Profitability, Inventory Intensity and Corporate Tax Avoidance in Nigeria: The Moderating Effect of Institutional Ownership

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Abstract: Research Question: This paper examines whether the presence of institutional investors can moderate the association between profitability on corporate tax avoidance. **Motivation:** The motivation behind this study is that corporate tax avoidance practices have become a major concern for the government globally because it's negatively affects revenue generation. Similarly in Nigeria, despite the tax law reform which aims to eliminate unclear and conflicting element in the tax provision, tax avoidance activities continue to occur. Such can be seen from the recent cases of Multichoice, MRS and Chevron. **Idea:** The core idea of this research is to examine the moderating role of institutional investors on the relationship between profitability and corporate tax avoidance. **Data:** Data for this study were obtained from the financial statement of the listed firms in Nigeria, accessed through Thompson Reuters DataStream, as well as from their annual reports for five years (2018-2022). **Method/Tools:** Panel Corrected Standard Error is employed to analyse the data. **Findings:** The results reveal that despite the negative effect of profitability on effective tax rate, the presence of institutional investors would provide efficient monitoring and reduce tax fraud and manipulation in the firm. Also, the results indicate that high inventory intensity in a company is linked to the significant cost of goods sold, leading to reduced profits. Consequently, lower profits result in lower company taxes, which in turn reduces the effective tax rate. **Contributions:** Therefore, the study provide evidence to support the long-term institutional investors have the knowledge, capability, and resources to inspect managers and exercise control on them. Also, the results of this study will also provide the Nigerian tax authority with useful information and empirical support, the Federal Inland Revenue Service (FIRS) should put in place strict measures to reduce aggressive use of tax planning strategies by firms. Hence, future studies could study how shift in tax policies, tax enforcement, or corporate tax incentives in Nigeria impact tax avoidance practices among firms in Nigeria. Also, future studies could analyse how

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institutional investors in Nigeria respond to regulatory changes and whether such changes alter the extent of tax avoidance practices.
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1. Introduction

Corporate tax avoidance research has unquestionably become a significant area of study within the accounting literature. However, taxes for companies, signify a significant cost and reductions to distributable profit. Therefore, companies are driven to involve in tax avoidance techniques to increase the reported earnings (Abubakar *et al.*, 2021; Koubaa and Jarboui, 2017). Tax avoidance is among the main strategic tools employed by companies to reduce or manipulate the amount of tax liability (Sani and Madaki, 2016). Tax avoidance is the legal use of the tax regime to one's own benefit in order to reduce the amount of tax payable through legal means. (Pasternak and Rico 2008). Tax avoidance refers to ethical use of tax planning by companies to reduce their tax liability (Taylor and Richardson, 2012; Otusanya, 2011). However, corporate tax avoidance practices have become a major concern for the government globally because it's negatively affects revenue generation (Kovermann and Velte, 2019; Oats and Tuck, 2019).

Oil has long been the primary source of income for Nigeria, however, the recent sharp reduction in global oil prices has greatly decrease the government overall income. Hence, the need to search for alternative revenues and to strengthen the income tax system is very crucial to support the government's planned development strategy (Arowoshegbe *et al.*, 2017). The tax environment in Nigeria provides a unique setting to study such a relationship, specifically because tax manipulation and fraud are common features in the Nigerian tax system. The volatile tax environment in Nigeria encourages companies to handle their tax liabilities in unusual ways, including by involving in tax avoidance techniques, which has been linked to numerous instances of tax-related fraud (Arowoshegbe *et al.*, 2017). Nigeria is losing numerous billions of dollars in tax income yearly as a result of the outdated tax system and weak tax laws that motivate tax avoidance. Also, the tax to GDP ratio in Nigeria is 10.8% one of the lowest in the world.

Despite the tax law reform which aims to eliminate unclear and conflicting element in the tax provision, tax avoidance activities continue to occur in Nigeria. Such can be seen from the recent cases of Multichoice, MRS and Chevron. This is because the tax reform is designed to increase government revenue collection rather than to increase the efficiency of the entire tax practices that is currently characterized by gross inefficiency and financial fraud (Umenweke and Onyenukporo, 2020).

