

## Corporate Governance Mechanisms and Tax Avoidance of Quoted Non-Financial Firms in Nigeria

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### **Abstract**

*This research study was carried out to empirical assess the impact of certain corporate governance attributes on tax avoidance in Nigeria. The aim was to ascertain the degree to which firms dodge paying taxes and the efforts government has been making in curbing such financial termites which has been draining government funds needed to provide basic infrastructures for the citizenry. Annual secondary data totally eight hundred and seventy six (876) firm-year observations which cover the period 2009 to 2020 of seventy three (73) non-financial listed firms quoted on the floor of the Nigerian Exchange Group (NXG) are used in the study. Tax avoidance, represented by cash effective tax rate (CETR), is the dependent variable; Board Size, Board Diversity, Board Independence, Board Meetings, Board Political Affiliations, Chief Executive Officer (CEO) Overconfidence and Chief Executive Officer (CEO) Military Experience are the independent variables while Capital Intensity, Firm Size, Return on Assets and Thin Capitalization are the control variables. The regression results of the GMM with dummy variables. The GMM regression results indicate that Lag of Cash Effective Tax Rate, Board Diversity and Thin Capitalization positively and significantly influenced tax avoidance; Board Independence, Chief Executive Officer (CEO) Overconfidence and Chief Executive Officer (CEO) Military Experience influence on tax avoidance are negatively significant while Board Size, Board Meetings, Board Political Affiliations and Capital Intensity are not significant at all. The study also finds that firms avoided tax less after the adoption of IFRS; that firms avoided tax more in 2011 and that the Oil and Gas sector avoided tax more than other sectors. The study recommends, among others, that the Nigerian government needs to be abreast with the reality of huge amount of money lost to tax avoidance as the cash effective tax rate (CETR) for the periods under review is just 22% on average instead of the statutory tax rate of 30%.*

**Keywords:** Corporate governance mechanisms, tax avoidance, quoted, non-financial firms, NXG.

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## 1.0 Introduction

Tax revenue, whether direct or indirect, and which is as old as any human society, is one veritable and certain source of funds for governments' ever-increasing expenditures (Egbadju & Oriavwote, 2016). Tax is a contribution mandated under a coercive law to generate revenue for government use for the greatest prosperity of us all (Fauziah & Widiyati, 2022). The reality of tax is that it is designed to provide the much needed income for government without which government is powerless to provide territorial defense and the basic infrastructures for the overall socio-economic wellness of the citizenry including those without income to pay tax (Ohaka & Agundu, 2012). Tax payment is generally viewed not only as an obligation of the citizenry but as their right to partake in adequately financing the state for societal prosperous development, but some firms see it differently as an extra cost and so try to outrightly dodge it or at best minimize it (Hasan et al., Hasan et al. (2023)2023); Andhitiyara & Dameria, 2022). Company income tax is very important to governments in generating the fiscal revenue necessary for the provision of infrastructures and public goods while the strategies to avoid tax helps companies to reduce costs and manage their cash flow properly (Chen, 2017). These strategies by firms to avoid the payment of tax are commonly termed tax avoidance, tax aggressiveness, tax planning, tax sheltering, tax management; et cetera. Tax liability constitutes a huge expense to firm and reduces significantly the cash flow available for viable projects which should have in turn increase firm value. The efforts of government to increase its tax revenue are completely contrary to those of the taxpayers who make efforts to minimize their tax payments for as much as tax reduces firms' profit (Rahmi & Novriadi, 2024). Managers, therefore, engage in legal activities in tax provisions that help to defer, reduce or even eliminate completely amount paid as tax. Thus, Omesi and Appah (2021) opined that since taxpayers see the payment of taxes as a burden, they catch in on the loopholes in the various tax provisions to minimize their tax burdens. Even though full tax compliance may be a mark of good citizenship, it is an extra burden to the firm since it reduces firm's profits and cash flows, and so the firm seeks to take advantages of weaknesses in the tax laws or outright violation of ambiguities in tax provisions to reduce or eliminate its tax burden (Saputri & Husen, 2020).

Tax avoidance (TA) is the strategies, schemes or measures, within the bounds of the law, employed by tax payers to ensure that their tax liabilities, which are supposed to be their fair share of the citizenry total tax burden, are minimized. This definition is aligned with Saffe (2013) who hinted that tax avoidance does not only diminish government revenue, but also threatens the concept of taxation that we all must contribute our fair share to the maintenance of the state. Dyreng et al. (2008) defined it as any strategy which reduces the effective tax rate of a firm, in compliance with the tax law or at least within the realm of grey-area interpretations of it. It is the efforts made to reduce one's tax burden while still abiding within the provision of the rules imposed by the government (Mujiani et al., 2021). Ogbodo and Omonigho (2021) defined it as the deliberate attempt to lower tax bills either to defer or eliminate a tax liability, and this reduces the individual's or firm's effective tax rate. TA poses serious concern to tax authorities because it hinders the ability of the state to provide the desired economic and social services to the

citizens, and this negates the social order of equity, that is, to “pay their fair share” of taxes (Rahmi & Novriadi, 2024).

Previous research works have shown that chief executive officers (CEOs) are prominently responsible for the design and implementation of TA schemes (Chen et al., 2020; Lanis et al., 2019; Dyreng et al., 2010). Accordingly, Oktavia (2020) hinted that since it is established that management usually play a dominant role in TA schemes, these opportunistic behaviours can be minimized through effective corporate governance (CG). Many studies, including the ones we reviewed in this work, revealed that CG affects TA. For example, Chukwu et al.(2020) noted that the aggressiveness with which firms minimize its tax or engage in tax avoidance (TA) depend on the sense of its CG attributes and its corporate citizenship. Thus, developing effective CG can greatly help in monitoring management’s tax decisions.

CG depicts the relationship that exists among the stakeholders of a firm with regards to the rules and laws governing the firm by ensuring that the directors act in the overall interest of the firm and to be held accountable to capital providers for use of assets in order to achieve the firm's goals (Okoye & Ofoegbu, 2006). CG is a form of structures that determine the relationships that exist between the owners and other participants on how the firm can be directed and governed through institutional, regulatory, ethical and legal framework for the overall good of the society (Sunarto et al., 2021). It is the procedures or the processes used by management to manage and direct and manage a firm’s activities in order to achieve corporate objectives that meet stakeholders’ expectations of transparency and accountability (Appah, 2022). Smah (2006) as cited in Kiabel and Akenbor (2014) listed trust, honesty, integrity, openness, mutual respect, performance orientation, responsibility, commitment and accountability as the key elements of good CG principles which senior executives should adhere to, and thereby avoid conflict of interest. Thus, CG is meant to ensure that the managers of firms are accountable to all stakeholders including the government which demands that firms pay their appropriate fair share of their tax burden.

In Nigeria, it appears the government is not even bothered about this global financial termite and the judicial pronouncements follows those of many common law jurisdictions in spite of the fact that tax revenue to gross domestic product is among the lowest in the world. According to Egbunike et al. (2021), the ever decreasing revenue to the Nigerian government has led to clarion calls for other sources of revenue so as to deliver on necessary responsibilities but evidence available shows that the Nigerian tax to GDP ratio still remains low and this point to the fact that individual and corporate bodies may be engaging in tax avoidance. Otusanya (2011) elaboration on three brazen cases of tax evasion and avoidance against the Nigerian government by Chevron Nigeria Limited, Pan African Airlines Nigeria Ltd and Halliburton West Africa Ltd are just tips of the iceberg of the undetected massive tax evasion and avoidance schemes that go on in Nigeria. The above assertion attest to Federal Inland Revenue Services (FIRS) studies in 2018, as reported by Chitimira & Animashaun (2021), of the severe challenges faced by tax administration in Nigeria due to tax avoidance and tax evasion. The Nigerian tax laws are

outdated, but when up to date there is no proactiveness in pursuing the case to a conclusive end (Otusanya, 2011).

In previous studies involving corporate governance and tax avoidance, board size, board diversity, board independence, board meeting are among the common variables confirmed to have influenced firms' tax avoidance schemes. Even for these commonly used variables, the results have been mixed showing that there have to be more empirical search. This study introduces three variables that have not been so commonly used which are: CEO overconfidence (CEO), CEO with military experience (CEOME) and board political connections or affiliation (BDPOL). While researchers have used BDPOL with respect to corporate governance and firm performance in Nigeria, none has used it with respect to corporate governance and tax avoidance. Four Indonesian researchers: Oktavia (2020); Mustaqim and Nurhidayati (2020); Abdani and Sya'bania (2020); Ying (2015), however, used BDPOL in their studies. For CEO, only Ilaboya and Aronmwan (2021) have used it for corporate governance and tax avoidance in Nigeria but with contradictory results. With respect to CEOME, no study from developing economies to the best of our knowledge has used it except Mills and Law (2015) from the United States of America. We, therefore, hypothesized that all the various corporate governance attributes considered in this study have no significant relationship with tax avoidance of the sampled quoted non-financial firms in Nigeria. Following this introduction, the rest of the paper is divided into five sections with the literature review in section two, methodology in section three, discuss of results in section four and the fifth section concludes this paper with recommendations.

