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GREY DIRECTORS ATTRIBUTE AND IDIOSYNCRATIC RISK OF LISTED MANUFACTURING FIRMS IN NIGERIA: MODERATING EFFECT OF TAX OPTIMIZATION STRATEGY

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ABSTRACT
The broad objective of this study was to investigate the nexus between grey directors' attribute and idiosyncratic risk of listed manufacturing firms in Nigeria using a ten (10) year time frame that span through 2014 to 2023. In addition to the broad objective, this study also determined the moderating effect of tax optimization strategy on the relationship that exists between grey directors' attribute and idiosyncratic risk. To achieve the stated broad objectives, specific attributes of grey directors' which have been widely employed in related extant literature to include grey director size, and grey director gender diversity were selected to ascertain the extent to which they affect idiosyncratic risk. This study employed ex-post facto and descriptive research design on a panel data set sourced from annual financial reports of a sample of forty-six listed manufacturing firms in Nigeria. Further, Iterated Generalized Least Squares (IGLS) Random Effects with Heteroskedastic Panels regression model was employed to test the formulated hypotheses after fulfilling the necessary conditions for obtaining non-spurious regression estimates. The findings of this study have been broadly categorized into two. First, while certain grey director attributes to include gender diversity, director size, and overlapping roles did not exhibit significant relationship with firm-specific risk. Second, when the moderating influence of tax optimization measured through debt tax shields, gender diversity becomes significantly related to decreased risk. Therefore, based on the foregoing empirical outcomes, this study recommends among others that stakeholders in Nigeria's manufacturing industry should avoid relying on grey director board size or their overlap function with risk committees as standalone levers for managing idiosyncratic risk, as these variables showed no significant direct effect. Instead, emphasis should be placed on strengthening more effective governance structures.

Key words: *Grey Director Size, Grey Director Gender Diversity, Idiosyncratic Risk*

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INTRODUCTION

A growing body of literature highlights the influence of corporate governance on firm risk, with particular focus on the role of board composition. Good Corporate Governance (GCG) is regarded as a strategic tool for reducing agency problems, controlling risks, and enhancing firm performance (Soelton, *et al* 2020; Napitupulu *et al*, 2023). The concept of grey directors (that is directors who have close affiliations with management yet are not fully independent) has gained scholarly attention globally due to their potential to

impact firm-specific risks through their involvement in decision-making processes, especially in relation to financial management strategies (Rego & Williams, 2024). Grey directors' attribute brings both opportunities and challenges; their embedded role provides firm-specific knowledge, potentially beneficial for implementing dynamic tax optimization strategies however could often heighten agency risks (Hillman, *et al*, 2000) Further, prior literature supports high concentration of corporate governance attributes been linked with firm financial performance for studies conducted with samples drawn from the Nigerian space. Such studies include but not limited to those of Sinebe, (2024), Alashe *et al* (2021), Okolie, and Uwejeyan, (2022), Adegboyegun and Igbekoyi, (2022); Alekiri, *et al* (2023), Chijoke-Mgbame, *et al* (2020). Nevertheless, this study strongly promotes the need to empirically examine other facet of corporate performance particularly risk performance (Idiosyncratic Risk) which is very crucial in a firm's financial stability. Although, this study recognizes earlier similar studies on the nexus between grey directors' attribute and corporate risk but much of such studies to include those of Agus & Utama, (2023); Hsu & Wu, (2014); Borokhovich, *et al* (2014); Febrian & Firmansyah, (2022), examined samples from countries outside Nigeria of which their conclusions may not be operational in the Nigerian setting.

Therefore, premise on the foregoing, and in line with the broader focus of this study, the researchers' view aligns with the agency theory, which explains that firms use tax optimization technique as a strategy to address agency conflicts by enhancing resource efficiency and protecting shareholder interests. When grey directors are present concerning about their objectivity and potential agency, costs might increase (Hsu & Wu, 2014; Borokhovich, *et al* 2014), due to their close affiliations with management, which can increase firm risk levels. However, by employing tax optimization, a firm can reduce such risks by fostering a culture of resource stewardship and financial prudence, which aligns directors' actions more closely with shareholder interests. On the basis of the foregoing, this study is positioned to evaluate the moderating effect of tax optimization strategy on the relationship between grey director attributes and firm idiosyncratic risk of listed firms in Nigeria.

Objectives

The study therefore sought to examine the moderating effect of tax optimization strategy on the relationship between grey directors' attribute and idiosyncratic risk of listed manufacturing firms in Nigeria. However, the specific objectives are to

1. identify the relationship between grey directors' size and idiosyncratic risk of listed manufacturing firms in Nigeria.
2. verify the relationship between grey directors' gender diversity and idiosyncratic risk of listed manufacturing firms in Nigeria.

LITERATURE REVIEW

Firm Idiosyncratic Risk

Firm idiosyncratic risk, a concept rooted in finance and portfolio theory, refers to the unique, non-systematic risk specific to an individual company or asset. Unlike systematic risk, which is driven by market-wide factors, idiosyncratic risk stems from internal events or conditions unique to a firm (Ozdemir, *et al* 2020; Datta, *et al* 2017), such as management decisions, product recalls, or operational disruptions. It highlights the unpredictability inherent in firm-specific outcomes that cannot be entirely diversified away in a portfolio (Sharif & Lai, 2022). Due to its isolated nature, investors often monitor firm idiosyncratic risk closely to inform portfolio allocation, especially within high-volatility industries (Vozlyublennaia, 2013) manufacturing industry included. Idiosyncratic risk represents a critical aspect of firm analysis, as it affects valuation and the perceived reliability of a firm's future earnings. Amihud and Lev (2021) discuss idiosyncratic risk as a reflection of the internal vulnerabilities that distinguish firms from their peers, shaping their competitive advantages or weaknesses. Ceylan, (2021) noted that the underlying causes of firm-specific risk include internal governance, strategic choices, and even responses to regulatory changes, which can produce significant deviations in performance metrics.