In Nigeria, institutional investors have a profound influence on corporate governance, strategic decision-making, and financial outcomes of companies. One area where this influence can be particularly significant is in the realm of tax avoidance strategies (Osemeke, 2012). Dangote Cement, one of the largest firms in Nigeria and a major player in Africa's cement industry, is a prime example of a company with significant institutional investor backing. With major institutional investors such as Pension Funds and Sovereign Wealth Funds. In recent years, the company reduces its effective tax rate through leverage tax deductions, particularly in relation to pioneer status incentives, which grant tax holidays to new or expanding businesses in select sectors. Similarly, MTN Nigeria, one of the largest telecommunications companies faced several controversies regarding its tax payments in Nigeria, with accusations of underreporting revenues and engaging in tax avoidance practices.

Profitability have been identified by previous studies as a factor that affect corporate tax avoidance practice (Nurkholisoh and Hidayah, 2019: Moreno-Rojas *et al.*, 2017; Sianipar *et*

al., 2020; Wang *et al.*, 2014; Fernández-Rodríguez *et al.*, 2021). Similarly, studies have shown that more profitable companies tend to involve more in tax avoidance strategies (Kimsen *et al.*, 2019; Ichsani and Susanti, 2019). However, institutional ownership has been identified as key corporate governance mechanism, especially in a weak legal environment like Nigeria (Alkurdi and Mardini, 2020). The agency theory also argues that institutional ownership helps in reducing the management and shareholders' conflict (Jensen and Meckling, 1976). According to Frank *et al.* (2009), institutional ownership would assist in reducing agency conflict caused by tax avoidance activities, thereby increasing shareholders' wealth. Specifically, Institutional investors are perceived to be more professional in terms of knowledge and skills to effectively monitor compliance and necessary disclosures (Dang *et al.*, 2018; Al-Fayoumi *et al.*, 2010). Institutional are large investors, who have the knowledge, capability, and resources to monitor managers and exercise control on them (Jafarinejad *et al.*, 2015).

This paper differs from the prior studies. Most of the previous research on corporate tax avoidance among firms have mostly been undertaken in developed countries such Australia, U.S., and United Kingdom. However, studies on the corporate tax avoidance in Nigeria are limited. Additionally, academic literature on tax avoidance in Nigeria is limited. Majority of literatures focus on tax evasion, its causes, its effect, and the ways of fighting and preventing it (Gurama *et al.*, 2015; Nangih and Dick, 2018; Asien, 2021; Ado *et al.*, 2018). Hence, this study which examines the factors that influence ETR among listed firms in Nigeria, aims to make a significant addition to the current body of literature on the corporate tax avoidance in the country.

Our research has made a unique contribution in the following areas: as far as we believe, this study in Nigeria is the first to provide evidence to prove the institutional investors moderation on the association between profitability and effective tax rate. This study will provide the Federal Inland Revenue Service (FIRS) with useful information and empirical support to put in place strict measures to reduce aggressive use of tax planning strategies by firms. Additionally, effective audit agendas should be applied accordingly to make sure the firms conform to the legal provisions and the current tax legislation.

The second section examines the literature and explained the proposed hypotheses. The paper's methodology is explained in the third section, and the findings are presented and explained in the fourth. Finally, the conclusion is presented in fifth section.

2. Related Theory, Literature Review and Hypotheses Development

2.1 Companies Income Tax Act

In Nigeria, the Federal Inland Revenue Service (FIRS) is in charge of the company income tax laws. The law governs the assessment and gathering of taxes from companies in Nigerian. It also contains taxes on foreign companies' profits operating in Nigeria. Residents' firms are subject to corporate income tax (CIT) on their global income, whereas non-residents are liable to CIT on their income derived in Nigeria. However, CIT is calculated using accounting profit. The CITA law is divided into 85 sections, which are organised into 5 and 13 parts (Madugba *et al.*, 2020). Companies are currently taxed at a rate of 30% of chargeable profit in Nigeria (Madugba *et al.*, 2020). In Nigeria, CITA Sections 25 and 25A allow deductions for donations made to bodies, or institutions for the purpose of calculating the profits. Section 26 of the Act provide deductions for research and development, as long as that the deduction it is not more than 10% of the proven profit before the deduction.

2.2 Firm performance and Corporate Tax Avoidance

Strategies employed by companies to prevent paying taxes can be significantly influence by profitability. A high profitability levels can influence the firm's income tax obligations and

lead to increased emphasis on tax planning to minimize tax liabilities (Prabowo, 2020). Based on agency theory, managers strive to manage the company's tax burden in a way that minimizes its impact on profits, thus reducing the performance incentives for the agents involved (Putra *et al.*, 2018).

