian manufacturing firms.

Based on the foregoing, the study posits that there is no relationship between effective tax rate and firm performance of listed Non-Financial Companies in Nigeria.

Company Income Tax and Firm Performance

Almeida and Kim (2020) examined the impact of corporate tax avoidance on firm performance using a global sample of firms. The authors found that firms engaging in more aggressive tax avoidance strategies have higher firm value and higher profitability. However, they also observed a non-linear relationship, suggesting that excessively aggressive tax avoidance could have diminishing returns on firm performance. De Simone et al. (2016) investigated the relationship between corporate taxes and firm value using a sample of European firms. The authors found that firms with higher tax costs have lower firm value, which indicates that



corporate income taxes negatively affect firm performance. They also found that the negative effect of taxes on firm value is more pronounced for firms with higher financial leverage.

Hanlon and Heitzman (2010) analyzed the effect of income tax expense on firm performance using a sample of publicly traded U.S. firms. The authors found that higher income tax expense is associated with lower firm profitability and lower market valuation. They also observed that firms with higher effective tax rates have lower pre-tax profitability and higher market liquidity costs. Iormbagah et al., (2020) examined the effect of corporate tax on the sustainable financial performance of listed firms in Nigeria, specifically the listed manufacturing firms. The study data were analyzed using simple linear regression. Findings from the study revealed that corporate tax payment has no significant effect on the return on equity of firms. Further findings revealed a positive and significant effect of corporate tax payment on the debt-to-equity ratio of the listed firms. While, Sabastian and Costel (2018) investigated the impact of overall firm-specific tax-mix on firm performance for Romanian listed companies during the 2000–2011 period. By overall tax-mix, they mean all public finance-related liabilities borne by a company, thus including not only profit taxes, but also non-profit taxes and labour-related taxes. Developed around the corresponding tax wedge, the variable of interest they used is a firm-specific effective tax rate that aggregates all public finance liabilities, based on a unique set of hand collected data from publicly available corporate reports. Using a fixed-effect model, their results show that one percentage point increase in overall firm-specific tax rate triggers 0.15 percentage points decrease in return on assets. Similarly, Mohammad and Ahmed (2019) examined the effect of corporate income tax rate on investment decisions of listed deposit money banks in Nigeria. The descriptive research design was

used in their study. Panel data were generated from annual reports and accounts of the sampled banks covering the periods of 2014 to 2018. Ordinary Least Square (OLS) regression was used in analyzing the data of their study. Findings of their study indicated that after-tax cash flow is the major factor that affects investment decisions of listed deposit money banks in Nigeria. Vržina and Dimitrijević (2020) analyzed the financial performance of agricultural companies and corporate income tax as key determinants of financial performance. They analyzed the corporate income tax burden of agricultural companies in Vojvodina, as well as its impact on company profitability. They carried out a simple descriptive statistics test which showed that effective corporate income tax rates (ETRs) in agricultural companies are significantly lower than the statutory corporate income tax rate. Their result further revealed that nearly 69% of observations have both a current effective tax rate and cash effective tax rate of 0%, which indicates that agriculture is an industry with an exceptionally low corporate income tax burden. They further used Panel regression which showed that agricultural companies with lower effective tax rates are more profitable than companies with the higher effective tax rate.

Based on the foregoing, the study posits company income tax has no effect on firm performance of listed Non-Financial Companies in Nigeria.

Firm Size and Firm Performance

Ahmetoglu, et al. (2015) conducted a meta-analysis of 17,000 organizations across different industries. They found a positive relationship between firm size and firm performance, suggesting that larger firms tend to perform better than smaller firms. They also found that this relationship is stronger in industries with higher market dynamism. Bai, and Mao, (2018) conducted a study on Chinese listed companies using data from 2005 to 2012. They found a positive and significant relationship between firm size (measured by total assets) and firm



performance (measured by return on assets). However, they also found that this relationship diminishes as firm size increases, suggesting the presence of diminishing returns to scale.

Huttunen & Schmiedeberg, (2019) conducted a study focusing on family firms in Germany. They found that medium-sized family firms outperform both smaller and larger family firms in terms of profitability. They argue that medium-sized firms can benefit from the family's strong commitment, professional management, and flexibility. Škare and Šerić, (2020) conducted a study on Croatian manufacturing companies using data from 2011 to 2017. They found a U-shaped relationship between firm size (measured by the number of employees) and firm performance (measured by labor productivity). They suggest that small firms struggle due to constraints, while large firms face bureaucracy and inefficiency, leading to lower performance.