For instance, internal governance within a firm plays a significant role in shaping the firm's specific risk profile, particularly through its corporate board dynamics (Andreou, *et al* 2016), including the influence of grey directors. Grey directors—board members whose independence is often compromised due to personal, financial, or past professional connections with the firm—can exacerbate firm-specific risk by weakening the rigor and objectivity required for effective governance (Srivastava, 2015). They may contribute to firm-specific risk by failing to challenge high-risk initiatives, particularly if these actions are likely to benefit certain stakeholders or protect existing management. This predisposition can lead to a greater occurrence of events such as mismanaged mergers, unchecked expansion into risky markets, or failures to adapt to regulatory changes, each potentially damaging to the firm's operational stability and financial performance

(Kamardin, 2014; Berezinets & Muravyev, 2024). Moreover, with weaker monitoring, unethical or noncompliant practices may also proliferate, increasing the firm's exposure to reputational and legal risks (Shakir, 2008). Studies on board dynamics have highlighted how grey directors' compromised oversight can lead to decision-making practices that undermine shareholder value, resulting in more erratic performance and an elevated firm-specific risk profile (Yeh & Wu, 2023; Smith & Li, 2021).

Grey Directorship Attribute

The concept of grey directors on corporate boards is complex, encompassing various attributes that impact governance dynamics, particularly regarding board size, gender diversity, nationality, and functional overlap with committees like the risk committee. Grey directors are defined as board members with non-independent statuses due to connections with the company, which may result in conflicts of interest that influence decision-making (Abdulmalik, *et al* 2015). Grey directors, or non-independent board members with connections to the company through prior employment, personal relationships, or significant shareholder interests, present a unique attribute in corporate governance that can impact a firm's oversight quality (Mohd *et al* 2020). Due to these affiliations, grey directors often face potential conflicts of interest that can undermine their independence and impartiality, influencing board decisions to prioritize internal stakeholders over shareholders' broader interests. Unlike fully independent directors who can more objectively assess risks and advocate for shareholder value (Pichet, 2017; Jiraporn & Lee, 2018), Gregor, (2020) document that grey directors are more susceptible to biases shaped by their connections to the firm, potentially affecting their effectiveness in critical governance roles, such as oversight and audit committee responsibilities.

Further, while the influence of grey directors on corporate governance has garnered significant attention in recent research, studies highlight their role in perpetuating "insider" board cultures, where strategic alignment with dominant executives often overshadows independent scrutiny (Srivastava, 2015; Houston et al., 2016). Such alignment can exacerbate issues like executive overcompensation and inadequate risk assessment, especially in firms with concentrated ownership or family control (Li *et al* 2022; Coles, *et al* 2008).

Tax Optimization Strategy

Tax optimization strategy is a structured approach by which firms aim to legally minimize their tax liabilities, enhancing overall financial efficiency and freeing up resources for reinvestment or growth. In the views of (Krifa-Schneider & Sattar, 2021; Estiasih & Saraswati, 2021) tax strategy involves a complex array of methods, such as strategically timing income recognition and expenses, utilizing tax-advantaged

accounts, and ensuring compliance with applicable deductions, credits, and exemptions. Safonova, et al (2016) noted that for corporations, tax optimization often includes selecting an entity type or organizational structure that reduces tax burden while aligning with business goals. Particularly, tax optimization strategy represents a sophisticated financial approach aimed at reducing tax liabilities legally, improving financial efficiency, and optimizing after-tax income. This strategy, widely used by corporations, involves structuring financial activities to take advantage of tax deductions, credits, and favorable jurisdictions without breaching legal boundaries. Methods like tax deferral, which delays tax payments to future periods, and income splitting, which shifts income to lower-tax individuals or entities, are popular among firms as they seek to optimize tax outcomes (WallStreetMojo, 2023; Fiveable, 2024) in a way that aligns with both corporate financial goals and regulatory requirements (GM Tax Consultancy, 2024; Fiveable, 2024).

Notably, *et al* (2023) posited that at the core of tax optimization is a commitment to legal compliance, which requires firms to remain current on local and international tax regulations. Such approach not only involves using deductions and credits but also leveraging international tax treaties and other jurisdictional advantages to reduce overall liabilities. Corporate tax strategies now increasingly incorporate sustainability considerations to align with the "spirit of the law," reflecting an ethical approach in the face of public and regulatory scrutiny (SP Global, 2018; GM Tax Consultancy, 2024). By engaging in structured and compliant tax optimization, firms enhance tax efficiency while reinforcing stakeholder trust.

Empirical Review

Ali, (2025), examined the relationship between firm risk and board diversity measured in demographic dimensions (age, gender and nationality) and cognitive-oriented dimensions (tenure, expertise and education). Using data on non-finance firms in China for the period 2008–19, the result showed that total board diversity, in both the demographic and cognitive oriented dimensions, is negatively related to firm's risk. Using generalized method of moments, the findings show that a diverse board effectively manages risk management activities and improves firm performance. More diverse boards can improve group performance, leading to better decision-making process and reduce firm risk.

Osmani, and Doda, (2025) focused on Albanian small and medium enterprises (SMEs), to investigate the attitude towards risk of chief executive officers, chief operating officers, and chief financial officers, trying to contribute a new understanding of gender diversity and risk behavior. A sample of 247 top managers, 80 men, and 167 women, was analyzed and a quantitative approach, based on different statistical tests, was adopted. The results suggest that there are no differences between male and female top managers, thus not confirming an association between gender diversity and risk-taking.

Rahman, Ali, Arian, and Sands (2024) investigated the role of corporate governance mechanisms and earnings quality in mitigating idiosyncratic risk in the Pakistani equity market, focusing on non-financial firms. Data were collected from 75 non-finance firms listed on the Pakistan Stock Exchange, covering the period from 2010 to 2018 with the dependent variable being idiosyncratic risk, while the independent variables include earnings quality and corporate governance attributes such as board independence, board size, institutional ownership, and gender diversity. Control variables include firm size, age, leverage, and book-to-market ratio. The research adopts a panel data design using the generalized method of moments (GMM) for hypothesis testing. Grounded in the agency theory, the findings suggest that higher earnings quality mitigate idiosyncratic return volatility, reinforcing the importance of governance and transparency in managing firm-specific risks.

Amana, Barde, and Kantudu (2023) explored how board attributes influence firm survival in the Nigerian manufacturing sector over the 2011 and 2022 period, with a particular focus on the moderating role of risk management committees. The key variables include firm survival as the dependent variable, while board independence, board size, board gender diversity, and board expertise are the independent variables. The research adopts a correlation design with a census sampling technique, involving all 64 listed manufacturing companies. Hierarchical regression was applied to test the hypotheses, examining both the direct and moderating effects. The findings suggest that certain board attributes, including larger board size, increased gender diversity, and greater board expertise, positively influence firm survival, with risk management committee strengthening the relationship by mitigating risks and enhancing governance structures.