Studies conducted on the association between profitability and effective tax rate provide mix findings. Some research reported a negative link between profitability and corporate tax avoidance (e.g., Alkurdi *et al.*, 2023; Mbroh *et al.*, 2019; Rani *et al.*, 2018; Katz *et al.*, 2013). Because highly profitable firms have greater capacity to spend resources for tax planning, they are likely to adopt comprehensive tax avoidance tactics, which is why there is a negative association between profitability and corporate tax avoidance. Additionally, these firms benefit from economies of scale, which allows them to fully utilize tax planning to lower their tax obligations. While other studies showed a positive impact of profitability on corporate tax avoidance (Prabowo, 2020; Meutia and Candrakanta, 2022; Tanko, 2020). Therefore, the study hypothesis that:

H1: There is a significant relationship between profitability and corporate tax avoidance.

2.3 Inventory Intensity and Corporate Tax Avoidance

Inventory intensity related to the proportion of a company's assets or how much the company resources tied up in inventory. Previous literature has reported that corporate tax avoidance is influence by firm's inventory intensity (Pebriani and Kasir, 2024; Rachmawati, 2022; Bivianti and Yuniarsih, 2022; Hazır, 2019). A study conducted by Salaudeen and Eze (2018) found that inventory intensity is a key element that corporate managers use to structure, eliminate or even reduce the amount of tax payable to government as taxes.

Research on the connection between inventory intensity and the effective tax rate (ETR) has yielded mixed results. Some studies have found a positive relationship, indicating that companies with higher inventory levels tend to pay higher ETRs, likely because inventory is not eligible for tax deductions (Anggriantari and Purwantini, 2020; Ann and Manurung, 2019; Rahayu and Suryarini, 2021). Conversely, other studies identified a negative relationship, suggesting that firms with higher inventory intensity may struggle to allocate resources into profitable ventures, thus reducing their earnings and resulting in lower ETRs (Nasution and Mulyani, 2020; Sugeng *et al.*, 2020). Based on these findings, the following hypothesis is proposed:

H2: There is a significant relationship between inventory intensity and corporate tax avoidance.

2.4 Firm Performance, Institutional Ownership and Corporate Tax Avoidance

Previous studies reported mixed findings between profitability and corporate tax avoidance. Some studies reported that profitability is negatively related with corporate tax avoidance (e.g., Yahaya and Kabir, 2020; Mbroh *et al.*, 2019; Rani *et al.*, 2018). While some others showed a positive association of firm profitability on corporate tax avoidance (e.g., Prapitasari and Safrida, 2019; Sarpingah, 2020; Prabowo, 2020).

Based on the current gap in findings, this research considers the indirect impact of institutional ownership on the relationships between profitability and corporate tax avoidance. This is motivated by the finding that institutional ownership enhances board oversight and discourages management from participating in unethical behaviour (Sekome and Lemma, 2014). It has been argued that long term institutional investors can curb a company's tax avoidance strategies through effective monitoring, considering managerial opportunism and the complexity of tax avoidance (Ying *et al.*, 2017). A study conducted by Khurana and Moser

(2013), shows that companies that have long term institutional investors have less tax avoidance. The authors highlighted the importance of institutional investors in preventing a management tax avoidance behaviour. Correspondingly, Moore (2012) investigates how institutional ownership affects both the magnitude and changes over time of book-tax differences in US companies. The research reveals a negative association between institutional investors and book-tax differences. Therefore, we hypothesize that:

H3: Institutional ownership moderates the relationship between profitability and corporate tax avoidance.

3. Research Methodology

The research includes 156 firms listed on the Nigerian Stock Exchange during the period from 2018-2022. The selection procedure for the sample is presented in Table 1. Among the total of 156 firms, 56 banks and other financial service institutions were excluded. Also, 26 firms were delisted from the Nigerian Stock Exchange during the specified period. Finally, 19 firms with incomplete information were removed, resulting in a final sample of 55 firms, totalling 275 observations. Data for the study were obtained from the financial statement of the listed firms, accessed through Thompson Reuters DataStream, as well as from their annual reports.