Akinyomi and Osabutey (2021), investigated the relationship between firm size, growth opportunities, and financial performance of listed manufacturing firms in Nigeria. The findings reveal a positive association between firm size (measured by total assets) and financial performance (measured by ROA and ROE). Additionally, the study highlights that growth opportunities mediate the relationship between firm size and financial performance.

Onwuchekwa and Egbunike (2019) examined the relationship between firm size measured by market capitalization and financial performance measured by return on equity (ROE) and return on assets (ROA) in the Nigerian industrial goods sector. The findings reveal a positive and significant relationship between firm size and financial performance, suggesting that larger firms tend to achieve better financial outcomes. Salami and Odusanya, (2019) investigated the impact of firm size, measured by total assets, on the financial performance of

deposit money banks (DMBs) in Nigeria. The study utilizes panel data analysis and finds a positive association between firm size and financial performance indicators such as return on investment, return on equity, and return on assets. The results suggest that larger DMBs tend to exhibit better financial performance. Ekundayo and Owojori, (2021) looked at the impact of firm size (measured by total assets) on the financial performance of listed oil and gas companies in Nigeria. The study employs regression analysis and finds a positive relationship between firm size and financial performance indicators such as ROA, ROE, and net profit margin. The results suggest that larger oil and gas companies tend to achieve better financial outcomes.

Based on the foregoing, the study posits that there is no relationship between firm size and firm performance of listed Non- Financial Companies in Nigeria

Leverage and Firm Performance

Abor, (2007) analyzed the relationship between leverage and firm performance using panel data analysis. The findings showed a negative relationship between leverage and firm performance, implying that higher leverage ratios were associated with lower profitability and financial performance. Ahmed and Javid, (2009) investigated the determinants of leverage in Pakistani firms and how it affected firm performance. The results revealed a negative relationship between leverage and firm performance, indicating that excessive debt levels were detrimental to profitability and overall performance. Guney, et. al., (2007) examined the non-linear impact of leverage on corporate performance using international data. The analysis found an inverted U-shaped relationship between leverage and firm performance, suggesting that an optimal level of leverage exists; beyond which further increases would harm firm performance. Shin and Soenen, (1998) looked at the performance of multinational banks and their subsidiaries in the Middle East region. The findings indicated that



leverage had a significant negative impact on the performance of these banks, implying that excessive debt levels reduced their profitability and overall efficiency. Serrasqueiro and Nunes, (2008) explored the non-linear relationships between growth opportunities, leverage, and firm performance. The results demonstrated that the relationship between leverage and firm performance depended on the firm's growth opportunities. Higher levels of leverage were associated with lower performance for firms with low growth opportunities, while the opposite was true for firms with high growth opportunities.

Okeahalam and Robinson (2020) explored the impact of capital structure on the performance of Nigerian firms using a sample of 362 firms listed on the Nigerian Stock Exchange. The study found a negative relationship between leverage and firm performance, suggesting that higher debt levels negatively affect firm profitability and efficiency. Uwuigbe et al. (2019) examined the relationship between debt financing and firm performance in the Nigerian banking sector. The study utilized panel data from 11 Nigerian banks for the period 2008-2017. The findings revealed a positive relationship between leverage and firm performance, indicating that debt financing has a positive impact on banks' profitability. Oloyede et al. (2018) conducted a study to examine the relationship between leverage and firm performance in the Nigerian telecommunications industry. The analysis was based on panel data from 10 telecom companies for the period 2010-2016. The results indicated a positive relationship between leverage and firm performance in the industry, suggesting that debt financing contributes to higher profitability in this context. Adeyemi et al. (2017) investigated the impact of leverage on the performance of manufacturing firms in Nigeria. The study used a sample of 81 manufacturing firms for the period of 2010-2014. The findings indicated a negative relationship between leverage and firm performance, suggesting

that increased leverage leads to lower profitability and performance in the manufacturing sector.

Based on the foregoing, the study posits that there is no relationship between leverage and firm size and firm performance of listed Non-Financial Companies in Nigeria.

Tangible Asset and Firm Performance

Huang, et al. (2016) examined the impact of tangible assets on firm performance and investigates how financial innovation moderates this relationship. The authors find that a higher proportion of tangible assets positively affect firm performance. Moreover, they highlight that financial innovation enhances the positive relationship between tangible assets and firm performance. Carmona and Lahoz (2017) explored the moderating role of real options in the relationship between tangible assets and firm performance. By considering different measures of firm performance, such as return on assets and return on equity, they find that real options moderate the relationship between tangible assets and firm performance, suggesting that having tangible assets becomes more valuable when firms have real options. Si, Wang, and Li (2019) investigated the moderating role of tangible assets in the relationship between innovation and firm performance. It suggests that tangible assets positively moderate this relationship, meaning that firms with more tangible assets can better leverage their innovation efforts to achieve superior performance. The authors also highlight the importance of tangibility in enhancing the returns from innovation for firms. Adeleke, et al., (2020) examined the relationship between tangible assets and firm performance of Nigerian listed firms using panel data regression analysis. The findings suggest that tangible assets positively influence firm performance. Adeyeye, et al., (2019) investigated the impact of fixed assets (a subset of tangible assets) on the performance of Nigerian banks. The study finds a positive relationship between fixed assets and firm performance. Ikpefan, et al.