Lasisi (2022) conducted a study to explore the influence of corporate governance traits on corporate risk reporting in publicly listed finance services firms in Nigeria. Data were collected from finance firms listed on the Nigerian Exchange Group for a period spanning from 2015 to 2019. Key variables examined include corporate risk reporting as the dependent variable, while board size, board independence, board activity, and board diversity served as independent variables. The analysis was carried out using multiple regression techniques to test the hypotheses which showed that board size had a positive impact on corporate risk reporting, while board independence and board diversity had no significant effect. Interestingly, board activity was found to have a negative impact, suggesting that more frequent meetings do not necessarily improve risk reporting.

Ihenyen and Suwari (2022) explored the effect of risk management on performance of oil and gas firms whose stocks were traded on the Nigerian Exchange Group between 2010 and 2020. Gender diversity and independence of risk committees, and firms' performance, including price-to-revenue, price-to-cash flow,

and enterprise value before interest, tax, and amortization were employed as independent and dependent variables respectively. The study used *ex-post facto* design with data collected from annual reports of eight oil and gas companies, while Pearson correlation and Ordinary Least Squares (OLS) regression with fixed and random effects models were conducted for data analysis. Anchored on the risk management and agency theories, the outcome indicated that number of women and the independence of the risk committee, had a positive significant impact on firm performance.

Huang, *et al* (2021) conducted a study aimed at exploring the effect of directors' and officers' liability insurance on corporate idiosyncratic risk of firms listed on the Shanghai and Shenzhen Stock Exchanges in China, covering the period from 2002 to 2016. The study used a dataset of 21,912 firm-year observations and applied a propensity score matching procedure to validate its findings. Data analysis was conducted using regression models and the findings revealed that the purchase of directors' and officers' insurance was negatively associated with corporate idiosyncratic risk, particularly in state-owned enterprises, and that the effect was more pronounced in companies audited by Big 4 auditors, with higher analyst coverage and higher growth rates.

Cao, *et al* (2021) focused on examining the relationship between tax avoidance and firm risk, of Chinese state-owned enterprises (SOEs). The data for the study was collected from the Chinese stock market, specifically using the China Stock Market and Accounting Research (CSMAR) database, and covered the period from 1999 to 2019. The study was backed by the risk-return trade-off theory and utilized difference-in-differences analysis technique in testing the hypotheses which showed that, in contrast to the U.S., lower tax avoidance in Chinese SOEs was associated with lower future risk, highlighting the unique role of state ownership in moderating the risk associated with tax strategies.

Kusi et al. (2021) examined the impact of corporate governance on firm risk-taking behavior in among listed firms in Ghana with time frame from 2007 to 2016 covering various sectors within the Ghanaian market. The primary variables investigated include firm risk-taking behavior (dependent variable), board size, board independence, CEO duality, audit committee, and ownership structure (independent variables), while firm size and financial leverage were included as moderator variables. Using a balanced panel data set with 21 firms and 210 firm-year observations, two-step dynamic generalized method of moments (GMM) regression technique was employed to test the hypotheses. The findings revealed that larger boards and the presence of audit committees significantly reduce firm risk, while CEO duality increases risk-taking behavior. Additionally, higher levels of ownership concentration were associated with more conservative risk behaviour.

Ivashkovskaya and Adamu (2021) investigated the impact of corporate governance on corporate risk disclosure in emerging countries, focusing on South Africa and Nigeria. Data for the study were collected from the Nigerian Exchange Group and the Johannesburg Stock Exchange, covering the period from 2014 to 2018. The study included both financial and non-financial sectors, with a total sample size of 42 firms, comprising 192 firm-year observations. The findings highlighted operational risk as the most frequently disclosed, followed by environmental and strategic risks, with non-monetary and neutral risk information dominating the reports.

Nguyen, *et al* (2021) conducted a study to investigate the impacts of financial reporting quality and corporate governance characteristics on idiosyncratic risk in the context of Vietnam. The research utilized data from the Ho Chi Minh City Stock Exchange, covering the period from 2010 to 2016, with a focus on non-finance sectors. The independent variables are financial reporting quality, board size, CEO duality, state ownership, and CEO ownership, while idiosyncratic risk served as the dependent variable. The study used a panel data research design with 707 firm-year observations and applied panel data regression analysis technique to test the hypotheses. The analysis revealed that high-quality financial reporting significantly reduced idiosyncratic risk, while firms with higher state ownership exhibited lower risk. *However, larger board sizes were associated with increased idiosyncratic risk.* CEO duality and CEO ownership were found to have no significant relationship with idiosyncratic risk.

Rego, *et al* (2019) investigated the relationship between tax avoidance and firm risk, using a latent class mixture model to identify varying effects across different types of firms. Based on data from U.S.-based firms between 1991 and 2016, the study examined how different tax planning strategies affect risk, with stock return volatility as the dependent variable, while the independent variable is tax avoidance; firm size, profitability, and leverage serve as control variables. Using a sample of over 47,000 firm-year observations and latent class modeling, the study identifies three distinct firm classes: one with a positive association, another with a negative association, and one with no significant relationship between tax avoidance and firm risk. Findings revealed that tax avoidance heightens firm risk in larger, older firms with strong information environments and high managerial incentives, while smaller, less profitable firms benefit from traditional tax shields, which correlate with reduced risk.

Mathew, *et al* (2018) investigate the relationship between corporate governance structures and firm risk with the primary aim of understanding how different board attributes affect the overall risk profile of firms. The study focuses on data collected from companies listed on the FTSE 350 index in the United Kingdom over the period from 2005 to 2010. The study adopts a panel data research design and analyzes 267 firms over the sample period, with 1,410 firm-year observations in total. To test the hypotheses, the study employs

generalized least squares regression which reveal that a higher governance index, representing more effective corporate governance, is significantly associated with lower firm risk, with attributes such as larger boards, more non-executive directors, and greater board diversity contributing to reduced risk.

MATERIALS AND METHOD

Descriptive and *ex-post* facto research designs were employed in this study. The choice of descriptive research design is on the basis that it allows a researcher to describe the nature and determine the correlations among variables of interest. *Ex-post* facto research design attempts to demonstrate the relationship between the dependent and independent variables. It is essentially a research design for demonstrating relationship and analysing past occurrences or events with already existing data. The population of this study consists of all manufacturing firms listed on the floor of the Nigerian Exchange Group (NGX). The population was because of their immense contribution to the economy of Nigeria over the last decade. Further, the population of this study is taken to complement extant related studies conducted in Nigeria which predominantly employed samples from firms in other industries of the economy. The population of listed manufacturing firms in Nigeria as of 31st December 2023 was fifty-eight (58) distributed into six (6) sectors to include: health care (8), natural resources (4), conglomerates (6) agriculture (5) Industrial goods (13) and Consumer Goods (22) companies.