Table 1: Sample size procedure

	No	No
Firm listed on Nigerian stock exchange as at 31/12/2022		156
Less		
Financial service firms	56	
Delisted firms	26	
Firms with incomplete data	19	101
Final sample		55
Number of years		5
Firm-year observation		275

3.1 Dependent Variable

Similar with previous studies ETR is used as a proxy of corporate tax avoidance strategies of a company. This study measures ETR as income tax expenses divided by profit before tax (Pratiwi and Siregar, 2019; Zhang *et al.*, 2016; Fagbemi *et al.*, 2019).

3.2 Independent Variable

Previous studies have widely reported that profitability is projected to influence effective tax rate. The projection is that more profitable firms will generate higher earnings, resulting to an increase in their tax payment (Mbroh *et al.*, 2019; Ernawati *et al.*, 2019). Following previous studies as (e.g. Zhang *et al.*, 2016; Khuong *et al.*, 2020; Mbroh *et al.*, 2019; Katz *et al.*, 2013), this study uses ROA as a measurement of companies' performance, as the percentage of net income to total assets. Similarly, previous studies have widely reported that inventory intensity is among the element that influence corporate tax avoidance practices (Gita *et al.*, 2021; Ann and Manurung, 2019; Aulia and Ernandi, 2022; Utami and Mahpudin, 2021). Similar with prior research inventory intensity is measured as Inventory divided by fixed assets (Rashid *et al.*, 2015).

3.3 Moderating Variable

Institutional ownership (ISO) is the percentage of the aggregate number of shares owned by institutional shareholders (5%) to the total number of issued shares (Al-Fayoumi *et al.*, 2010; Aygun *et al.*, 2014).

3.4 Model Specification

The following regression models were used. Model 1 tests the effects of firm characteristics (firm size and profitability) on corporate tax avoidance. Model 2 determines how institutional ownership moderates the association between firm characteristics (firm size, and profitability) and corporate tax avoidance in Nigeria.

Model 1

$$ETR = a_0 + \beta_1 ROA_{it} + \beta_2 INVINT_{it} + \beta_3 ISO_{it} + \beta_4 INDUS_{it} + \beta_5 CAPINT_{it} + \beta_6 LEV_{it} + \beta_6 ACIND_{it} + \beta_6 AQ_{it} + + \beta_6 FSIZE_{it} + \varepsilon_{it} \quad (1)$$

Model 2

$$ETR = a_0 + \beta_1 ROA_{it} + \beta_2 INVINT_{it} + \beta_3 ISO_{it} + \beta_4 ROA_{it} * ISO_{it} + \beta_5 INDUS + \beta_6 CAPINT_{it} + \beta_7 LEV_{it} + \beta_7 ACIND_{it} + \beta_7 AQ_{it} + \beta_7 FSIZE_{it} + \varepsilon_{it} \quad (2)$$

where ETR = Effective Tax Rate; ROA = Return on Assets; INVINT = Inventory intensity; ISO= Institutional ownership; INDUS = Industry; CAPINT = Capital intensity; LEV = Leverage; ACIND = Audit Committee Independence; AQ = Audit Quality; FSIZE = Firm Size and ε_{it} = Error term.

Table 2: Summary of the operationalization of research variables

S/N	Variable	Acronym	Operationalisation	Sources
	Dependent variable			
1	Effective Tax Rate	ETR	Income tax expense/ profit before tax	Pratiwi and Siregar (2019)
	Independent variable			
1	Return on Assets	ROA	Measure as the percentage of net income to total assets.	Zhang *et al.* (2016)
2	Inventory Intensity	INVINT	Inventory/fixed assets	Rashid *et al.* (2015)
	Moderating variable			
1	Institutional ownership	ISO	Ratio of shares held by institutional investors (5%) to the total number of issued shares	Al-Fayoumi *et al.* (2010) Abousamak and Shahwan (2018)
	Control variables			
1	Industry type	INDUS	Dummy variable 1 if a company belong to the manufacturing sector 0 otherwise	Miko and Kamardin (2016) and Baba (2016)
2	Capital intensity	CAPINT	Fixed assets/Total assets	Rashid *et al.* (2015)
3	Leverage	LEV	Measures as the ratio of total debt to total assets	Al-dhamari *et al.* (2018)
4	Audit Committee Independence	ACIND	Measured by the proportion of independent directors on the AC	Zhang *et al.* (2007)
5	Audit Quality	AQ	A dummy variable of 1 if a company is audited by Big 4 audit firm and zero otherwise.	Lakhal (2015)
6	Firm Size	FSIZE	Income tax expense/ profit before tax	Pratiwi and Siregar (2019)