## 2.0 Review of Related Literature.

### 2.1 Theoretical Underpinning.

#### 2.1.1 Agency Theory

In any business transaction, whenever two or more partners have access to the same amount of information relevant to that transaction, that business relationship is known as symmetrical. However, when one party is more or better informed than the other party, that situation is referred to as information asymmetry. That is, a condition of information asymmetry is one under which one party possesses better, relevant and more up-to-date information than the other party they are dealing with. This information asymmetry concept is also applicable to principal-agent problem. Principal-agent problem arises when one party has to rely on information from another party who has more knowledge than him. Jensen and Merklung (1976) defined an agency relationship as a contract under which one or more persons (the principal(s)) engage another person (the agent) to perform some service on their behalf which involves delegating some decision making authority to the agent. They noted that since the principal and the agent are utility maximizers, it is very likely that the agent will not always act to protect the best interests of the principal. Applying this theory to corporate governance and tax avoidance, managers may engage in tax avoidance schemes just for their own self-interest by channeling saved tax to engage in perquisites or may return little of those savings to the principal. The

principal may eventually have information about such schemes through the legal battle that may ensue between the firm and government tax agency. The principal then tries to minimize this conflict of interest or divergences from his best interest through the establishment of an appropriate incentives scheme so as to encourage the agent and also by incurring monitoring costs to checkmate the limit of the agent's aberrant activities (Itan et al., 2024). Such costs may include larger board size, more diversified board, more non-executive directors, audit committee, et cetera who may be much more financially literate. The need for a monitoring mechanism in the principal-agent relationship with its attendant agency costs is what Jensen and Merklung (1976) defined as the sum of: the monitoring expenditures by the principal; the bonding expenditures by the agent and the residual loss. The theory can also be applied to government (principal)-managers'(agent) fiduciary relationship. Managers of firms are required to self-assessed their tax liability faithfully as part of their corporate social responsibility to the general public. For managers to involve themselves in complex transactions which the tax laws never envisaged, they breach that societal trust by reducing the amount of money that should legally have accrued to the benefits of us all (Mohammad et al., 2024).

## 2.2 Empirical Literature

Mohammad et al. (2024) studied, in a research work, how family ownership as well as corporate governance quality impacted tax avoidance in Jordan. The researchers used annualized secondary data of all firms listed on the floor of the Amman Stock Exchange (ASE) spanning the period between 2015 and 2021. The OLS regression results showed that family ownership was negatively significant with CETR while institutional ownership was insignificant.

Rahmi and Novriadi (2024) empirically tested the impact which a good corporate governance, corporate social responsibility disclosure as well as intellectual capital might have had on tax avoidance in Indonesia. The study made use of data obtained from 10 transportation and logistics firms listed on the Indonesia Stock Exchange from 2016 to 2020. The results of the OLS showed that auditing committees, independent council of commissioners as well as disclosure of social responsibility were insignificant with ETR.

Hasan et al. (2023) carried out their study to verify if there is any relationship between certain corporate governance mechanisms and tax avoidance in Pakistan. These researchers used secondarily sourced data obtained from the Pakistan Stock Exchange (PSE) covering the period from 2009 to 2018 for 130 firms making a total of 1380 firm-year observations. The results of the generalized least square (GLS) regression audit committee gender diversity, concentrated ownership and board independence are negatively associated with ETR while audit committee independence and managerial ownership positively influence ETR.

Sani and Umar (2023) studied whether there is any relationship between corporate governance and tax evasion in Nigerian. The researchers used annual data for 12 deposit money banks (DMBs) spanning the periods 2015 to 2021 collected from the Nigerian Exchange Group (NXG). The regression results of the Generalized Method of Moments (GMM) showed that while board

independence was positively significant with cash effective tax rate (CETR), board size was insignificant.

Istiqfarosita and Abdani (2022) studied whether thin capitalization and political connections have any relationship with tax avoidance in Indonesia. Secondly sourced annual data covering the periods 2016 to 2020 extracted from the audited reports of forty eight (48) firms on the floor of the Indonesia Stock Exchange (IDX) was used in this research. The results of the Ordinary Least Squares (OLS) regression showed that political connection was positively significant with CETR while thin capitalization was negatively insignificant.

Appah (2022) conducted a research to verify the relationship that exists between corporate governance attributes and tax planning in Nigeria. Annual data obtained from financial reports of eleven sampled Pharmaceutical firms quoted on the Nigerian Exchange Group (NXG) spanning the periods 2014 to 2020 was used. The Generalized Least Squares (GLS) regression results revealed that board financial expertise and leverage were positively significant with BTD while gender diversity was positively significant with TAS.

Okpala and Omaliko (2022) empirically tested the impact which corporate governance mechanisms have had on tax sheltering in Nigeria. The study made use of secondary data made up of 126 firm-year observations of 14 listed firms on the floor of the NXG from 2013 to 2021. The results of the OLS showed that BD, BI and DR positively and significantly influenced ETR.

Khan et al. (2022) explored the association, if any, between corporate governance and tax aggressiveness in Pakistan. Annual data obtained from financial reports of two hundred sampled companies quoted on the Pakistan Stock Exchange (PSX) spanning the periods 2013 to 2019 was used. The OLS regression results revealed that outside directors and board size have a positive and statistically significant relationship with CETR while female directors, intangible assets and leverage are negatively significant.

Lambe et al. (2021) carried out their study to verify if there is any relationship between certain corporate governance mechanisms and tax aggressiveness in Nigeria. These researchers used secondarily sourced data obtained from the Nigerian Exchange Group (NXG) covering the period from 2008 to 2020 for forty four quoted manufacturing firms making a total of five hundred and seventy two (572) firm-year observations. The results of the OLS revealed that while BS and BD were positively and statistically insignificant with TAG, ROA relationship with TAG was positively and statistically significant.

Bivianti et al (2022) empirically tested the impact which CEO overconfidence, capital intensity and executive characteristics have had on tax avoidance in Indonesia. The study made use of data obtained from 175 firms listed on the Indonesia Stock Exchange from 2016 to 2020 financial years. The results of the OLS showed that capital intensity and executive characteristics positively and significantly impacted CETR while CEO overconfidence negatively impacted CETR.

Ilaboya and Aronmwan (2021) studied whether there is any relationship between CEO overconfidence and corporate tax avoidance in Nigeria. The researchers used annual data for 66 firms spanning the periods 2009 to 2018 collected from the Nigerian Exchange Group (NXG). CEO Overconfidence and board independence were the independent variables; The results of the Fixed Effect OLS showed that Overconfidence, and firm size were positively significant; firm age was negatively significant while board independence was not.

Egbunike et al. (2021) studied, in a research work, how internal corporate governance mechanisms impact tax avoidance in Nigeria. The researchers used annualized secondary data of all manufacturing firms over a certain number of years listed on the floor of the Nigerian Exchange Group (NXG). The Quantile regression results showed that board diligence and board size were positively and statistically significant at the median and 75th quantile; board independence was negatively and statistically significant at the median and 75th quantile while all the other variables were insignificant.

Omesi and Appah (2021), in their study, examined the effect which certain attributes of corporate governance have had on tax avoidance in Nigeria. The researchers used annual data spanning the periods 2015 to 2019 collected from the audited reports of consumers and industrial goods firms quoted on the floor of the Nigerian Exchange Group (NXG). The result of the generalized method of moments (GMM) indicated that audit quality, growth and size were positively and significantly related with effective tax rate; ownership structure and board independence were negatively and significantly related with effective tax rate while board independence, audit committee, capital intensity, leverage and profitability were insignificant.

Ogbodo and Abusomwan (2021) attempted a research study to ascertain the extent to which board structure has influenced tax aggressiveness in Nigeria. Data used in this study were secondarily sourced from eighty selected listed firms audited financial reports between 2010 and 2019. The result of the OLS indicated that the impacts of all the variables of interest- board size, board ownership and board independence-on ETR were negatively significant but firm size was insignificant.