(2018) examined the influence of tangible and intangible assets on the financial performance of Nigerian banks. It concludes that tangible assets, along with intangible assets, significantly affect the financial performance of banks.

Based on the foregoing, the study posits tangible asset has no effect on firm size and firm performance of listed Non- Financial Companies in Nigeria.

Firm Age and Firm Performance

Agarwal and Gort, (2002) investigated firm age has a positive relationship with firm performance. Older firms benefit from accumulated resources, a larger customer base, and better-established distribution networks, resulting in better financial performance. Manolova, et al. (2008) examined that older firms outperform younger firms. It suggests that firm age has a curvilinear effect on firm performance, indicating that very young and very old firms tend to have lower performance, while firms of moderate age exhibit higher performance. Stephenson and Cable, (2003) explored the relationship between firm age, network ties, and firm performance. It finds that firm age positively moderates the relationship between network ties and firm performance, indicating that older firms with stronger network connections have better performance. Wagner, (2013) examined the relationship between firm age and performance. It finds an inverted U-shaped relationship between firm age and productivity, with an optimum age for the highest performance. Elfring and Hulsink, (2003) explored the relationship between firm age, network ties, and firm performance, focusing on high-technology firms. It finds that older high-technology firms benefit more from network ties than their younger counterparts, leading to better performance.

Bamidele, et al., (2020) examined the relationship between firm age and performance in Nigeria. It finds that older firms tend to have higher financial performance indicators, such as profitability

and return on assets. Olokundun, et. al., (2017) investigated the relationship between firm age, profitability, and corporate social responsibility (CSR) in Nigeria. It finds a positive relationship between firm age and profitability, indicating that older firms tend to be more profitable and have higher CSR activities. Adeoti and Olurankinse (2016) investigated the relationship between firm age and performance in the Nigerian consumer goods sector. It finds a positive correlation between firm age and performance, suggesting that older consumer goods firms in Nigeria tend to have better financial performance. Eniola and Ektebang, (2018) explored the impact of firm age and size on financial performance among Small and Medium Enterprises (SMEs) in Nigeria. The study indicates that both firm age and size positively influence financial performance, suggesting that older SMEs in Nigeria tend to perform better financially.

Based on the foregoing, the study posits that there is no relationship between firm age and firm size and firm performance of listed Non- Financial Companies in Nigeria.

3. Methodology

Research Design

The researcher utilized a longitudinal panel data research design covering the years 2015 to 2022 to investigate the statistical relationship between the dependent variable (Firm Performance, measured by Returns on Assets) and the independent variables (Effective tax rate, Company income tax, Firm size, Leverage, Tangible asset, and Firm age). This research approach is well-suited for the current study as it allows for the collection of data on multiple variables over regular time intervals (Iormbagah, et. al., 2020). The researcher will apply quantitative and statistical procedures, including descriptive statistics, inferential testing, and quantitative testing, to evaluate the research subjects and hypotheses.

The population for this study was selected from publicly available annual reports and



accounts of companies that have traded on the premium board, main board, or growth board of the Nigerian Exchange Group from the end of the 2015 fiscal year to December 31, 2022. At the end of 2022, there were a total of sixty-six (66) non-financial listed businesses in the consumer products, industrial goods, and oil and gas sectors actively trading on the Nigeria Stock Exchange group floor. The reason for selecting this population is that the necessary data for the study was readily available. Based on the availability of data and a combination of convenience and deliberate sampling, thirty-six (36) companies from a variety of industries that are members of the Nigerian stock exchange group and whose annual reports and accounts cover the years 2015 through 2022 have been selected as the sample for this study.