4. Results and Findings

4.1 Descriptive Statistics for Dependent, Independent, and Control Variables

Table 3 describes the summary statistics for our sample of 55 firms across the five-year period (2018-2022). The effective tax rate (ETR) is 24% which is below the current corporate tax rate (30%) in Nigeria. Hence, this is an evidence of tax avoidance. Low effective tax rate is an indication of tax avoidance. This shows that companies listed in Nigeria are exploiting the gaps in the Nigerian tax laws, resulting in tax avoidance. The reported mean is closely related with the average mean of 26% by Abubakar *et al.* (2021) for firms listed in Nigeria. This could be because the total sample and the period cover by both studies differs as some listed firms were been delisted by the Nigerian Stock Exchange (NSE) during this research period.

On the other hand, the mean reported in this study is greater than the average mean of 18% reported by Tijjani and Peter (2020). Furthermore, the minimum and maximum values of the ETR are 0.000 and 0.853, respectively. A mean of 0.556 was reported for inventory intensity (INVINT), indicating that the average inventory intensity rate for listed companies in Nigeria is 55%. The reported mean is closely related with the average mean of 56 % by Ado *et al.* (2021) for firms listed in Nigeria.

Table 3: Descriptive statistics

Variables	Obs	Mean	Std. Dev.	Min	Max
ETR	275	0.240	0.155	0.000	0.853
ROA	275	0.075	0.068	-0.079	0.316
INVINT	275	0.556	1.175	0.002	10.470
ISO	275	0.544	0.240	0.000	0.949
INDUS	275	0.618	0.486	0.000	1.000
CAPINT	275	0.520	0.252	0.011	0.988
LEV	275	0.531	0.262	0.006	1.557
ACIND	275	0.887	0.119	0.500	1.000
AQ	275	0.589	0.493	0.000	1.000
FSIZE	275	16.933	1.809	12.892	21.718

Notes: ETR = Effective Tax Rate; ROA = Return on Assets; INVINT = Inventory intensity; ISO= Institutional ownership; INDUS = Industry; CAPINT = Capital intensity; LEV = Leverage; ACIND = Audit Committee Independence; AQ = Audit Quality; FSIZE = Firm Size.

Additionally, the result of Table 3 shows that institutional investors (ISO) have a mean of 0.544, a minimum of 0.000 and a maximum of 0.949. This means that ISO held 54% of all shares in Nigerian listed companies. The average score of industry (INDUS) is 0.618 with a minimum of 0.000 and a maximum of 1.000. This implies that 61% of listed firms are manufacturing firms in Nigeria. Regarding capital intensity (CAPINT), the result displays a mean value of 0.520 with a minimum value and a maximum value of 0.011 and 0.988 respectively. The result indicated that LEV have an average of 0.531, a minimum of 0.007 and maximum of 1.558. This indicates that leverage accounts for 53% of the total capital structure of listed firms in Nigeria. Regarding audit committee independence (ACIND), the mean is 88.7% of members, minimum of 50% and a maximum of 100%. Lastly, the mean of AQ is 0.589, indicates that 58% of listed firms were audited by Big4 firms. The result of firm size (FSZ) indicates the mean, minimum and maximum score of 16.933, 12.893, and 21.718. Similarly, Table 3 shows the mean for ROA IS 0.075, with a maximum of 0.316. This indicated that on average, Nigerian listed firms have the return of 7.5 per total assets. Further, the maximum value indicated that some firms have 31 Naira as return on total asset. This shows the capability of Nigerian companies to appropriately utilize their assets to earn more return.

4.1.1 Yearly Descriptive Statistics of Effective Tax Rate

Table 4 shows the yearly descriptive statistics for the effective tax rate in Nigeria over the period from 2018 to 2022. The table indicated significant changes, the mean tax rate slightly fluctuating between 0.251 in 2018 and 0.237 in 2022. This indicated the evidence of increase in tax avoidance activities, specifically in 2021 and 2022. This is likely due to the economic disruption caused by the Covid-19 pandemic. Suggesting that some firms may have reduced their tax burdens in response to the pandemic. This pattern is more pronounced in 2021, where the minimum decrease to 0.000, revealing heightened tax avoidance during the recovery period. The persistent of low minimum values during and after the pandemic suggest that certain firms may have strategically engaged in tax avoidance activities to reduce the financial strain imposed by Covid-19.