Based on the selection criteria, forty-six (46) manufacturing firms listed on the Nigerian Exchange Group (NGX) represented the sample size. The size of forty-six was obtained because twelve (12) firms were knocked away having fallen short of the selection criteria. Therefore, this study employed secondary data sourced from each sampled listed firm's annual audited financial report. Secondary data sources for this study include audited annual reports of manufacturing firms listed on the floor of the Nigerian Exchange Group. The data for this study was analyzed as follows:

Summary Statistics Analysis: Summary statistics also known as descriptive statistics provide key information relating to the variable/s mean, minimum values, maximum values and standard deviation during the period under review.

Regression Analysis

Panel data regression analysis method was utilized in this study based on justifications that the collected data have time and cross-sectional properties. Panel data regression analyses are a very valuable data analysis technique because it helps to capture the individual cross-sectional (or firm-specific) effects that the various pools may exhibit (Vieira, Neves & Dias, 2019). Also, this study carried out post-estimation

test (*Pool ability test, fixed and random effect error test*) to evaluate the suitability of the estimation techniques utilized for estimating the model.

The specified model for this study is similar to that which Ghafoor, *et al* (2019), employed in their study. Building on the existing model, this study moves a step further to incorporate a moderator variable (Tax Optimization Strategy) primarily to account for the indirect link between grey directors' attribute and idiosyncratic risk which is the critical focus of this study.

In this study, firm risk is calculated using Fama and French (1993) three factor model in line with the methodology of Saito (2008) and Nguyen (2011). The three-factor model is an extension of the single factor CAPM model where apart from the traditional beta; it utilizes two other factors in the form of firm value and firm size factors. Fama and French (1993) three factor model includes monthly excess return on market index ($R_M - R_f$), size (SMB) factor and book-to-market (HML) factor. Fama and French 3-factor model can be represented as:

$E(R_i) = R_f + \beta_1 MKT + \beta_2 SMB + \beta_3 HML$ …… Eqn 1.

Where; E(R*i*) represents the expected stock returns on the stock *i*,

SMB represents the size premium

HML represents the value premium.

Stocks are arranged in descending order according to their market capitalization and then the sample is divided into two equal portfolios *on either side of the median*. The portfolio having market capitalization more than the median is named as 'Big' whereas the other one is named as 'Small'. Now, these two portfolios are each further sub-divided into three portfolios (upper 30 percent, middle 40 percent and lower 30 percent) based on their book-to-market ratio arranged in ascending order. The 'small' and 'big' portfolios are subsequently named as S/L (small and lower 30 percent), S/M (small and middle 40 percent), S/H (small and upper 30 percent), B/L (big and lower 30 percent), B/M (big and middle 40 percent) and B/H (big and upper 30 percent). The three Fama and French factors are then calculated as:

$$SMB = \frac{(\frac{S}{H} - \frac{B}{H}) + (\frac{S}{M} - \frac{B}{M}) + (\frac{S}{L} - \frac{B}{L})}{3}$$

$$HML = \frac{(\frac{S}{H} - \frac{S}{L}) + (\frac{B}{H} - \frac{B}{L})}{2}$$

$$MKT = R_M - R_f \quad \text{where,} \quad R_M = \frac{P_t}{P_{t-1}}$$

R_M represents the market return for year t. P_t and $P_t - 1$ are closing values of market capitalization for year t and t – 1 respectively. R_f is risk-free rate for which monthly T-bill rate has been used as proxy. After estimating equation (1) for each stock year dataset, the standard deviation of the regression residual

determines the firm-specific or idiosyncratic risk. Further, two econometric models which incorporates unobserved firms' and time effects are specified thus:

Direct/Linear Effect Model

$IRISK_{it} = ϭ_0 + ϭ_1GYSIZE_{it} + ϭ_2GYGENDIV_{it} + ϭ_3GYNAT_{it} + ϭ_4GYOVLAP_{it} + ϭ_5TAXOPT_{it} + ϭ_6FIRML_{it} + Ɛ_{it}$ ..... Eqn 2.

Indirect/Moderated Effect Model

$IRISK_{it} = ϭ_0 + ϭ_1GYSIZE_{it} + ϭ_2GYGENDIV_{it} + ϭ_5GYSIZE_{it}*TAXOPT_{it} + ϭ_6GYGENDIV_{it}*TAXOPT_{it} + Ɛ_{it}$ ..... Eqn 3.

Where:

IRISK refers to Firm Idiosyncratic Risk

GYSIZE refers to Grey Director Size

GYGENDIV refers to Grey Director Gender Diversity

TAXOPT refers toTax Optimization Strategy

$GYSIZE_{it}*TAXOPT_{it}$ refers to Interaction Term between Grey Director Size and Tax Optimization Strategy

$GYGENDIV_{it}*TAXOPT_{it}$ refers to Interaction Term between Grey Director Gender Diversity and Tax Optimization Strategy

Table 1: Operationalization of Variables

	Variables	Acronym	Measurement	Source/s	Apriori Expectation
Dependent Variable					
	Idiosyncratic Risk	IRISK	Computed using Fama-French Three Factor Model (FF-3)	Agus and Utama, (2023).	
Independent Variables					
	Grey Director Size	GYSIZE	Computed as the number of grey directors on the board	Wu and Hsu, (2018)	Negative
	Grey Director Gender Diversity	GYGENDIV	Computed as the total number of female grey directors on the board	Adams, Gray and Nowland, (2011).	Negative
Moderator Variable					
	Tax Optimization Strategy	TAXOPT	Computed in percentages as finance cost divided by total asset	Okonewa, and Urom, (2023).	Positive

Source: Researcher's Compilation (2025)

The decision for the hypotheses is to accept the alternative hypotheses if the p-value of the test statistic is less or equal to the alpha and reject the alternative hypotheses if the p-value of the test statistic is greater than alpha at 5% significance level.

RESU.T AND DISCUSSIONS

Descriptive Statistics Analysis

In the descriptive statistics, each variable is examined based on its mean, standard deviation, maximum and minimum values. Table 2 displays the results obtained from the descriptive statistics.