Oktavia (2020) analyzed the impact which corporate governance had on tax avoidance in the ASEAN region of the Philippines, Thailand, Malaysia, Indonesia and Singapore. A total number of 6,492 firm-year observations secondarily sourced data for 5 years was used. The OLS regression results showed that busyness level of audit committee, leverage and return on assets positively and significantly impacted tax avoidance; size was negatively significant while the other variables were insignificant.

Karlberg (2020) empirically tested the impact which corporate social responsibility (CSR) and the presence of a female have had on tax avoidance in the United States. Data used in this study were secondarily sourced from Compustat over the periods 1996 to 2018. The OLS result showed that CSR relationship with CETR was insignificant while the presence of female on the board was positively significant.

Dayuningtyasa and Rahmiatib (2020) investigated whether CEO Overconfidence has had any impact on tax avoidance in Indonesia. A secondarily sourced data collected on 86 listed manufacturing firms in Indonesia Stock Exchange (IDX) from 2013 to 2017 was used. The OLS results revealed that while CEO Overconfidence, Sales Growth and SIZE were negatively significant; LEV was positively significant while MTB was not.

Sulaiman (2020) empirically assessed the presence of females in governance and how it impact corporate tax avoidance. Panel secondary data obtained from the Nigerian Stock Exchange on twenty one firms over the period 2013 to 2018 was used. The OLS result revealed that all the variables of interest had a positive and significant relationship with BTD.

Zachariah et al. (2020) empirically evaluated the impact of board attributes on tax avoidance in Nigeria. Panel secondary data obtained from the Nigerian Exchange Group (NXG) on forty eight non-financial firms over the period 2008 to 2017 was used. The OLS result revealed that board independence and leverage had a negative and significant relationship with tax planning; profitability had a positive and significant relationship while board size, board meetings and gender diversity did not.

Nwezoku and Egbunike (2020) explored the relationship, if any, that exists between board diversity and tax aggressiveness in Nigeria. Panel secondary data obtained from the Nigeria Stock Exchange on eleven manufacturing firms over the period 2011 to 2018 was used. The result of the Generalised Least Squares (GLS) regression revealed that  $ETR_{t-1}$  and gender diversity had a positive and significant relationship with tax aggressiveness; leverage, average assets and capital intensity had a negative and significant relationship while the others did not.

Mustaqim and Nurhidayati (2020) undertook a study to evaluate the effectiveness of tax audit on tax avoidance in Indonesia. Panel secondary data obtained from the Indonesia Stock Exchange (BEI) on one hundred and two firms over the period 2016 to 2018 was used in this study. The OLS result revealed that enforcement and political connection had a positive and significant relationship with tax avoidance.

Sudirjo (2020) evaluated the impact of managerial attributes on tax avoidance in Indonesia. Panel secondary data obtained from the Indonesia Stock Exchange (IDX) on one hundred and one firms over the period 2015 to 2018 was used in this study. The result of the OLS regression revealed that management compensation, firm size and capital intensity had a positive and significant relationship with BTD; number of female on the board and executive risk preferences had a negative and significant relationship while inventory intensity and leverage did not.

Chen et al. (2020) attempted to ascertain the extent to which the social ties of CEO and the Board have had on corporate tax avoidance in the United States. Data used in this study were secondarily sourced from Compustat and BoardEx over the periods 2000 to 2016 with 19,037 observations. The results of the OLS showed that CEO-Board social tie, board size, leverage,



firm size and cash holdings were positively significant with tax avoidance while board independence, board duality and return on assets were negatively significant.

Abdani and Sya'bania (2020), in a study, explored the relationship, if any, that exists between political connection and tax avoidance in Indonesia. Panel secondary data obtained from the Indonesia Stock Exchange (BEI) on one hundred and two firms over the period 2013 to 2015 was used. The result of the OLS regression revealed that all measures of political connection-shareholdings, board of directors, board of commissioners-positively and significantly influenced CETR.

Zachariah (2019) examined how certain corporate governance characteristics in Nigeria affect tax planning. The researcher used secondary data for forty eight non-financial firms listed on the floor of the Nigerian Exchange Group (NXG) starting from year 2008 to 2017. The GLS regression results indicated that foreign ownership, board independence, foreign directorship, financial experts on audit committee, composition of audit committee and audit committee meetings were negatively significant with ETR while managerial ownership, board meetings, board size and gender diversity were positively significant.

Imuetinyan et al. (2019) examined how certain board characteristics in Nigeria affect tax planning. The researchers used secondary data for all conglomerate firms quoted on the floor of the Nigerian Exchange Group (NXG) starting from year 2008 to 2017. The GLS regression results indicated that board size and female directors alone were negatively significant with ETR.

Novita and Herliansyah (2019) engaged in an empirical research work to examine how corporate governance affects tax avoidance in Indonesia. The researchers used secondary data for a total sample of one hundred and twenty (120) firms quoted on the floor of the Indonesia Stock Exchange (IDX) starting from year 2012 to 2017. The result of the OLS regression revealed that audit committee and board independent were positively significant with tax avoidance; institutional ownership was negatively significant while the rest were not significant at all.

Kalliopi (2019) evaluated whether there is any impact of board diversity on tax aggressiveness in Greece. Panel secondary data obtained from the Athens Stock Exchange on one hundred and twelve (112) Greek firms over the period 2014 to 2018 was used. The result of the OLS regression revealed that board diversity, CEO duality, financial expertise, MTB and LEV negatively and significantly impacted tax aggressiveness; CEO tenure, board independence and ownership concentration, SIZE and ROA impact was positively significant.

Salawu and Adedeji (2017) carried out an empirical examination of how corporate governance impacted tax planning in Nigeria. Panel secondary data obtained from the Nigerian Exchange Group (NXG) on fifty firms over the period 2004 to 2014 was used. The result of the GMM regression revealed that Lag of ETR, ownership concentration, board size and ROA had a positive and significant relationship with ETR; board independence was negatively significant while the others were insignificant

Ying (2015) carried out an empirical assessment of the effects of corporate governance attributes on tax strategies. Annual secondary data totally 1,080 firm-year observations which covered the period 2006 to 2012 of 229 Shanghai and Shenzhen Stock Exchanges quoted firms were used in the study. The OLS regression results showed that political connections and incentive compensation negatively and significantly influenced BTDR meaning that increases in these variables lower the effective tax rate.

Mills and Law (2015) evaluated the impact of managerial characteristics on corporate taxes in the United States. Panel secondary gathered data from the ExecuComp database on 9,738 observations comprising 1,787 firms over the period 1992 to 2011 was used. The result of the OLS regression revealed that military experienced managers had a positive and significant relationship with corporate taxes.

### 3.0 Methodology

#### 3.1 Research Design

Using the ex-post facto research design often referred to as the descriptive or correlational research design, the study investigates if there is any relationship between corporate governance and tax avoidance in Nigeria. The sampled firms consist of 73 non-financial enterprises listed on the floor of the Nigerian Exchange Group (NXG). Secondary data from the 73 firms' annual reports were gathered over a period of twelve (12) years, from 2009 to 2020, totaling 876 firm-year observations.

#### 3.2 Measurement and Definitions of Variables.

Table 1

S/N	Variable	Description	Variable Types	Measurement (Operational Definitions)	Sources/Authorities
1	CETR	Effective Tax Rate which represents Tax Avoidance	Dependent	Tax Expense Payable divided by Profit Before Tax	Khan et al. (2022); Bivianti et al. (2022); Omesi and Appah (2021);
2	CETR <sub>it-1</sub>	Preceding or Last year CETR	Lagged dependent	Lag One of CETR	Salawu and Adedeji (2017).
3	BODS	Board Size.	Independent	Total number of directors on the board	Khan et al. (2022); Omesi and Appah (2021);
4	BODIV	Board Gender Diversity.	Independent	A board that has at least one female on it	Appah (2022); Lambe et al. (2021)

5	BODI	Board Independence.	Independent	Percentage (%) of independent or non-executive directors on the board	Okpala and Omaliko (2022); Omes and Appah (2021)
6	BMET	Board Meetings (Board Diligence or Efficiency)	Independent	Number of time the board meets in any given year	Okpala and Omaliko (2022); Egbunike et al. (2021);
7	BDPOL	Board Political Affiliations or Connections.	Independent	A dummy variable which equals “1” if the board has member (s) who are politically connected, otherwise “0”	Istiqfarosita and Abdani (2022); Oktavia (2020); Mustaqim and Nurhidayati (2020);
8	CEO	Chief Executive Officer (CEO) Overconfidence.	Independent	$\Delta TA_{it} = b_0 + b_1 \Delta TS_{1t} + \varepsilon_{it}$ That is, Regression Residuals of Total Assets Growth = f(Total Sales Growth).	Bivianti et al (2022); Ilaboya and Aronmwan (2021)
9	CEOME	Chief Executive Officer (CEO) Military Experience.	Independent	A dummy variable which equals “1” if the board has a CEO who was a former Army, Navy or Airforce officer, otherwise “0”	Mills and Law (2015)
10	CAPINT	Capital Intensity	Control	Total Fixed Assets divided by Total Assets	Khan (2022); Omes and Appah (2021)
11	FSIZE	Firm Size	Control	Log of Total Assets	Omes and Appah (2021)
12	ROA	Return on Assets.	Control	Profit After Tax divided by Total Assets	Khan (2022); Omes and Appah (2021)
13	TINCAP	Thin Capitalization	Control	Long-Term debts divided by Total Equity	Istiqfarosita and Abdani (2022)

Source: Researcher’s Computations from Extant Literature.