Model specification

Descriptive and inferential statistics were used appropriately to the cross-sectional panel data used in this investigation. Given the numerous adjustments made to the model utilised by Olaniun et al. (2022), Samuel et al. (2023), and Egbadju and Odey (2022), the model specification for this study is provided in econometric form as follows:

Here is a description of the Egbadju and Odey (2022) model.

$$ROE_{it} = \beta_0 + \beta_1 ETR_{it} + \beta_2 CSR_{it} + \beta_3 CAPINT_{it} + \beta_4 LEV_{it} + \beta_5 LOGTA_{it} + \mu_t$$

Where;

ETR= Effective Tax Rate, CSR= Corporate Social Responsibility, CAPINT= Capital Intensity, LEV= Leverage, LOGTA= Firm ROA= Returns on Assets

The a priori expectation is $\beta_1 - \beta_5 > 0$. = coefficient of the predictor

μ = Error term= unexplained variable.

t= time

β_0 = constant term or intercept.

However, the model of Egbadju & Odey (2022) was altered for this study in order to improve internal consistency and allow for more exact comparisons. This offers a more accurate representation of the precise

changes in the underlying microeconomic data that the study looked at. Thus, this is a description of the research model which is currently recognised as:

$$ROA_{it} = \beta_0 + \beta_1 ETR_{it} + \beta_2 LOGCIT_{it} + \beta_3 FSIZE_{it} + \beta_4 LEV_{it} + \beta_5 TANG_{it} + \beta_6 AGE_{it} + \mu_t$$

The dependent variable of ROA= Returns on Assets measures firm performance

This idea of a dependent variable can be stated mathematically as follows:

ROA= Profit After Tax divided by Total Assets

The independent variable is defined as follows:

ETR= Effective tax rate measured as income tax expenses divided by taxable income;

LOGCIT= Company income tax measured as log of amount paid as company income tax;

FSIZE= Firm Size measured as log of total assets;

LEV= Leverage measured as total debt divided by total Assets;

TANG= Tangibility measured as Total non-current assets divided by total Assets;

FAGE= Firm age measured as number of years from year of listing;

U_t = Error Terms;

t = time (2015 -2022);

β_0 = constant term or intercept;

$\beta_1 - \beta_6$ = Regressors.

Method of Data Analysis

A panel regression analysis will be carried out since the data set has a panel structure, and the decision between a fixed effect model and a random effect model will be related to the Hausman test result. These descriptive statistics were employed to support the analysis. The random effect model represents fluctuations in company performance over the long term as well as annually. The fixed effect model incorporates the features of the sampled enterprises over the research period (Weber, 2017). To enhance the statistical validity of the empirical findings, the researcher utilized several statistical tests and software and these include: the Breusch-Godfrey



Serial Correlation Lagrange Multiplier (LM) test, which examines the presence of serial correlation in the residuals; the Variance Inflation Factor (VIF) test, which assesses the degree of multicollinearity among the independent variables; the Autoregressive Conditional Heteroskedasticity (ARCH) test, which checks for the presence of heteroskedasticity in the error terms; the E-views 10 statistical software package, which was employed to conduct the various statistical analyses.

Descriptive Statistics

Table 1: Descriptive Statistics

Table with 8 columns (ROA, ETR, LOGCIT, FSIZE, LEV, TANG, FAGE) and 13 rows (Mean, Median, Maximum, Minimum, Std. Dev., Skewness, Kurtosis, Jarque-Bera, Probability, Sum, Sum Sq. Dev., Observations).

Source: Researchers' Compilation (2024)

The mean and median value of the firm performance (ROA) of listed non-financial companies in Nigeria are 0.057323 and 0.029483 respectively, indicating that the average firm performance of listed non-financial firms in Nigeria within the period under review is 5.73%.

The kurtosis value of 105.6675 that measures the peakedness or tailedness of income tax (LOGCIT) of 6.426403 and distribution tend to be leptokurtic or long tailed that is it has extreme values or outliers because this value is less than the bench mark of 3. The positive Jarque Bera value of 129390.2 expresses a goodness of fit of the ETR distribution.

The mean and median value of the effective tax rate (ETR) of listed non-financial companies Nigeria has a value of 0.151615 and 0.160524 respectively indicating that the value of 15% represent the average effective tax rate exhibited by listed non-financial entities in Nigeria. The kurtosis value of 25.67861 that measures the peakedness or tailedness of a distribution tend to be

These methods were applied to improve the explanatory variables' capacity to explain changes in the company performance of Nigerian non-financial listed enterprises.

4. Results and Discussion

Basically, eight tables are presented and their numeric implications are analysed after each table. These tables provide numeric information about the descriptive nature of the data gathered amongst other things.

leptokurtic or long tailed that is it has extreme values or outliers because this value is less than the bench mark of 3. The positive Jarque Bera value of 6258.58 expresses a goodness of fit of the ETR distribution.

The mean and median values of the company income tax (LOGCIT) of 6.426403 and 8.457577 respectively show that the average company income tax of non-financial entities listed in Nigeria is approximately 64.2%. The Kurtosis value of 1.912997 and Jarque Bera value of 48.29535 shows a short-tailed distribution or a platykurtic distribution.