Table 2: Descriptive Statistics Result

Variable	Obs	Mean	Std. dev.	Min	Max
IRISK	460	1.765325	1.094536	-2.102847	3.499398
GYSIZE	460	6.394336	2.67351	0	17
GYGENDIV	460	.2962963	.560146	0	3
TAXOPTT	460	2.944749	3.208783	0	25.17

Source: Authors Computation 2025

The descriptive statistics from the study of grey directors' attributes and firm idiosyncratic risk among Nigerian listed manufacturing firms reveal insightful patterns that reflect the governance dynamics and financial behavior of these firms during a turbulent economic decade. The average idiosyncratic risk value (IRISK) of 1.77 with a relatively high standard deviation value of (1.09) and a wide range from -2.10 to 3.50 suggests that firm-specific risk varies substantially across the sampled firms, consistent with the findings of Ali et al. (2020) and Hutchens et al. (2024), who reported similar volatility patterns in emerging markets.

The average board size of grey directors (GYSIZE) stands at approximately 6.39, indicating moderate board involvement of grey directors, although the range (0 to 17) shows that some firms either had no grey directors or were dominated by them. Meanwhile, grey director gender diversity (GYGENDIV), with a mean value of 0.30 and a maximum of value 3, underscores the limited representation of female grey directors in Nigerian manufacturing firms' boards. This finding mirrors the global trend highlighted in the work of Terjesen, Couto, and Francisco (2016), which noted that gender diversity on boards, particularly among grey directors, remains low in many developing economies.

Tax optimization strategy (TAXOPT), calculated as finance cost over total assets, shows a moderately high average of 2.94% with a wide dispersion (maximum = 25.17%), highlighting firms' varied aggressiveness in leveraging debt-related tax shields. This variation is consistent with the findings of Rego and Wilson

(2012), who observed a similar spread in corporate tax aggressiveness across firms with differing board compositions and governance practices.

Data Normality Test

In this study normality of data test using Shapiro Wilk test procedure is conducted as shown in the Table 3. The Shapiro-Wilk normality test was employed to evaluate whether the variables in the dataset conform to the assumptions of normal distribution, and the results indicate varying degrees of deviation from normality across the examined variables. For the dependent variable, Idiosyncratic Risk, the Z value of 6.043 with a p-value of 0.000 suggests a significant departure from normality at the 1% level of significance. Similarly, the independent variable grey director size attribute produced a Z value of 5.942 and a p-value of 0.000, affirming that the distribution of this variable is also not normal. This observation holds for the variable grey director gender diversity attribute, which has an even higher Z value of 7.275 and a corresponding p-value of 0.000, implying a more significant deviation from normal distribution. The grey director nationality attribute follows this trend with a Z value of 6.629 and a p-value of 0.000, further confirming that the data for this variable does not meet the assumption of normality. According to Ghasemi and Zahediasl (2012), when the p-value of the Shapiro-Wilk test is less than 0.05, the null hypothesis of normality is rejected, which is consistently the case here.

Table 3: Data Normality Test Result

Variable	Obs	W	V	z	Prob>z
IRISK	460	0.95994	12.476	6.043	0.00000
GYSIZE	460	0.96160	11.959	5.942	0.00000
GYGENDIV	460	0.93299	20.870	7.275	0.00000
TAXOPTT	460	0.82225	55.361	9.611	0.00000

Source: Authors Computation 2025

However, the grey director overlap function attribute, which is a dichotomous variable, yielded a Z value of 1.525 and a p-value of 0.0636. This result exceeds the 0.05 significance level, indicating that this variable does not significantly deviate from normality. Regarding the moderating variable, tax optimization strategy, and the control variable, firm financial Leverage, both produced extremely high Z values of 9.611 and 9.076 respectively, with corresponding p-values of 0.000. These results strongly suggest non-normal distributions. The implication of these outcomes is that most of the continuous variables used in the analysis do not satisfy the assumption of normality, and as such, further inferential analyses may require robust statistical procedures or transformation techniques to mitigate the impact of non-normality (Tabachnick & Fidell, 2013). This reinforces the growing scholarly consensus that financial and governance-related

datasets, especially from emerging economies, often exhibit skewness and kurtosis due to firm heterogeneity and structural market inefficiencies (Hair et al., 2010).

Nevertheless, despite the results of the Shapiro-Wilk test indicating non-normality in most of the variables, the researcher proceeded with the use of parametric tests for hypothesis testing based on the robustness of parametric methods, especially in large sample sizes. With a sample size of 460 observations, the Central Limit Theorem justifies that the sampling distribution of the estimators approximates normality, thereby mitigating the impact of non-normality in the data. According to Lumley, *et al* (2002), parametric tests tend to retain their validity in large samples, even when the normality assumption is violated. Additionally, Hair et al. (2010) affirms that for samples exceeding 200, the violation of normality becomes less concerning for the accuracy of parametric procedures such as regression analysis. Therefore, the decision to proceed with parametric testing is grounded in the theoretical and empirical reliability of such methods in large datasets.

Regression Analyses

Specifically, to examine the relationship between the independent variables and the dependent variables of this study, panel data estimations to include fixed and random effects analysis were deployed while Hausman specification test was used to determine the most appropriate of both models. It is worthy to note that the model that was determined by the Hausman Specification test statistics was adequately tested for normality of residua error (heteroscedasticity) hence the specification test result determined the final econometric analysis technique that was employed to test the hypotheses. As observed from table 4.4, a Variance Inflation Factor value of 2.71 for GYSIZE, 1.16 for GYGENDIV, and 1.20 for TAXOPTT and the overall mean VIF value of 1.65 shows that Variance Inflation Factor is within the benchmark value of 10, to indicate the absence of multicollinearity. The absence of multicollinearity is established, and the results are presented in Table 4.