### 3.3 Model Specification

The functional equation of tax avoidance represented by the cash effective tax rate (CETR) to test the seven (BODS, BODIV, BODI, BMET, BDPOL, CEOO, CEOME) hypotheses specified including the four control variables (CAPINT, FSIZE, ROA, TINCAP) is stated as:

$$CETR = f (BODS, BODIV, BODI, BMET, BDPOL, CEOO, CEOME, CAPINT, FSIZE, ROA, TINCAP) \quad (1)$$

The functional testable model will be derived as:

$$CETR = \beta_0 + \beta_1 BODS + \beta_2 BODIV + \beta_3 BODI + \beta_4 BMET + \beta_5 BDPOL + \beta_6 CEOO + \beta_7 CEOME + \beta_8 CAPINT + \beta_9 FSIZE + \beta_{10} ROA + \beta_{11} TINCAP + \varepsilon_1 \quad (2)$$

Since we are using panel data, the model will be specified in the appropriate form as:

$$CETR_{it} = \beta_0 + \beta_1 BODS_{it} + \beta_2 BODIV_{it} + \beta_3 BODI_{it} + \beta_4 BMET_{it} + \beta_5 BDPOL_{it} + \beta_6 ACEOO_{it} + \beta_7 CEOME_{it} + \beta_8 CAPINT_{it} + \beta_9 FSIZE_{it} + \beta_{10} ROA_{it} + \beta_{11} TINCAP_{it} + \varepsilon_{it} \quad (3)$$

### 3.7.1 Dynamic Nature of Corporate Governance and Tax Avoidance

Firms operate in a dynamic environment and the complex decision making processes encountered by managers lead to the problem of endogeneity. This is especially so when the current performance of a firm could have been the result of past performances. Again, the current firm performance could also have been the results of past corporate governance reforms. Since the current corporate governance characteristics are often correlated with past corporate governance characteristics, to ignore such direct influence often yields results that are not consistent (Man, 2019). In the same manner, tax avoidance target this current year may have been influenced by that of last year or even those of previous years. So for those managers who always strategize a targeted effective tax rate (ETR), the current targeted ETR will be modified by the final outcome of previous year(s) in the light of new information. Thus, the use of lagged dependent variable is, first, to eliminate autocorrelation in the residuals and, secondly, to capture the dynamism in panel data by controlling for endogeneity bias. By including the lagged value of the dependent variable, that is, effective tax rate ( $ETR_{it-1}$ ), due to unobserved heterogeneity transforms the static model to a dynamic one suitable for GMM as follows:

$$CETR_{it} = \beta_0 + \beta_1 CETR_{it-1} + \beta_2 BODS_{it} + \beta_3 BODIV_{it} + \beta_4 BODI_{it} + \beta_5 BMET_{it} + \beta_6 BDPOL_{it} + \beta_7 ACEOO_{it} + \beta_8 CEOME_{it} + \beta_9 CAPINT_{it} + \beta_{10} FSIZE_{it} + \beta_{11} ROA_{it} + \beta_{12} TINCAP_{it} + \varepsilon_{it} \quad (4)$$

We adapted the model previously used by Omesi and Appah (2021)

$\beta_1$  to  $\beta_2$ ,  $\beta_3$ ,  $\beta_4$ ,  $\beta_5$ ,  $\beta_6$ ,  $\beta_7$ ,  $\beta_8$ ,  $\beta_9$ ,  $\beta_{10}$ ,  $\beta_{11}$ ,  $\beta_{12}$  = Beta coefficients of the independent variables  $ETR_{it-1}$ , BODS, BODIV, BODI, BMET, BDPOL, CEOO, CEOME, CAPINT, FSIZE, ROA, TINCAP.

$i$  =  $i$ th firm;  $t$  = time in years;  $\varepsilon_1$  = Disturbance or Error term

We reject the null hypothesis of no significant effect if the respective p-values of  $ETR_{it-1}$ , BODS, BODIV, BODI, BMET, BDPOL, CEOO, CEOME, CAPINT, FSIZE, ROA and TINCAP are less than or equal to 0.05 (5%). If their respective p-values is greater than 0.05, we accept the null hypothesis that there is no significant causal relationship.

#### 4.0. Method of Data Analysis

Data collected are analyzed using EViews 10 in the following order: univariant data analysis, bivariate data analysis; unit root test; endogeneity test; estimation of the models; performance of some additional analysis and diagnostics tests.

**Table 2. Univariate Data Analyses (Descriptive Statistics).**

	CASH_ETR1	BODS	BODIV	BODI	BMET	BDPOL	CEOME	CEOO	CAPINT	FSIZE	ROA	TINCAP
Mean	0.220225	7.273973	9.496519	53.33084	3.857306	0.445205	0.044571	-1.45E-15	9.554323	7.019321	-0.271528	20.15206
Median	0.140250	8.000000	0.000000	63.63640	4.000000	0.000000	0.000000	1.545093	0.352356	6.997147	0.050478	0.260534
Maximum	18.52920	19.000000	87.500000	94.44440	15.000000	1.000000	1.000000	849.3659	938.1190	9.817402	1.791163	3466.201
Minimum	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	-3282.355	0.000000	0.000000	-52.32241	0.000000
Std. Dev.	0.654236	4.344355	13.02287	30.44302	2.233553	0.497272	0.206479	120.5999	80.12829	1.133514	3.199480	206.0457
Skewness	25.09759	-0.354650	2.068956	-0.824076	-0.173005	0.220506	4.413904	-22.69761	9.184704	-1.657145	-10.29310	12.09349
Kurtosis	701.8341	2.533746	9.126161	2.262547	3.761657	1.048623	20.48255	632.9254	88.82839	12.44588	123.9103	160.5417
Jarque-Bera	17917434	26.29818	1994.804	118.9989	25.54433	146.0863	13984.31	14558636	281194.1	3657.636	549073.2	926201.7
Probability	0.000000	0.000002	0.000000	0.000000	0.000003	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000	0.000000
Sum	192.9173	6372.000	8318.951	46717.82	3379.000	390.0000	39.00000	-1.93E-12	8369.587	6148.925	-237.8587	17633.06
Sum Sq. Dev.	374.5215	16514.25	148395.8	810930.2	4365.163	216.3699	37.26171	12726288	5617975.	1124.248	8957.088	37105531
Observations	876	876	876	876	876	876	875	876	876	876	876	875

fifteen (15) or less than five (5). The mean of BMET is 3.857306 meaning that on average, the board meet about four (4) times in a year. This is recommended for as much as it is expected that the board should meet at least once every quarter meaning four times in a year. Other

averages are as shown in the Table. The median is the middle value for each variable, the maximum and the minimum values tell us the highest and the lowest for each of the variables respectively. The standard deviation tells us the dispersion of the sample mean with respect to each of the variables. For the skewness, the value of the normal skewness is zero. The results above showed that BODS (-0.354650), BODI (-0.824076), BMET (-0.173810) and BDPOL (0.220506) are normally skewed around zero. While CASH\_ETR (25.09035), BODIV (2.068956), CAPINT (9.184704), CEOME (4.413904), FSIZE (19.79905) and TINCAP (12.09349) positively skewed; CEOO1 (-22.68465) and ROA (-10.29310) are negatively skewed.