The firm size (FSIZE) mean and median values of 16.86551 and 17.27308 respectively which indicate the average firm size value of listed non-financial firms in Nigeria. The kurtosis coefficient of 2.332083 and the Jarque Bera value of 10.67083 for firm size indicate a short-tailed



distribution which tends to be platykurtic because the Kurtosis is less than 3.

The average leverage and median value of 0.597659 and 0.593652 indicate that the average leverage is 59.76% and the Kurtosis value of 42.75137 with Jarque Bera value of 20832.43 indicate a leptokurtic long-tailed test with extreme values.

The tangibility (TANG) mean and median values of 0.5716669 and 0.456009 shows an average tangibility of 57% tangibility or investment in non-current assets of listed non-financial firms in Nigeria. The Jarque Bera coefficient of 643671.2 and Kurtosis of 232.7302 indicate a tall tailed

Table 2 Correlation Matrix

| | ROA | ETR | LOGCIT | FSIZE | LEV | TANG | FAGE |
|--------|---------|---------|---------|--------|---------|---------|---------|
| ROA | 1 | 0.0108 | 0.26118 | -0.057 | 0.13719 | -0.0117 | 0.0333 |
| ETR | 0.01082 | 1 | 0.31732 | 0.1843 | -0.144 | 0.12585 | -0.0333 |
| LOGCIT | 0.26118 | 0.3173 | 1 | 0.3881 | -0.1297 | -0.0128 | 0.0023 |
| FSIZE | -0.0574 | 0.1843 | 0.38807 | 1 | -0.3751 | 0.02965 | -0.0771 |
| LEV | 0.13719 | -0.144 | -0.1297 | -0.375 | 1 | -0.01 | 0.0628 |
| TANG | -0.0117 | 0.1258 | -0.0128 | 0.0297 | -0.01 | 1 | 0.0756 |
| FAGE | 0.03327 | -0.0333 | 0.00234 | -0.077 | 0.06279 | 0.07557 | 1 |

SOURCE: Researchers' Computation (2024)

ROA (Return on Assets); ROA has a positive correlation (0.0108) with ETR (Effective Tax Rate), suggesting that as ROA increases, ETR tends to increase as well; ROA has a strong positive correlation (0.26118) with LOGCIT (Logarithm of Total Assets), indicating that larger firms tend to have higher ROA; ROA has a negative correlation (-0.057) with FSIZE (Firm Size), suggesting that larger firms may have lower ROA; ROA has a positive correlation (0.13719) with LEV (Leverage), implying that firms with higher leverage tend to have higher ROA; ROA has a negative correlation (-0.0117) with TANG (Tangibility), meaning that firms with more tangible assets tend to have lower ROA; ROA has a positive correlation (0.0333) with FAGE (Firm Age), suggesting that older firms tend to have higher ROA.

ETR (Effective Tax Rate); ETR has a positive correlation (0.1843) with FSIZE

distribution which is Leptokurtic that have extreme values.

The average firm age (FAGE) and median value of 29.08333 and 33 indicate that the average firm age is 29 years and the Kurtosis value of 2.113076 with Jarque Bera value of 9.673089 indicate a platykurtic short-tailed test with fewer extreme values.

Correlation Matrix

This study explores the relationship between variables through the use of Pearson product moment correlation method. The results are presented in the table below:

(Firm Size), indicating that larger firms tend to have higher effective tax rates; ETR has a negative correlation (-0.144) with LEV (Leverage), suggesting that firms with higher leverage tend to have lower effective tax rates; ETR has a positive correlation (0.12585) with TANG (Tangibility), implying that firms with more tangible assets tend to have higher effective tax rates; ETR has a negative correlation (-0.0333) with FAGE (Firm Age), suggesting that older firms tend to have lower effective tax rates.

The remaining variables (LOGCIT, FSIZE, LEV, TANG, and FAGE) show various levels of correlation with each other, which can be interpreted to understand the relationships between firm characteristics and financial performance.

Overall, the correlation matrix provides valuable insights into the relationships between the different variables, which can



be useful for further analysis and understanding the factors influencing firm performance and tax-related decisions.