Table 4: Yearly effective tax rate

Year	Mean	Min	Max
2018	0.251	0.009	0.853
2019	0.240	0.003	0.679
2020	0.246	0.002	0.733
2021	0.227	0.000	0.543
2022	0.237	0.010	0.752
Overall	0.240	0.000	0.853

4.1.2 Descriptive Statistics of Effective Tax Rate based on Industry

Table 5 below shows the statistics for the effective tax rate in Nigeria, classified by industry using a dummy variable. It shows that non-manufacturing firms had a higher average effective tax rate compared to manufacturing. However, the minimum tax rate for both sectors is very low, with manufacturing firms having the lowest 0.002, suggesting higher instances of tax avoidance in this sector. The non- manufacturing sector showed a higher maximum tax rate 0.853 compare to manufacturing 0.733. During Covid-19 pandemic, tax avoidance appears to have been more obvious among the manufacturing firms, as revealed by the lower mean tax rate and lower minimum value. This suggests that manufacturing firms facing economic pressure from the pandemic, may have engaged more in tax avoidance activities to reduce their taxable income.

Table 5: Descriptive statistics based on industry type

Industry	Mean	Min	Max
0	0.257	0.008	0.853
1	0.230	0.002	0.733
Overall	0.240	0.003	0.853

4.2 Correlation Matrix

The Pearson correlation matrix for the study variable is revealed below in Table 6. The highest coefficient in the results is 0.573 between INVINT and CAPINT. This is less than the 0,8 suggested by Hair *et al.* (2014) which indicate the absent of multicollinearity issues. Also, Table 4 shows the correlation between ROA, IINVINT, SO, INDUS, CAPINT, LEV and ACIND with ETR is negative. Likewise, FSIZE and AQ have a positive correlation with ETR.

Table 6: Correlation of the study variables

Variables	ETR	ROA	INVINT	ISO	INDUS	CAPINT	LEV	ACIND	FSIZE	AQ
ETR	1.000									
ROA	-0.188	1.000								
INVINT	-0.044	0.040	1.000							
ISO	-0.029	0.044	-0.049	1.000						
INDUS	-0.083	-0.001	0.011	0.074	1.000					
CAPINT	-0.094	-0.033	-0.573	0.112	0.082	1.000				
LEV	-0.026	-0.130	-0.111	0.031	0.123	0.107	1.000			
ACIND	-0.114	-0.199	-0.185	-0.012	-0.017	0.023	-0.246	1.000		
AQ	0.080	-0.113	-0.082	0.136	0.058	0.086	0.088	-0.035	1.000	
FSIZE	0.145	0.029	-0.124	0.1369	0.229	0.053	-0.066	0.112	-0.014	1.000

Notes: ETR = Effective Tax Rate; ROA = Return on Assets; INVINT = Inventory intensity; ISO= Institutional ownership; INDUS = Industry; CAPINT = Capital intensity; LEV = Leverage; ACIND = Audit Committee Independence; AQ = Audit Quality; FSIZE = Firm Size. *Significant at the 10% level, ** 5% level, *** 1% level.

4.3 Regression Results

The regression outcome is shown in Table 7 between the study variables. Because the data included both cross sectional and time series variant, we performed heteroscedasticity and autocorrelation test to prevent displaying biased statistical inference. As a result, the data

analysis shows the existence of heteroskedasticity and autocorrelation. The study used the Panel Corrected Standard Error (PCSE) as recommended by Beck and Katz (1995) to address these issues. PCSE was established as better for panel data having heteroskedasticity and autocorrelation (Moundigbaye *et al.*, 2018).

Table 7: Result of the estimated regression

	Model 1		Model 2	
ETR	Coefficient	p-value	Coefficient	p-value
ROA	-0.531	0.000	-0.420	0.000
INVINT	-0.021	0.017	-0.019	0.027
ISO	0.044	0.003	-0.057	0.000
ROA*ISO			0.479	0.075
INDUS	-0.033	0.006	-0.040	0.003
CAPINT	-0.111	0.000	-0.105	0.000
LEV	-0.052	0.041	-0.054	0.036
ACIND	0.301	0.001	-0.319	0.001
AQ	0.233	0.013	0.019	0.077
FSIZE	-0.017	0.000	0.020	0.000
CONS	0.377	0.002	0.365	0.002
Firm Fixed Effect	yes		yes	
Year Fixed Effect	yes		Yes	
R Square	0.143		0.150	
Prob>F	0.000		0.000	
Obs	275		275	

Notes: Model 1 = Direct effect; Model 2 = Moderating effect; ETR = Effective Tax Rate; ROA = Return on Assets; INVINT = Inventory intensity; ISO= Institutional ownership; INDUS = Industry; CAPINT = Capital intensity; LEV = Leverage; ACIND = Audit Committee Independence; AQ = Audit Quality; FSIZE = Firm Size. *Significant at the 10% level, ** 5% level, *** 1% level.