Next is the kurtosis which depicts how peaked or how flat a distribution is. With a value around 3 means the distribution is normal, that is, mesokurtic. CASH\_ETR (701.8341), BODIV (9.126161), CAPINT (88.82839), CEOME (20.48255), CEOO1 (632.9254), FSIZE (12.44588), ROA (123.9103) and TINCAP (160.5417) are all leptokurtic. This means that the variables in our study have more values higher than the sample mean. BODS (2.533746), BODI (2.262547) and BDPOL (1.048623) are all platykurtic, that is less than 3, Platykurtic means that the variables in our study have more values lower than the sample mean. The only variable that is normal is BMET (3.761657) which means that it is mesokurtic. Mesokurtic means that the variables in our study have more values that cluster around the sample mean of 3.857306.

The Jacque-Bera statistic, with respect to the normal distribution, is a measure of the difference between the skewness and kurtosis of the variables. The probability of the Jacque-Bera statistic allows us to accept or reject, at 0.05 level, the null hypothesis of a normal distribution. That is, the Jacque-Bera statistic and its corresponding p-value allow us to ascertain whether our variables are normally distributed or not. From Table 4.1 above, all our variables of interest are not normally distributed because the probability values are very low at 0.00000 which goes to support our findings in the Kurtosis where only BMET is normally distributed. Accurate and reliable conclusions about a study may not be possible if the assumption of normality is not taken seriously. However, Ghasemi and Zahediasl (2012) noted that the violation of the normality assumption should not cause major problems with large enough sample sizes (> 30 or 40). Hence, non-normality poses no problem to this study since the sample size is 73 firms.

#### **4.2 Bivariate Data Analysis (Correlation Analysis)**

The correlation analyses among the variables are meant to first determine the association between each pair of the dependent and independent variables as well as among the explanatory variables. The degree of association may be weak (0.00 to 0.5), moderate (0.51 to 0.8) or high (0.81 and above). A very high association among the regressors poses a problem of multi-collinearity (Gujarati, 2003)

#### **Table 3. Correlation Statistics**

Covariance Correlation	CASH_ETR1	BODS	BODIV	BODI	BMET	BDPOL	CEOME	CEO	CAPINT	FSIZE	ROA	TINCAP
CASH_ETR1	0.428385 1.000000											
BODS	0.046433 0.016350	18.82595 1.000000										
BODIV	0.031668 0.003715	8.342188 0.147642	169.5824 1.000000									
BODI	0.205288 0.010320	99.76447 0.756512	47.28490 0.119468	923.7689 1.000000								
BMET	0.004118 0.002820	5.817826 0.601009	13.76844 0.473907	38.87025 0.573237	4.977401 1.000000							
BDPOL	0.014596 0.044862	0.595104 0.275912	1.113440 0.172002	4.451451 0.294630	0.371846 0.335288	0.247108 1.000000						
CEOME	0.001980 0.014649	0.044751 0.049953	0.061899 0.023021	-0.001699 -0.000271	-0.023571 -0.051169	-0.003893 -0.037932	0.042631 1.000000					
CEO	0.015408 0.000195	19.66846 0.037566	24.63912 0.015680	132.3281 0.036081	13.10127 0.048665	1.687514 0.028133	0.106855 0.004289	14560.97 1.000000				
CAPINT	-0.294606 -0.005614	10.45845 0.030065	-53.70181 -0.051436	166.4031 0.068289	18.55424 0.103732	-2.007104 -0.050361	-0.406132 -0.024534	12.88249 0.001332	6427.700 1.000000			
FSIZE	0.063311 0.085288	0.745818 0.151559	2.022612 0.136946	-2.117370 -0.061425	-0.007976 -0.003152	0.043109 0.076463	0.003371 0.014394	30.11047 0.220014	-16.30932 -0.179364	1.286309 1.000000		
ROA	-0.044328 -0.021156	-0.678822 -0.048872	1.892842 0.045405	-5.903613 -0.060676	-0.870984 -0.121952	0.034918 0.021943	0.013406 0.020282	-0.322641 -0.000835	-223.6908 -0.871564	0.758067 0.208792	10.24807 1.000000	
TINCAP	-1.720246 -0.012756	-21.56630 -0.024123	-127.3376 -0.047458	232.1709 0.037074	15.27238 0.033223	-7.003014 -0.068372	-0.882052 -0.020733	2.254924 9.07E-05	11928.10 0.722074	-19.68787 -0.084249	-321.9754 -0.488136	42454.40 1.000000

USING THE P-VALUES ONLY

	Levin, Lin & Chu t*	Im, Pesaran and Shin W-stat	ADF - Fisher Chi-square	PP - Fisher Chi-square	Stationary at
CASH_ETR	0.0000	0.0000	0.0000	0.0000	I (0)
BODS	1.0000	1.0000	1.0000	0.0000	I (0)
BODIV	0.8083	0.0126	0.0568	0.0000	I (0)
BODI	1.0000	0.6544	0.9220	0.0000	I (0)
BMET	1.0000	0.7500	0.6102	0.0000	I (0)
BDPOL	0.9999	0.0017	0.0031	0.0000	I (0)
CEOME	0.0149	0.2854	0.2303	0.0221	I (0)
CEOO1	1.0000	0.0000	0.0000	0.0000	I (0)
CAPINT	0.0000	0.0000	0.0000	0.0000	I (0)
FSIZE	0.0000	0.0027	0.0013	0.0000	I (0)
ROA	0.0000	0.0000	0.0000	0.0000	I (0)
THINCAP	0.0000	0.0000	0.0000	0.0000	I (0)

**Source: Researcher's Computations (2024) Using EViews10 Software.**

Since at least one test statistic of the above panel unit roots tests indicated that all the variables are I (0), that is, stationary at levels, we settle for an I (0) in our final decision as shown in Table 4 above. The results indicate that the variables have a long run relationship, meaning they can move together for a long time.

#### 4.4 Testing for Endogeneity Problem in Our Regression Model

Every linear regression model is built on certain basic assumptions. When any of these assumptions are violated, it causes severe econometric problems and therefore renders the OLS regression results biased, spurious or nonsensical. One of the major problems that these assumptions violations can cause is endogeneity bias. The assumption is that the error term has a constant variance among the sample and it is expected to be uncorrelated with the explanatory variables. Thus, endogeneity problem occurs if an independent variable in our regression model is correlated with the unobserved error term. Since the independent variables are assumed to be uncorrelated with the error term, any one of them that is correlated with the error term is called endogenous independent or explanatory variable. It can also occur in a situation where the current or present value of independent variables correlate with the past values or lagged values of the dependent variable in what is known as a dynamic endogeneity. This endogeneity can be as a result of measurement error, omitted variables, simultaneity biases.

Many studies in corporate finance which tries to explain causal-effect relationships often encounter difficulties in dealing with endogeneity and this can lead to inconsistent and biased parameter estimates (Wintoki et al., 2012) or we may not even get the right coefficient sign-positive or negative (Ketokivi & McIntosh, 2017), thereby resulting in misleading inferences, conclusions and interpretations (Li et al., 2021). Li et al. (2021) observed that out of about twelve



(12) papers where endogeneity bias were ever mentioned, only three of them used the dynamic model approach while only one applied the rigorous way by reporting the results of the test.

The endogeneity test results in Table 4 below showed that CAPINT, FSIZE and ROA have endogeneity problem. To remove this problem, we run a fixed effect regression model for only the independent variables with each independent variable being a dependent variable in turn and then extract its residual. This residual variable is used to replace the main dependent variable in the original regression equation and then observe the p-value. If the p-value of the residual variable is less than or equal to 5%, then there is an endogeneity in our model.

**Table 5 Endogeneity Test Results**

Estimated Residuals of Variables	P-Values
Res_BODS	0.1960
Res_BODIV	0.7956
Res_BODI	0.9641
Res_BMET	0.2176
Res_BDPOL	0.6124
Res_CEOME	0.6974
Res_CEOO1	0.2620
Res_CAPINT	0.0245
Res_TINCAP	0.2200
Res_FSIZE	0.0029
Res_ROA	0.0085

Source: Researcher’s Computations (2024) Using EViews10 Software.