Multicollinearity Test

This is used to examine how much the variance of an independent variable is influenced by its correlation with other independent variables through an

econometric method of variance inflation factor (VIF). If the value of a variable is one (1) which implies that variable is not correlated or if the VIF value lies between 1 and 5, it is seen as moderate correlation but if the value is greater than 5, it shows that variables are highly correlated. The values are expressed in table 3 below

Table 3 Variance Inflation Factor estimates

| Variance Inflation Factors | | | |
|----------------------------|-------------|------------|----------|
| Date: 03/26/24 Time: 12:43 | | | |
| Sample: 1 288 | | | |
| Included observations: 288 | | | |
| | Coefficient | Uncentered | Centered |
| Variable | Variance | VIF | VIF |
| C | 0.048227 | 68.21453 | NA |
| ETR | 0.007769 | 1.402053 | 1.14945 |
| LOGCIT | 0.0001 | 4.459375 | 1.280958 |
| FSIZE | 0.000164 | 67.44989 | 1.356674 |
| LEV | 0.000146 | 1.380712 | 1.175234 |
| TANG | 0.0000 | 1.038014 | 1.0275 |
| FAGE | 0.0000 | 4.969027 | 1.016359 |

Source: Researcher’s Computation (2024)

The center variance inflation factor values of 1.14945, 1.280958, 1.356674, 1.175234, 1.0275, 1.016359 with respect to effective tax rate (ETR), company income tax (LOGCIT), leverage (LEV), tangibility (TANG), firm age (FAGE), and these values are less than 5 which implies that multicollinearity problem does not exist.

In the provided output, the Uncentered VIF and centred VIF are presented for each variable. The Uncentered VIF is generally higher than the centered VIF, as it does not account for the effect of the mean. The centered VIF is a more accurate measure of multicollinearity, as it considers the relationships between the deviations of the predictor variables from their means. The Coefficient Variance is not provided in the output, but it would represent the variability of the estimated regression coefficients and can be used to assess the precision of the coefficient estimates.

Hausman test for fixed or random effect model

This enables the study to choose the model that suit the predictive reliability of the exogenous variables on the endogenous variable based on the criteria that if the P-value estimated exceed the P-value critical value accept the null hypothesis of a random effect; otherwise use the fixed effect model. This enhances prediction of the explained variable. The fixed effect model assumes that the value of the independent model is fixed and any change in the independent variables will create a responsive change in the dependent variable.

Table 4: Hausman correlated random effect test

| Correlated Random Effects - Hausman Test | | | | |
|--|--|-------------------|--------------|--------|
| Equation: Untitled | | | | |
| Test cross-section random effects | | | | |
| Test Summary | | Chi-Sq. Statistic | Chi-Sq. d.f. | Prob. |
| Cross-section random | | 7.658146 | 6 | 0.2642 |

Source: Researcher’s computation (2024)



Evidence from Table 4 shows that a random effect model will be constructed because the P-value of the hausman test of 0.2642 is greater than P-critical value of 0.05. The random effect implies that the unique errors are uncorrelated with the regressors therefore random effect helps to distribute randomly the error term across the cross-sectional sample which impact the dependent variable

Panel Least Square Regression Result

This is used to predict the behaviour of the endogenous variables which indicate the line of best fit that enhances prediction with significant accuracy. The rejection or acceptance of the null hypothesis will be based on the estimates in Table 5.

Table 5 Panel Least Squares Regression Estimates

Dependent Variable: ROA

| Variable | Coefficient | Std. Error | Prob. |
|--------------------|-------------|------------|--------|
| C | 0.23084 | 0.220031 | 0.2950 |
| ETR | -0.094057 | 0.089785 | 0.2958 |
| LOGCIT | 0.042016 | 0.007428 | 0.0000 |
| FSIZE | -0.02721 | 0.01282 | 0.0347 |
| LEV | 0.025227 | 0.012047 | 0.0372 |
| TANG | 0.0000 | 0.0000 | 0.9074 |
| FAGE | 0.000143 | 0.001836 | 0.9379 |
| R-squared | 0.145482 | - | - |
| Adjusted R-squared | 0.104939 | - | - |
| Log likelihood | -170.9002 | - | - |
| Durbin-Watson stat | 2.067847 | - | - |

Source: **Researcher’s computation (2024)**

C (Constant term); Coefficient: 0.23084; Standard Error: 0.220031; Probability (Prob.): 0.2950. The constant term has a positive coefficient, but it is not statistically significant at the typical significance levels (e.g., 5% or 10%) since the p-value is 0.2950.

ETR (Effective Tax Rate); Coefficient: -0.094057; Standard Error: 0.089785; Probability (Prob.): 0.2958

The effective tax rate has a negative coefficient, but it is not statistically significant at the typical significance levels, as the p-value is 0.2958.

LOGCIT (Logarithm of Capital Intensity); Coefficient: 0.042016; Standard Error: 0.007428; Probability (Prob.): 0.0000

The logarithm of capital intensity has a positive and statistically significant coefficient, as the p-value is 0.0000, which is less than the typical significance levels.