Table 7 indicates the outcome for Model 1 and model 2 on the dependent, independent, moderator and control variables. The regression results for model 1 revealed that ROA is significantly and negatively related with ETR (Coeff -0.531, P=0.000). The results suggested that a firm with a high profitability will focus on the activities of tax planning to minimise the tax burden through lower ETR. The outcome is in line with the agency theory that firm's managers strive to manage the firm's tax burden in such a way that minimizes its effect on profitability. The finding supported Alkurdi (2023) that highly profitable firms have a greater capacity to spend resources on tax planning to achieve an effective tax avoidance thereby lowering their ETR. However, in model 2, the interaction of the institutional ownership with profitability shows that ISO change the direction of the relationship from significant negative relationship to a positive and significant (Coeff 0.028 P=0.000). Due to the technicalities of the activities of tax avoidance, managers employ complex transactions to hide or prevent investors from performing appropriate oversight function. But the present of long-term institutional investors invariably influences monitoring mechanisms, and hence prevent the diversion of the firm resources by the managers.

Also, the results indicate that inventory intensity negatively impacts the ETR (Coeff -0.021, P=0.017). High inventory intensity in a company is linked to the significant cost of goods sold, leading to reduced profits. Consequently, lower profits result in lower company taxes, which in turn reduces the ETR. This aligns with the research by Gita *et al.* (2021), which found that inventory intensity negatively affects the ETR. The reason for this is that inventory intensity is not considered tax-deductible under the tax system. However, managers must put in additional effort to adjust the company's inventory intensity to lower the overall tax burden. Firms with large inventories incur higher expenses for transportation, warehousing, maintenance, and storage, leading to an overall increase in the total costs borne by the company (Sugeng *et al.*, 2020). Hence, based on the reported result in this study, additional expenditure on inventory influences the firms to engage in tax avoidance activities.

The direct result of ISO is positively significant (Coeff 0.044, P=0.003) with ETR. The results reveal that companies having a dedicated institutional owner, mostly take long term interest in their holdings. Moreover, they are more inclined to create relationships with firms, contribute to strategic decision making and monitor firms' performance. Therefore, Institutional shareholders are considered as more professionals with better technical know-how in monitoring the activities of managers. The outcome is similar with the agency theory, which suggest that, institutional shareholders are anticipated to monitor and reduce management opportunistic activities more than individual investors. Also, the result is similar with Alkurdi and Mardini (2020) who found that tax avoidance is negatively related with institutional ownership structures, which decreases the tax avoidance strategies.

Regarding the control variables, the result indicates that industry type (INDUS) is significant and negatively related with ETR (Coeff -0.033, P=0.006). The result indicated that companies in the manufacturing industry are associated with tax avoidance activities. This is because, during COVID-19, manufacturing sector in Nigeria faced supply chain disruptions and reduced demand. These factors have resulted in decreased profitability, thereby motivating the manufacturing sector to engage in tax avoidance strategies in order to reduce cost and maintain cash flow. The finding is similar with Udeh and Eze (2021) that reported manufacturing firms in Nigeria used aggressive tax practice to reduce their effective tax rate. CAPINT reveals a negative significant relationship with ETR (Coeff -0.111, P=0.006). This explain that firms in Nigeria significantly increase their capital intensity (fixed assets) to reduce the profit level. Depreciation costs for fixed assets can be deducted from profit before tax. Thus, the greater the proportion of fixed assets and depreciation costs, the company will have a low ETR value.