#### 4.5 Regression Models Estimation Results.

**Table 6 .RESULTS OF GMM WITH DUMMY VARIABLE**

Variable	Coefficient	Std. Error	t-Statistic	Prob.
CASH_ETR1(-1)	0.064279	0.010098	6.365271	0.0000
BODS	0.000115	0.003131	0.036623	0.9708
BODIV	0.005878	0.001412	4.162777	0.0000
BODI	-0.002940	0.000328	-8.967114	0.0000
BMET	-0.014172	0.012674	-1.118203	0.2639
BDPOL	0.020710	0.016002	1.294223	0.1960
CEOME	-1.003717	0.511832	-1.961028	0.0503
CEOO1	-0.003501	0.000623	-5.620434	0.0000
CAPINT	-0.000124	9.36E-05	-1.324179	0.1859

FSIZE	-0.168847	0.063280	-2.668269	0.0078
ROA	-0.060392	0.013943	-4.331365	0.0000
TINCAP	0.010349	0.001769	5.849425	0.0000
@LEV(@ISPERIOD("2011"))	0.057121	0.035684	1.600752	0.1099
@LEV(@ISPERIOD("2012"))	0.088942	0.024799	3.586446	0.0004
@LEV(@ISPERIOD("2013"))	-0.185419	0.026338	-7.039955	0.0000
@LEV(@ISPERIOD("2014"))	-0.026819	0.010078	-2.661011	0.0080
@LEV(@ISPERIOD("2015"))	0.054260	0.016290	3.330826	0.0009
@LEV(@ISPERIOD("2016"))	-0.001220	0.018318	-0.066620	0.9469
@LEV(@ISPERIOD("2017"))	0.000903	0.021049	0.042903	0.9658
@LEV(@ISPERIOD("2018"))	-0.006066	0.010537	-0.575731	0.5650
@LEV(@ISPERIOD("2019"))	-0.085546	0.018967	-4.510208	0.0000
@LEV(@ISPERIOD("2020"))	-0.010504	0.053914	-0.194825	0.8456

#### Effects Specification

Cross-section fixed (first differences)

Period fixed (dummy variables)

Mean dependent var	-0.000974	S.D. dependent var	0.983564
S.E. of regression	2.219323	Sum squared resid	3477.327
J-statistic	51.29362	Instrument rank	65
Prob(J-statistic)	0.180511		

Source: Researcher's Computations (2024) Using EViews10 Software.

#### 4.5.1 Discussion of Findings

Table 6 above shows the regression estimation results of the relationship between corporate governance mechanism alone (BODS, BODIV, BODI, BMET, BDPOL, CEOO, CEOME); the four control variables (CAPINT, FSIZE, ROA, TINCAP) and tax avoidance of the 73 sampled firms. A look at the coefficient (0.064279) of CASH\_ETR1(-1) shows that it is positively

significant (t-Statistics = 6.365271 and  $p= 0.0000$ ) at the 1% levels of significance. This result is in consonance with the extant literature that the dependent variable and its lag move in the same direction and must be significant (Egbadju & Jacob, 2022). The positive coefficient means that the current year tax paid is directly affected by previous period tax paid and this is a good sign. Again, since the pvalue of Sargon statistic or J-Statistic (0.180511 0.180511) is higher than the threshold of 5% and 10% or more suggested by Roodman (2009), our model is free from the problem of instruments proliferation.

The coefficient (0.000115) of BODS is positively insignificant ( $p= 0.9708$ ). The result shows that an increase in the number of directors on the board will lead to an insignificant increase in the effective tax rate (ETR). This means that by increasing the board size between five and fifteen members-as recommended by SEC Code of corporate governance 2011-will not increase their desire to engage in tax avoidance activities. The average board size in this study is seven which is above the minimum of five required by the law. Thus the result should have been significant but it is contrary to our expectation both in significance and sign. It is, however, supported by the studies of Lambe et al. (2021) and Zachariah et al. (2020).

The coefficient of BODIV is positive (0.005878) and significant ( $p = 0.0000$ ) at 1%. The result shows that an increase in the number of female directors on the board will hinder managements' desire for tax avoidance and so the cash effective tax rate (CETR) will not be reduced. The result is in line with our expectation both in significance and in expected sign. We expected the presence of women to help reduce men's urge for tax avoidance in accordance with the extant literature. This result is, however, supported by the studies of Sulaiman (2020); Karlberg (2020); Nwezoku and Egbunike (2020); Novita and Herliansyah (2019).

The coefficient of BODI is negative (-0.001963) and significant ( $p = 0.0000$ ) at 1%. The result shows that an increase in the number of independent directors on the board will increase management desire for tax avoidance thereby reducing the effective tax rate (ETR). The result is in line with our expectation both in significance and sign. It is thus supported by the studies of Okpala and Omaliko (2022); Khan et al. (2022); Egbunike et al. (2021); Omesi and Appah (2021).

BMET coefficient (-0.014172) is negative but insignificant ( $p = 0.2639$ ) at the 26.39% level of significance. The result shows that an increase in the number of times management meets will minimally reduce the effective tax rate (ETR) since management is unwilling or less motivated to engage in tax avoidance activities. Frequent board meeting can be a sort of monitoring mechanism to be abreast with detail information about the firm's internal and external operations that may or may not goad management to dodge tax. The result is in line with our expectation in sign but not in magnitude even though the firms, on average, met four times a year which is the very minimum number of meetings required by the law. This result is, however, supported by the study of Zachariah (2019).

BDPOL coefficient (0.020710) is positively insignificant ( $p = 0.1960$ ). The result shows that an increase in the number of directors with political connections on the board will lead to an

insignificant increase in the effective tax rate (ETR). This means that the inclusion of such politically affiliated director will not motivate management at all to dodge tax payment. The result is contrary to our expectation both in significance and in sign. There is no single study that supports this work but those contrary to it are Mustaqiim and Nurhidayati (2020); Abdani and Sya'bania (2020) and Ying (2015).

CEOME coefficient (-1.003717) is negative and significant ( $p = 0.0503$ ) at 5% levels of significance. The result shows that an increase in the number of CEO with military experiences on the board will significantly motivate management to engage in tax avoidance schemes thereby reducing the effective tax rate (ETR). Our result is in line with our expectation in significance but contrary in sign. We thought CEOME should be positively significant with ETR. That is, the presence of a CEO with military experience should discourage management from engaging in any form of tax avoidance. The only result we reported, Mills and Law (2015), is contrary to our result as theirs was positively significant.

CEO0 has a coefficient of (-0.003501) which is negatively significant ( $p = 0.0000s$ ) at 1% level. The result shows that an increase in the number of CEO with overconfidence on the board will encourage the management team to avoid tax more and thus reduce the effective tax rate (ETR). Our result is in line with our expectation both in significance and sign. It is thus supported by the study of Bivianti et al (2022) and Dayuningtyasa and Rahmiatib (2020).

#### 4.6 Robustness Checks or Diagnostics Tests

Just as we subjected the data to statistical tests for unit roots and cointegration, we also carried out some diagnostics tests on the GMM model used based on the model's underlying assumptions. These tests are very important to certify the validity of the model and of the final outcome of the regression.

##### 4.6.1. Arellano and Bond Serial Correlation Diagnostic Tests of AR (1) and AR (2):

For if there are reasons that autoregressive errors are expected in a regression model, we can use the lagged value of the dependent variable as a valid instrument in the differenced equation (Arellano & Bond, 1991). When an estimator uses lags as instruments with the assumption that the disturbance or error term is white noise, such an estimator would produce inconsistent results if the disturbance terms are indeed serially correlated (Arellano & Bond, 1991). Thus, it is very necessary to be sure of no autocorrelation by carrying out test statistics of no serial correlation by validating the instrumental variables through a second-order residual serial correlation test (Arellano & Bond, 1991). The AR (1) may be or may not be significant but AR (2) must never be insignificant at all. AR (2) is more important in evaluating our results as it shows whether there is second-order serial correlation. If AR (2) is significant, it indicates that some of the lagged dependent variables which might be used as instrumental variables are bad instrument and thus endogenous. Since the p-values of AR (1) = 0.0418 which is less than 0.05 while AR

(2) = 0.1944 which is greater than 0.05, we then accept the null hypothesis that there is no second order serial correlation in the model. See Table 7 below

Table 7. Date: 05/03/24 Time: 23:36  
 Sample: 2009 2020  
 Included observations: 728

Test order	m-Statistic	rho	SE(rho)	Prob.
		-		
AR(1)	-2.035034	901.96722	443.21975	0.0418
		-		
AR(2)	-1.297743	574.61972	442.78380	0.1944

Source: Researcher's Computations (2024) Using EViews10 Software.