	ORDINARY LEAST SQUARE MODEL	FIXED EFFECT MODEL	RANDOM EFFECT MODEL	ITERATED GLS RE WITH HETERO PANEL
GYSIZE	0.039	0.033	0.039	0.016
	(0.201)	(0.416)	(0.311)	(0.482)
GYGENDIV	0.022	0.066	0.090	0.095
	(0.818)	(0.591)	(0.451)	(0.181)
TAXOPTT	-0.003	0.034	0.034	-0.035
	**(0.882)	(0.423)	(0.414)	(0.381)
C.GYSIZE#C. TAXOPTT		-0.004	-0.005	-0.004
		(0.615)	(0.529)	(0.488)
GYGENDIV#C. TAXOPTT		-0.019	-0.027	-0.101
		(0.583)	(0.416)	(0.000)
FISHER STATISTICS/WALD CHI^2	4.35	1.01	11.18	180.77
	**(0.0003)	(0.4380)	(0.3437)	***(0.0000)
VIF TEST: GYSIZE: 2.71, GYGENDIV: 1.16, GYNAT: 2.48, GYOVLAP: 1.11, TAXOPTT: 1.20, FIRML: 1.26 MEAN VIF 1.65				
HAUSMAN TEST CHI^2 = 6.19 PROBABILITY = (0.7989)	Test for Fixed Effects chibar2(01) = 11.30 Prob > chibar2 = ***0.0000	Test for Random Effects chibar2(01) = 473.51 Prob > chibar2 = ***0.0000	Modified Wald test for groupwise heteroskedasticity in fixed effect Prob > chibar2 = ***0.0000	

NOTE: (1) BRACKET () ARE P-VALUES; (2) **, ***, IMPLIES STATISTICAL SIGNIFICANCE AT 5% AND 1% LEVELS RESPECTIVELY

Source: Author's Computation (2025)

From table 4, the fixed-effects regression model output reveals a within R-squared value of 0.0243, indicating that approximately 2.43% of the variations in firm idiosyncratic risk are explained by within-firm changes in the predictor variables. The F-statistic value of 1.01 and its corresponding p-value of 0.4380 suggest that the joint explanatory power of the included variables is weak and statistically insignificant under the fixed effects specification. In contrast, the random-effects model has a slightly lower within R-squared value of 0.0227, implying a marginally lower explanatory power than the fixed-effects model. The Wald chi-squared value of 11.18 with a p-value of 0.3437 further supports that the model lacks statistical significance in explaining idiosyncratic risk. Additionally, the assumed zero correlation between the individual-specific effects and the regressors in the random-effects

model, represented by corr(u_i, X) = 0, is central to the random-effects estimation technique. Importantly, the F-test of the fixed-effects model (F (45,403) = 11.30; Prob > F = 0.0000) tests the null hypothesis that all group-level effects are zero. Since this null is rejected, the model confirms the presence of unobserved heterogeneity across firms, validating the use of a panel approach over a pooled ordinary least square regression model and suggesting that firm-specific characteristics must be controlled for in the analysis.

Further, the Breusch and Pagan Lagrangian Multiplier (LM) test for random effects yields a chibar value of 473.51 with a p-value of 0.0000, leading to the rejection of the null hypothesis that the variance of the unobserved individual effects is zero. This confirms that the random-effects model is more appropriate than a simple pooled ordinary least square regression model, as it captures essential between-entity variation. The result underscores the necessity of panel modeling techniques to account for firm-level heterogeneity.

The Modified Wald test for group wise heteroskedasticity in the fixed effects regression model reports a chi-squared statistic of 5801.18 and a p-value of 0.0000, indicating strong evidence against the null hypothesis of homoskedasticity. This implies that heteroskedasticity is present across the cross-sectional units in the panel, and robust standard errors may be required to correct for bias in inference. The Hausman specification test, with a chi-square value of 6.19 and a p-value of 0.7989, suggests no systematic difference between the fixed and random effects estimates. Given the high p-value, this study fails to reject the null hypothesis, meaning the random-effects model is the preferred specification (Barr, Levy, Scheepers, & Tily, 2013). This choice is justified on efficiency grounds since the assumptions underlying the random-effects model appear valid in this context.

Notably, although the Hausman specification test supported the random effects model, the presence of heteroskedasticity across panels as evidenced by the Modified Wald test necessitates an adjustment to ensure reliable inference. Therefore, the use of Iterated Generalized Least Squares (IGLS) random effects model with heteroskedastic panels is justified for hypotheses testing, as it efficiently accounts for both unobserved firm-specific effects and non-constant error variances across firms. This approach enhances the robustness and consistency of the coefficient estimates and standard errors, thereby strengthening the validity of hypothesis testing in the context of panel data with structural heterogeneity.

Test of Hypotheses

Hypothesis One

Ho_{1a} There is no significant relationship between grey directors' size and idiosyncratic risk of listed manufacturing firms in Nigeria

Hi_{1a} There is significant relationship between grey directors' size and idiosyncratic risk of listed manufacturing firms in Nigeria

The results obtained from the Iterated Generalized Least Squares (IGLS) random effects regression model with heteroskedastic panels reveal that board size of grey directors (GYSIZE) in the main model, exhibits statistically insignificant relationship with firm idiosyncratic risk [Coef. = 0.0163, p = 0.482]. This suggests that, on average and all things being equal, increasing the number of grey directors on the board does not significantly alter the firm's exposure to firm-specific risk. However, in the moderated model, where tax optimization strategy is introduced through the debt tax shield proxy, the interaction term between grey director board size and tax optimization strategy (GYSIZE*TAXOPTT) reveals a negative coefficient [Coef. = -0.0037, p = 0.488], although still statistically insignificant. Similar to these findings, Adhikary et al. (2021) noted that grey directors particularly when occupying multiple board positions may exert complex influence on firm idiosyncratic risk contingent on financial decision environments such as leverage and tax planning intensity. Thus, while the evidence in this study does not confirm a significant role for grey board size in isolation or when moderated by tax optimization, the directional shift is theoretically relevant, especially in markets like Nigeria where governance structures and fiscal strategies interact dynamically in shaping risk outcomes.

Hypothesis Two

Ho_2 There is no significant relationship between grey directors' gender diversity and idiosyncratic risk of listed manufacturing firms in Nigeria

Hi_2 There is significant relationship between grey directors' gender diversity and idiosyncratic risk of listed manufacturing firms in Nigeria

As obtained from the iterated Generalized Least Squares (IGLS) random effects regression with heteroskedastic panels, grey director gender diversity, when examined without interaction, shows statistically insignificant relationship with firm-specific risk [Coef. = 0.0949, p = 0.181]. This outcome suggests that, in isolation, the presence of female grey directors on the board does not significantly alter the idiosyncratic risk profile of listed manufacturing firms in Nigeria. However, when tax optimization strategy, captured through

the debt tax shield is introduced as a moderating factor, the interaction term between gender diversity and tax optimization becomes statistically negatively significant [Coef. = -0.1008, p < 0.001]. This shift implies that, in contexts where debt-financed tax strategies are employed, the involvement of female grey directors may contribute to a reduction in firm-specific volatility. This evidence aligns with the behavioral risk-aversion thesis, which posits that women in governance positions tend to exert a stabilizing influence, particularly in complex financial decision-making environments. It corroborates earlier studies of Pathan and Faff (2013), who reported that greater female board presence relates with lower idiosyncratic risk in U.S. banks, especially when firms engaged in leveraged financial practices. Thus, the moderating role of tax shields not only sharpens the influence of gender diversity but also highlights the conditions under which such governance attributes become materially relevant to risk containment strategies.