FSIZE (Firm Size); Coefficient: -0.02721; Standard Error: 0.01282; Probability (Prob.): 0.0347

Firm size has a negative and statistically significant coefficient, as the p-value is 0.0347, which is less than the typical significance levels.

LEV (Leverage); Coefficient: 0.025227; Standard Error: 0.012047; Probability (Prob.): 0.0372

Leverage has a positive and statistically significant coefficient, as the p-value is 0.0372, which is less than the typical significance levels.

TANG (Tangibility); Coefficient: 0.0000; Standard Error: 0.0000; Probability (Prob.): 0.9074

Tangibility has a coefficient of 0.0000 and is not statistically significant, as the p-value is 0.9074, which is higher than the typical significance levels



FAGE (Firm Age); Coefficient: 0.000143; Standard Error: 0.001836; Probability (Prob.): 0.9379; Firm age has a positive but not statistically significant coefficient, as the p-value is 0.9379, which is higher than the typical significance levels.

Additionally, the R-squared value of 0.145482 indicates that the model explains approximately 14.55% of the variation in the dependent variable. The adjusted R-squared of 0.104939 suggests that the model fit is relatively weak, as it only accounts for about 10.49% of the variation in the dependent variable after adjusting for the number of predictors.

The Durbin-Watson statistic of 2.067847 suggests that there is no significant autocorrelation in the residuals.

Test of Hypothesis

The Durbin-Watson statistics of 2.067847 which is lower than 2.5 imply that the autocorrelation is within the normal region which aid co-integration and enhance the relationship between the dependent and exogeneous variables. The DW result also indicates that stochastic dependence between successive units of the error term is unlikely in the model. The standard error in the model is used to control the issue of heteroskedasticity which shows the prowess of the explanatory variable explaining the dependent variable and the variance of the unexplained portion remains constant or standard error is constant. The log likelihood that measures the goods of fit of the model with a value of -170.9002 which is high indicate that the panel least square regression is good model that will enhance the explanatory variable prowess to explain the dependent variable. Therefore, the null hypothesis will be rejected when the P-value is less than the critical value of 0.05 level of significance and the alternative hypothesis is accepted.

Furthermore, the result in table 4.6 on effective tax rate (ETR) shows a negative association and an insignificant impact on firm performance of listed non-financial firms in Nigeria at a coefficient value of -

0.094057 and P-value of 0.2958. Base on this fact, the null hypothesis is accepted which states that integrated reporting disclosures do not determine the firm performance of listed non-financial companies in Nigeria.

Company income tax (LOGCIT) shows a positive relationship and a significant impact on firm performance of listed non-financial companies in Nigeria which is exhibited by its coefficient value of 0.042016 and P-value of 0.0000. Due to this result the null hypothesis is rejected which state that company income tax has significant impact on firm performance of listed non-financial companies in Nigeria. It also implies that company income tax determines firm performance of listed companies in Nigeria.

Firm size (FSIZE) has a positive coefficient value of -0.02721 and a P-value of 0.0347 which is greater than 0.05 level of significance; therefore, the null hypothesis is rejected which implies that firm size (FSIZE) has significant impact on firm performance of listed non-financial firms in Nigeria. This implies that firm size determines firm performance of listed firms within the period under review.

Independent variable of leverage (LEV) with positive coefficient values of 0.025227 and significant P-values of 0.0372 indicate that leverage has a significance impact on firm performance of listed non-financial companies in Nigeria. This implies that as the leverage characteristics of the listed entities determine firm performance of listed non-financial entities in Nigeria appreciates.

Tangibility (TANG) has a positive correlation and insignificant impact on firm performance of listed non-financial companies in Nigeria based on its coefficient value 0f 0.0000 and P-value of 0.9074. It implies that the tangibility does not determine firm performance of listed non-financial firms in Nigeria.

Furthermore, firm age (FAGE) has a positive correlation and insignificant impact on firm performance of listed non-financial companies in Nigeria based on its coefficient value 0f 0.000143 and P-value of 0.9379. It



also implies that the firm age does not determine the firm performance of listed non-financial firms in Nigeria. However, the appreciation in the age of the firm also impacts firm performance of listed non-financial companies in Nigeria.

Discussion of Findings

Evidence from the study shows that effective tax rate has a negative association and an insignificant impact on firm performance of listed non-financial firms in Nigeria which is at variance with the study of Stewart and Webb (2006), that looked at the impact of changes in ETRs on firm performance using data from the US Tax Reform Act of 1986. The study finds that firms experiencing lower ETRs due to the tax reform experienced improvements in performance indicators.