#### 4.7 Cross Sectional Regression Analysis Using R-Squared ( $R^2$ ) and Adjusted R-Squared (Adj. $R^2$ )

The R-Squared ( $R^2$ ), in any linear regression model, is used to measure the proportional variation in the dependent variable that is explained by the independent variable(s). It explains the extent to which the variations in the dependent variable are accounted for by one or more independent variables. That is,  $R^2$  is a measure of the explanatory power of independent variable(s) in the linear regression (El-Mahdy & Abdou, 2006). Thus, if an  $R^2$  of a model is 0.75, then it can be concluded that about 75% of the variations in the dependent variable is accounted for by the independent variables. It is a measure of the model's goodness-of-fit or how good the variables fit into the model. The higher the value, the better fit the model. It should be stressed, however, that the values of the  $R^2$  increase or remain the same as more and more independent variables are added to the model irrespective of the fact that they may not bear any relationship with the dependent variable. This may tempt researchers to add more than necessary variables which will lead to model over-fitting with higher and higher  $R^2$ . This is not desirable at all of the characteristics of a goodness-of-fit statistic. This is usually the reason the  $R^2$  is adjusted for.

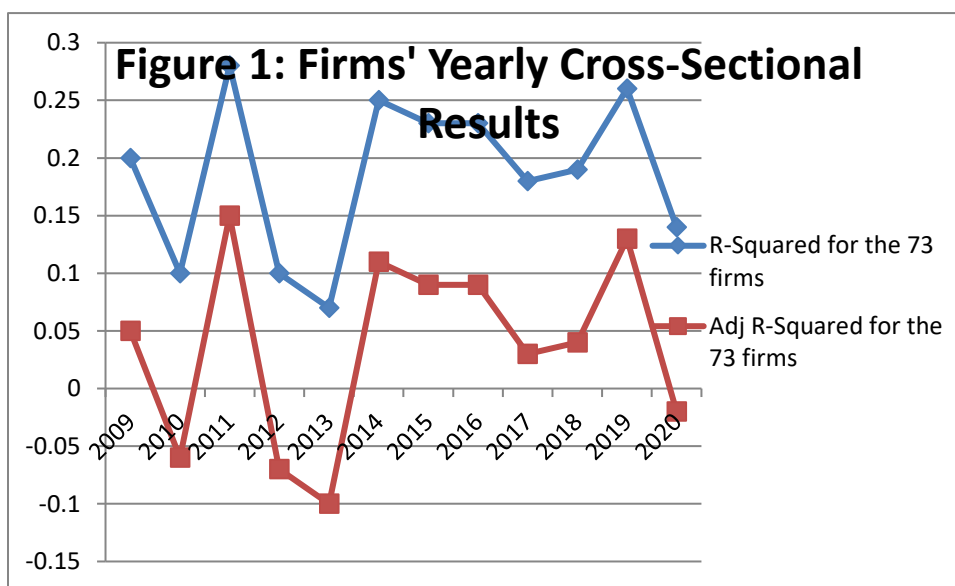
The adjusted R-squared (Adj.  $R^2$ ) modify or makes adjustment to the  $R^2$  statistic in such a way that it is always lower than the  $R^2$ . Remember that the  $R^2$  always increase in value as more and more independent variables are added to the model whether those variables are relevant or not. With respect to Adj.  $R^2$ , only those independent variables that are relevant to the dependent variable increases the value of the Adj.  $R^2$  while those not correlated to the dependent variable decreases the value of the Adj.  $R^2$ . Thus, additional unwanted independent variable punishes the

$R^2$  by adjusting its value and this is the true characteristics of a goodness-of-fit statistic. Thus, the Adj.  $R^2$  determines the reliability of the correlation between the independent variables and dependent variable. The Adj.  $R^2$  makes it possible for us to ascertain which regression variable is more value relevant and so a better statistic than the  $R^2$ .

#### 4.7.1 Yearly Cross Sectional Regression Analysis

**Table 8**

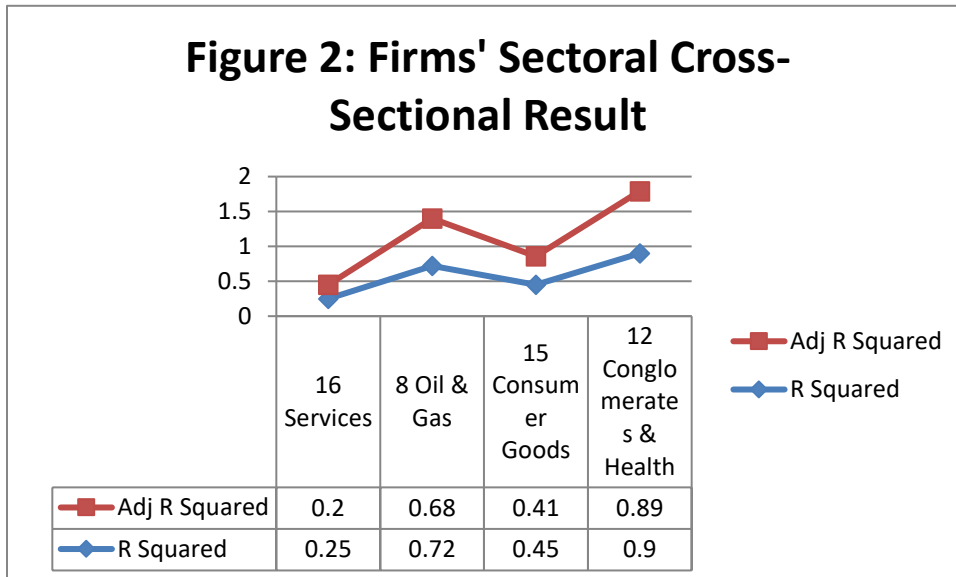
Years	2009	2010	2011	2012	2013	2014	2015	2016	2017	2018	2019	2020
$R^2$ for the 73 Firms	0.2	0.1	0.28	0.1	0.07	0.25	0.23	0.23	0.18	0.19	0.26	0.14
Adj. $R^2$ for the 73 Firms	0.05	-0.06	0.15	-0.07	-0.01	0.11	0.09	0.09	0.03	0.04	0.13	-0.02



**Source: Researcher's Computations (2024) Using EViews10**

From the result of the yearly cross-sectional regression in the Table 8 and Figure 1 above, the entire seventy three (73) firms are more tax aggressive in 2011, 2019, 2014 and so on judging by their reported higher  $R^2$  and Adj.  $R^2$  figure. They are less tax aggressive in 2013 and 2012 which are the first two years of post-IFRS.

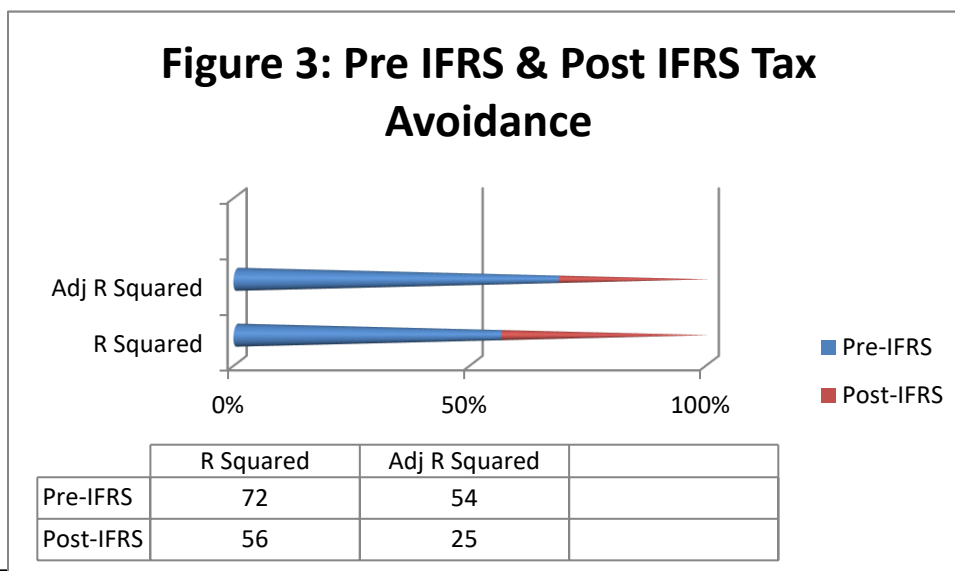
#### 4.7.2 Sectoral Cross Sectional Regression Analysis



Source: Researcher's Computations (2024) Using EViews10

From the result of the sectoral cross-sectional regression in Figure 2 with its accompanying Table above, the Oil & Gas sector is more tax aggressive for the 2009-2020 periods under investigation. It is followed by Consumer Goods sector and then by Services sector. However, when the Conglomerate sector was merged with the Health sector, they become the most tax aggressive.