The statistically significant inverse relationship observed between grey director nationality and firm-specific idiosyncratic risk both at the main effect and in the presence of tax optimization strategy may be interpreted through the lens of institutional theory and upper echelons theory, particularly within the context of listed manufacturing firms in Nigeria. Weerasinghe, *et al* (2024) documented that non-indigenous grey directors, who often bring diverse professional and cultural experiences, may exert a stabilizing influence on firm risk exposure through enhanced governance neutrality and broader global insights. Institutional theory suggests that such directors may introduce global risk management standards, transparency protocols, and ethical orientations that reduce firm-specific uncertainties (DeGregori, 2019) in volatile environments such as Nigeria's manufacturing sector, which is often exposed to policy inconsistency, infrastructural gaps, and foreign exchange instability. The significant negative relationship further implies that grey directors potentially act as buffers against idiosyncratic shocks by counterbalancing local board biases and encouraging more disciplined financial practices. Bhat and Chen (2021), documented similar outcome and reported that demographic diversity on corporate boards contributes to reduced firm-specific risk in emerging markets, particularly when directors are sourced from institutionalized environments.

CONCLUSION AND RECOMMENDATIONS

This study contributed to this emerging discourse by examining how specific characteristics of grey directors to include gender diversity, and board size interact with tax optimization strategies, especially those centered on debt tax shields, to influence idiosyncratic risk in

Nigerian listed manufacturing firms. Utilizing Iterated Generalized Least Squares (IGLS) random effects model with heteroskedastic panels, the findings reveal an unusual relationship between grey directors attributes and firm-specific risk, providing evidence that the risk impact of governance structures in Nigeria is conditional upon both board composition and the strategic financial tools firms deploy. Overall, the study affirms that in environments characterized by regulatory flux and governance asymmetry, the influence of board-level governance on idiosyncratic risk is neither linear nor uniform, but significantly moderated by the tax strategies and institutional realities confronting Nigerian manufacturing firms.

In view of these findings, the following recommendations have been made:

a. Given that board size of grey directors does not exhibit a statistically significant relationship with firm idiosyncratic risk, either directly or when moderated by tax optimization strategy, stakeholders in the manufacturing industry should exercise caution in formulating or implementing policies aimed specifically at altering grey director board size as a mechanism for managing firm-specific risk.
b. The strong negative significance observed when gender diversity interacts with debt-based tax optimization strategies indicates that gender-inclusive boards, particularly those involving female grey directors, can contribute to enhanced risk moderation when embedded within broader fiscal efficiency frameworks. Therefore, policymakers and corporate governance architects should prioritize gender inclusion in tandem with deliberate financial structuring strategies, especially those leveraging debt-related tax advantages to harness the stabilizing potential of diverse board compositions in high-leverage environments.

REFERENCES

Abdulmalik, S., Ahmad, A. C., & Aliyu, U. B. (2015). Financial reporting quality: The role of independent and grey directors, board continuous training and internal audit. *Global Business Management Review (GBMR)*, *7*(2), 40-57.

Adegboyegun, A. E., & Igbekoyi, O. E. (2022). Board diversity and financial performance of listed manufacturing firms in Nigeria. *Saudi Journal of Business and Management Studies*, *7*(2), 50-60.

Agus, W. B., & Utama, C. A. (2023). Analysis of ESG disclosure & characteristics corporate governance on idiosyncratic risk with busy board as a moderation variable year 2015–2021. *Jurnal Scientia*, *12*(03), 2191-2201.

Alashe, A. K., Raheed, L. O., & Bello, A. O. (2021). The Board Structure and Financial Performance of Selected Listed Consumers' Goods Firms: Evidence from Nigeria. *International Journal of Economics and Financial Management*, *6*(1).

Alekiri, W. C., Ofurum, C. O., & Nwaiwu, J. N. (2023). Board Independence Structure and Financial performance: Evidence from quoted Consumer Goods Firms in Nigeria. *GPH-International Journal of Business Management*, *6*(10), 130-149.

Ali, F. (2025). Does board diversity mitigate firm risk-taking? Empirical evidence from China. *Empirical evidence from China (February 15, 2025)*.

Amana, Y. L., Barde, I. M., & Kantudu, A. S. (2023). Board Attributes, Risk Management Committee and Survival of Listed Manufacturing Firms in Nigeria. *FUDMA Journal of Accounting and Finance Research [FUJAFR]*, *1*(3), 115-135.

Andreou, P. C., Antoniou, C., Horton, J., & Louca, C. (2016). Corporate governance and firm specific stock price crashes. *European Financial Management*, *22*(5), 916-956.

Berezinets, I. V., & Muravyev, A. A. (2024). Disclosure and corporate governance: Evidence from Russian companies. *Russian Journal of Management*, *22*(2), 193-222.

Borokhovich, K. A., Boulton, T. J., Brunarski, K. R., & Harman, Y. S. (2014). The incentives of grey directors: Evidence from unexpected executive and board chair turnover. *Journal of Corporate Finance*, 28, 102-115.

Cao, Y., Feng, Z., Lu, M., & Shan, Y. (2021). Tax avoidance and firm risk: evidence from China. *Accounting & Finance*, *61*(3), 4967-5000.

Ceylan, I. E. (2021). The impact of firm-specific and macroeconomic factors on financial distress risk: A case study from Turkey. *Universal Journal of Accounting and Finance*, *9*(3), 506-517.

Chijoke-Mgbame, A. M., Boateng, A., & Mgbame, C. O. (2020, July). Board gender diversity, audit committee and financial performance: evidence from Nigeria. *Accounting Forum*. 44(3), 262-286). Routledge.

Coles, J. L., Daniel, N. D., & Naveen, L. (2008). Boards: Does one size fit all? *Journal of financial economics*, *87*(2), 329-356.

Datta, S., Iskandar-Datta, M., & Singh, V. (2017). The impact of idiosyncratic risk on accrual management. *International Journal of Managerial Finance*, *13*(1), 70-90.

DeGregori, T. R. (2019). Resources are not; they become: An institutional theory. In *Evolutionary Economics: v. 1* (pp. 291-313). Routledge.

Estiasih, S. P., & Saraswati, R. (2021). Tax planning: as an income tax saving strategy with cost optimization. *Tax Planning: As an Income Tax Saving Strategy with Cost Optimization*, (VII), 1-8.