The finding reveals that LEV is negatively significant (Coeff -0.052, P= 0.042), implying that highly leverage firms tends to have a greater interest tax shield that decrease their ETR. ACIND is shown to be positively significant with ETR (Coeff 0.301, P= 0.001). The finding indicated that having a large number of an independent director's audit committee will prevent tax avoidance and reduce aggressive tax planning (Islam and Hashim, 2023). AQ is positively significant with ETR (Coeff 0.233, P= 0.013). The finding is similar with (Lestari and Nedya (2019) that audit quality increases the quality of financial statement, decreases agency cost and control managers from involving in aggressive tax strategies. Finally, the regression result indicates

The regression results for model 1 indicates that FSIZE is negative and significant (Coeff -0.017, P= 0.000). This indicated that larger firms in Nigeria pay less tax and have a lower ETR, the results supported the political power theory that explained that big firms have lower ETR. The reason is that big firms have resources enough to influence political outcomes and developed a better tax planning strategies thereby have a greater tax savings. The study finding is similar with Panda and Nanda (2020) who argued that larger firms have lower ETR than smaller firms due to the enough resources in their possession to manoeuvre the political procedure in their favour and have effective tax planning hence, achieving optimal tax savings.

4.4 Robustness Test

The robustness test for the GMM model is reveal under Table 8. An extra robustness test is provided in this section to strengthen and support the analysis's main conclusion. The potential for endogeneity among the variables was handled using the Generalised Methods of Moment (GMM) model. In line with Abubakar *et al.* (2021) and Abdulmalik and Che-Ahmad (2016), this research reevaluated the primary model using GMM model in order to address the issue concerning endogeneity or the possibility of reverse causality. However, a new measurement for effective tax rate and firm performance was formed to ensure that the

findings are not sensitive to alternative measurements. The proxy i.e cash effective tax rate (CETR), which is equal to cash taxes paid divided by EBT was used as an alternative corporate tax avoidance measurement while return on equity (ROE) was used as an alternative performance measure. The results of the direct relationship (Model 1 and Model 2) are almost identical to those reported in the main analysis. The primary model's signs and coefficients resemble those observed in the robustness test. Generally, the Sargan test p-values, AR2 p-values, and Hensen test p-values are insignificant. Suggesting that the results are unaffected by the endogeneity issues. However, we recognized that our method does not provide a complete resolution to the issue.

Table 8: Multiple regression result using GMM

	Model 1		Model 2	
CETR	Coefficient	p-value	Coefficient	p-value
L1	0.149	0.010	0.150	0.113
ROE	-0.000	0.019	-0.002	0.022
INVINT	-0.025	0.031	-0.026	0.169
ISO	0.038	0.014	-0.036	0.032
ROE*ISO			0.298	0.033
INDUS	-0.017	0.469	-0.013	0.750
CAPINT	-0.121	0.011	-0.127	0.082
LEV	-0.032	0.016	-0.029	0.573
ACIND	-0.252	0.008	-0.239	0.070
AQ	0.039	0.155	0.044	0.221
FSIZE	0.013	0.029	0.011	0.285
CONT	0.305	0.027	0.249	0.040
AR1	0.032	0.002	0.033	0.001
AR2	0.200	0.838	0.170	0.861
Prob		0.000		0.000
Sargan test	0.430		0.349	
Hensen test	0.717		0.647	

Notes: Model 1 = Direct effect; Model 2 = Moderating effect; ETR = Effective Tax Rate; ROA = Return on Assets; INVINT = Inventory intensity; ISO= Institutional ownership; INDUS = Industry; CAPINT = Capital intensity; LEV = Leverage; ACIND = Audit Committee Independence; AQ = Audit Quality; FSIZE = Firm Size. *Significant at the 10% level, ** 5% level, *** 1% level.

5. Conclusions

This research investigates whether the presence of institutional ownership can moderate the relationship between firm characteristics (size and profitability) on ETR. The motivation for this study is that despite the Nigerian government reform the tax laws, tax manipulation and fraud activities keep rising due to the volatile nature of tax environment. Besides, the tax revenue is very important to support government's development strategies. The findings reveal that despite the negative influence of firm size and profitability on effective tax rate, the presence of institutional investors would provide efficient monitoring and reduce tax fraud and manipulation in the firm. Therefore, the study provide evidence to support that long term institutional investors have the knowledge, capability, and resources to supervise managers and exercise control on them. Also, the finding provides this research will give a valuable insight and empirical support to the Federal Inland Revenue Service (FIRS) to put in place strict measures to reduce aggressive use of tax planning strategies by firms. Hence, future studies could study how shift in tax policies, tax enforcement, or corporate tax incentives in Nigeria impact tax avoidance practices among firms in Nigeria. Also, future studies could analyse how institutional investors in Nigeria respond to regulatory changes and whether such changes alter the extent of tax avoidance practices.

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