#### 4.7.3 Pre-IFRS and Post-IFRS Cross Sectional Regression Analysis



**Source: Researcher’s Computations (2024) Using EViews10 Software.**

From the result of the three years pre-IFRS (2009-2011) and post-IFRS (2012-2014) cross-sectional regression in Figure 3 with its accompanying Table above, the seventy three firms were more tax aggressive for the 2009-2011 periods than for the periods 2012-2014. Even when we considered periods 2009-2011 against 2012-2020, tax aggressiveness was still more pronounced for the pre-IFRS periods than post-IFRS.

**4.8 Pairwise Panel Data Granger Causality Tests Result**

When the results of our unit roots tests show that variables are all stationary and the results of our GMM model show that nine (9) out of eleven (11) independent variables are statistically significant; it is an indication that a long-run causality runs from all the regressors, independent/explanatory variables, towards the target/ dependent variable (Ahmed et al., 2013). They do not, however, tell us the direction of causality and so it becomes necessary to carry out a Granger causality test. Thus, we run the Granger causality test to know if there is independent causality (No causality between the variables), unidirectional causality (One variable granger causes the other variable) or bidirectional causality (Both variables granger cause each other). Table 9 below is the results of the unidirectional causality while Table 10 below is the results of the bidirectional causality. In Table 9 for example, BMET does not granger cause CASH\_ETR, if the P-Value is 5% or less then the null hypothesis is rejected in favour of the alternative hypothesis meaning BMET granger causes CASH\_ETR. This means that the board of directors’ regular meeting can be used to predict or forecast a lower effective tax rate and thus management willingness to engage in tax avoidance.

In Table 10 for example, FSIZE does not granger cause CEOO1, if the P-Value is 5% or less then the null hypothesis is rejected in favour of the alternative hypothesis meaning FSIZE granger causes CEOO1. This means that a CEO of a large firm will always exhibit overconfidence as confirmed by the extant literature. Since it is a bidirectional situation, CEOO1 does not granger cause FSIZE, if the P-Value is 5% or less then the null hypothesis is rejected in favour of the alternative hypothesis meaning CEOO1 granger causes FSIZE. This means that a large firm will always attract an overconfidence CEO. So then, granger causality helps us to be able to forecast or predicts the behaviour of one variable from another variable in the same model.

**Table 9. Uni-Directional Relationship**

BMET does not Granger Cause CASH_ETR	728	7.03441	0.0009
CASH_ETR does not Granger Cause CEOO1		18.8665	1.E-08
FSIZE does not Granger Cause CASH_ETR	730	3.02501	0.0492
ROA does not Granger Cause CASH_ETR	730	214.379	7.E-74



BODIV does not Granger Cause BODS	730	4.64809	0.0099
BODS does not Granger Cause BODI		4.25407	0.0146
BODS does not Granger Cause BMET		17.6347	3.E-08
BODS does not Granger Cause BDPOL		6.90892	0.0011
BODS does not Granger Cause FSIZE		4.95229	0.0073
BODIV does not Granger Cause BODI		8.97191	0.0001
BODI does not Granger Cause BMET		19.6359	5.E-09
BODI does not Granger Cause BDPOL		8.95982	0.0001
BMET does not Granger Cause BDPOL		5.26189	0.0054
BMET does not Granger Cause ROA		4.32690	0.0136
CAPINT does not Granger Cause CEOO1	729	83.0880	3.E-33
ROA does not Granger Cause CEOO1	729	79.4650	6.E-32
TINCAP does not Granger Cause CEOO1	726	48.9457	1.E-20
TINCAP does not Granger Cause ROA	727	11.0666	2.E-05

**Source: Researcher's Computations (2024) Using EViews10 Software.**

**Table 10. Bi-Directional Relationship**

CAPINT does not Granger Cause			
CASH_ETR	730	13.8202	1.E-06
CASH_ETR does not Granger Cause CAPINT		3.64788	0.0265
BODI does not Granger Cause BODS	730	7.73951	0.0005
BODS does not Granger Cause BODI		4.25407	0.0146
BMET does not Granger Cause BODIV	728	2.89667	0.0558
BODIV does not Granger Cause BMET		9.88354	6.E-05
FSIZE does not Granger Cause CEOO1	729	3.13395	0.0441
CEOO1 does not Granger Cause FSIZE_		3.38206	0.0345
ROA does not Granger Cause CAPINT	730	13.8264	1.E-06
CAPINT does not Granger Cause ROA		9.45043	9.E-05
TINCAP does not Granger Cause CAPINT	727	15.3406	3.E-07
CAPINT does not Granger Cause TINCAP		3.54552	0.0294

**Source: Researcher's Computations (2024) Using EViews10 Software.**

## Conclusion and Recommendations

This research study is carried out to empirically assess the impact of certain corporate governance attributes on tax avoidance in Nigeria. The aim was to ascertain the degree to which firms dodge paying taxes and the efforts government has been making in curbing such financial termites which has been draining government funds needed to provide basic infrastructures for the citizenry. Annual secondary data totally eight hundred and seventy six (876) firm-year observations which cover the period 2009 to 2020 of seventy three (73) non-financial listed firms quoted on the floor of the Nigerian Exchange Group (NXG) are used in the study. Tax avoidance, represented by cash effective tax rate (CETR), is the dependent variable; Board Size, Board Diversity, Board Independence, Board Meetings, Board Political Affiliations, Chief Executive Officer (CEO) Overconfidence and Chief Executive Officer (CEO) Military Experience are the independent variables while Capital Intensity, Firm Size, Return on Assets and Thin Capitalization are the control variables. The regression results of the GMM with dummy variables. The GMM regression results indicate that Lag of Cash Effective Tax Rate, Board Diversity and Thin Capitalization positively and significantly influenced tax avoidance; Board Independence, Chief Executive Officer (CEO) Overconfidence and Chief Executive Officer (CEO) Military Experience influence on tax avoidance are negatively significant while Board Size, Board Meetings, Board Political Affiliations and Capital Intensity are not significant at all. The study also finds that firms avoided tax less after the adoption of IFRS; that firms avoided tax more in 2011 and that the Oil and Gas sector avoided tax more than other sectors. The study recommends, among others, that the Nigerian government needs to be abreast with the reality of huge amount of money lost to tax avoidance as the cash effective tax rate (CETR) for the periods under review is just 22% on average instead of the statutory tax rate of 30%.

Based on the results above, the study recommends the followings.

- a) The minimum number of directors in the board should be increased from five to ten. In this study, the average board size is seven members out of a maximum membership of fifteen. A quorum should never be formed if the very minimum, ten, is not met with appropriate sanctions for regular offenders.
- b) We expected the presence of women to help reduce men's urge for tax avoidance but this is not the case here. It may be due to the fact that the numbers of female directors are still small in the board with insignificant influence. In line with the trend in some countries, the Nigerian government can legislate a minimum percentage of competent and vocal women that should be on the board.
- c) We expected an independent board to checkmate management's desire to dodge paying tax but this is not the case. More outside directors who are independent indeed should be brought to the board. The present security and exchange (SEC) guidelines which recommended a minimum of one independent director on the board is not adequate at all. According to Economic Times (2013), the composition of the board should be at least 50% outside non-

executive directors if the chairman of the board is an executive director but if the chairman is an outside non-executive director then the independent directors should be about 331/3%.

- d)The result shows that an increase in the number of times management meets will reduce management desire for tax avoidance and keep the effective tax rate (ETR) high.Since the present minimum number of meetings is at least once each quarter (four times per year), the average number of meetings judging by our descriptive statistics averageresult is four times per year. This is good for the government and thus it has helped in curbing tax avoidance for the period under investigations. We further recommend one meeting every two months to strengthen the present encouraging position.
- e)Tax authorities should put their search light on all politically affiliated companies to ensure they do not have any undue advantage over their competitors by not reasonably paying their fair taxes correctly. The result for the period under study is encouraging.
- f)If it is confirmed from more studies that CEO with military experience are more averse to dodging taxes, more of them should be appointed into the board rather than more traditional rulers as the case in Nigeria today.
- g)An overconfidence CEO can be identified through the complexities of certain transactions over times. When caught, a drastic financial measure like best of judgment (BOJ) assessment should be imposed on such firms to serve as deterrence.
- h)Government needs to draw a red line between permissible and impermissible tax avoidance with deterrent measure to checkmate would-be offenders if government really wants to stop these financial termites and leakages. Nevertheless, we add a CAVEAT to the recommendations above. The government must act urgently and decisively to provide needed infrastructures that would minimize the cost of doing business in Nigeria. Otherwise, businesses will continue to plan how to avoid taxes in the face of high tax rates, high costs of doing business that impede profitability and growth coupled with legal loopholes in the tax laws (Onyejekwulum, 2020)

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