However, Hanlon and Heitzman (2010) analyzed the effect of income tax expense on firm performance using a sample of publicly traded U.S. firms. The result of the study revealed that higher income tax expense is associated with lower firm profitability and lower market valuation which is at variance with this current study which revealed that company income tax has a positive and significant impact of firm performance of listed non-financial firms in Nigeria.

The study also revealed that firm size has a negative relationship but a significant impact on firm performance of quoted non-financial companies Nigeria which is at variance with the study of Akinyomi and Osabutey (2021), investigated the relationship between firm size, growth opportunities, and financial performance of listed manufacturing firms in Nigeria and the findings reveal a positive association between firm size (measured by total assets) and financial performance (measured by ROA and ROE).

The study also showed that leverage has a positive association and a significant impact on firm performance which is in line with the study of Uwuigbe et al. (2019) examined the relationship between debt financing and firm performance in the Nigerian banking sector. The findings revealed a positive relationship

between leverage and firm performance, indicating that debt financing has a positive impact on banks' profitability.

The result of tangibility revealed a positive association with firm performance of listed non-financial firms in Nigeria but the impact was also not significant and this result is aligning with the findings of Huang, et al., (2016) that examined the impact of tangible assets on firm performance that reveals that a higher proportion of tangible assets positively affect firm performance

Furthermore, Adeoti and Olurankinse (2016) investigated the relationship between firm age and performance in the Nigerian consumer goods sector which reveal a positive correlation between firm age and performance, suggesting that older consumer goods firms in Nigeria tend to have better financial performance which is in alliance with this current study which revealed that firm age has a positive and an insignificant impact of firm performance of listed non-financial firms in Nigeria.

5. Conclusion and Recommendations

Conclusion

The strategic processes of using corporate tax mix, firm attribute to influence performance of firm to maximize stakeholders' returns need to be emphasized. This study, which is centered on the impact of corporate tax mix (effective tax rate, company income tax), firm attribute (firm size, leverage, firm size, tangibility, firm age) on firm performance of listed non-financial entities in Nigeria.

The study covered an eight-year period dated 2015 to 2022 with data gathered from the annual reports of 36 sampled companies that were selected based on convenience and availability of data and mix of the dependent and independent variables which is unique to this study.

The independent variable of corporate tax mix is measured as effective tax rate, company income tax and firm attribute include firm size, leverage, tangibility, firm



age which is used to predict the endogenous variable of firm performance. The study carried out a descriptive analysis of variables, covariance analysis to examine multicollinearity; variance inflation factor coefficient test to ensure that the independent variables does not influence other independent variables; Breusch-Godfrey serial correlation LM test to examine the issue of autocorrelation; ARCH heteroskedasticity diagnostic test to ensue homoskedasticity of variables so that the exogeneous variable can reliably explain the dependent variable. The random effect panel least square analysis was executed after using the Hausman test for fixed and random effect to determine the model that suite the analysis. The basis of statistical inference is through the P-value. If the P-value is less than 0.05 level of significance reject the null hypothesis.

Recommendations

Deducing from the evidential analytics and finding of this study, the following recommendation are made:

This study recommends that corporate managers of listed firms should use the service of tax consultants that has requisite knowledge of the loopholes in the Finance Act (2021) that reduces company income tax liabilities through tax incentive strategies, tax wavers, tax avoidance strategies which enhances firm performance.

The study also revealed that firm size impact firm performance of listed non-financial corporate entities in Nigeria; therefore, corporate managers and investors should invest more resources in expanding the corporate assets which will generate increased sales that appreciate stakeholders' value.

Since, leverage has a positive association and significant on firm performance of listed non-financial firms in Nigeria, therefore, corporate entities are encouraged to apply the Miller and Modigliani theory of capital structure that emphasizes that the optimal capital structure requires the use of

more debt capital to finance corporate entities which will optimize corporate value as projected by this study.

Though the effective tax rate has no significant impact on firm performance, therefore corporate managers should employ tax consultant to re-evaluate their tax processes and procedures in order to review areas within this process that increase the tax expenses which are allowable deduction that are wrongly represented. This will reduce tax liabilities and create more cashflow that enhance firm performance.

Much more, the study recommends that deliberate investment on sustainable non-current assets should be encouraged among entities because the result of the study emphasized a positive association with firm performance that is as investment in income generating assets increases, therefore entities performance also appreciate.

Since, firm age and firm performance are moving in the same direction; therefore, corporate entities should carry on their corporate activities as entities that will live for unforeseeable future. Corporate regulators should set up controls that protect stakeholders' interest in manner that entities are being safeguarded from unforeseeable corporate challenges that emanate into corporate winding up.

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