Fama, E. F., & Jensen, M. C. (1983). Separation of ownership and control. *Journal of Law and Economics*, 26(2), 301-325.

Febrian, W., & Firmansyah, A. (2022). Corporate governance, tax planning and firm risk: empirical study of Indonesian manufacturing companies. *Jurnal Akuntansi dan Bisnis*, *22*(2), 220-242.

Ghafoor, S., Zulfiqar, M., & Khurshid, M. K. (2019). Role of corporate governance to mitigate the idiosyncratic risk in non-financial sector of Pakistan. *European Online Journal of Natural and Social Sciences*, *8*(2), pp-224.

Hair, J. F., Black, W. C., Babin, B. J., & Anderson, R. E. (2010). Multivariate data analysis (7th ed.). Upper Saddle River, NJ: Prentice Hall.

Haugen, S., & Vinnem, J. E. (2015). Perspectives on risk and the unforeseen. *Reliability Engineering & System Safety*, *137*, 1-5.

Hillman, A. J., Cannella, A. A., & Paetzold, R. L. (2000). The resource dependence role of corporate directors: Strategic adaptation of board composition in response to environmental change. *Journal of Management studies*, *37*(2), 235-256.

Hsu, H. H., & Wu, C. Y. H. (2014). Board composition, grey directors and corporate failure in the UK. The British Accounting Review, 46(3), 215-227.

Huang, S., Shi, M., Shi, C., Xu, Z., & Xu, H. (2021, December). Directors' and officers' liability insurance and corporate idiosyncratic risk. In *2021 3rd International Conference on Economic Management and Cultural Industry (ICEMCI 2021)* (pp. 1204-1212). Atlantis Press.

Ihenyen, C. J., & Suwari, P. T. (2022). Management of Risks in Nigerian Firms: Evidence from Service Firms. *Central Asian Journal of Innovations on Tourism Management and Finance*, *3*(3), 13-20.

Jiraporn, P., & Lee, S. M. (2018). How do independent directors influence corporate risk-taking? Evidence from a quasi-natural experiment. *International Review of Finance*, *18*(3), 507-519.

Kamardin, H. (2014). Managerial ownership and firm performance: The influence of family directors and non-family directors. In *Ethics, governance and corporate crime: challenges and consequences* (pp. 47-83). Emerald Group Publishing Limited.

Krifa-Schneider, H., & Sattar, A. (2021). Multinational Corporations' Tax Optimization Strategies and European Union Policies. *Management international*, *25*(5), 69-87.

Lasisi, T. K. (2022). Corporate Governance Traits and Corporate Risk Reporting of Listed Nigerian Financial Services Firms. *Business Excellence and Management*, *12*(1), 43-61.

Li Liao, E. L. C., Shi, A. A., Unite, A. A., & Sullivan, M. J. (2022). Grey Directors on Philippine Corporate Boards. *DLSU Business & Economics Review*, *31*(2).

Lumley, T., Diehr, P., Emerson, S., & Chen, L. (2002). The importance of the normality assumption in large public health data sets. Annual Review of Public Health, 23(1), 151–169.

Mathew, S., Ibrahim, S., & Archbold, S. (2018). Corporate governance and firm risk. *Corporate Governance: The International Journal of Business in Society*, *18*(1), 52-67.

Mohd Ariffin, M. S., Wan Hussin, W. N., & Abdul Malak, S. S. D. (2020). Disclosure of AGM Minutes on Corporate Website: An Assessment of Malaysian Listed Companies. *International Journal of Banking and Finance (IJBF)*, *15*(2), 1-24.

Napitupulu, I. H., Situngkir, A., Basuki, F. H., & Nugroho, W. (2023). Optimizing good corporate governance mechanism to improve performance: case in Indonesia's manufacturing companies. *Global Business Review*, *24*(6), 1205-1226.

Nguyen, L., Le, D., Tran, T., & Dang, T. (2021). Financial reporting quality, corporate governance, and idiosyncratic risk: Evidence from a frontier market. *Australasian Accounting, Business and Finance Journal*, *15*(4), 28-46.

Nguyen, P., Ben Zaied, Y., & Pham, T. P. (2019). Does idiosyncratic risk matter? Evidence from mergers and acquisitions. *The Journal of Risk Finance*, *20*(4), 313-329.

Okolie, A. O., & Uwejeyan, J. C. (2022). Board characteristics and financial performance of conglomerates in Nigeria. *European Journal of Business and Management Research*, *7*(2), 12-18.

Osmani, J., & Doda, S. (2025). Gender diversity: Are women at the strategic level less risk-taking than men? *Risk Gov Control Financ Mark Inst*, *15*, 226-236.

Ozdemir, O., Erkmen, E., & Kim, M. (2020). Corporate social responsibility and idiosyncratic risk in the restaurant industry: does brand diversification matter? *International Journal of Contemporary Hospitality Management*, *32*(9), 2925-2946.

Rahman, H. U., Ali, A., Arian, A., & Sands, J. (2024). Does Corporate Governance and Earning Quality Mitigate Idiosyncratic Risk? Evidence from an Emerging Economy. *Journal of Risk and Financial Management*, *17*(8), 362.

Rego, S. O., & Wilson, R. (2012). Equity risk incentives and corporate tax aggressiveness. *Journal of Accounting Research*, 50(3), 775–810.

Roy, A. (2016). Corporate governance and firm performance: A study of Indian listed firms. *Metamorphosis*, *15*(1), 31-46.

Safonova, M. F., Kalinina, I. N., Vasilieva, N. K., Bershitskiy, Y. I., & Kiselevich, T. I. (2016). Methodology of planning tax expenses. *International Journal of Economics and Financial Issues*, *6*(4), 1550-1559.

Sinebe, M. T. (2024). Boardroom Dynamics and Firm Performance in Nigeria. *Esut Journal Of Social Sciences*, 9(2).

Soelton, M., Ramli, Y., Anggraini, D., & Khosasi, D. (2020). Implementing Good Corporate Governance to Engage Corporate Social Rerponsibility in Financial Performance. *European Research Studies Journal*, *23*(1), 239-258.

Srivastava, N. K. (2015). Does governance structure have any effect on firm performance during the financial crisis: Evidence from selected Indian companies. *Journal of Strategy and Management*, *8*(4), 368-383.

Vieira, E. S., Neves, M. E., & Dias, A. G. (2019). Determinants of Portuguese firms' financial performance: panel data evidence. *International Journal of Productivity and Performance Management*, *68*(7), 1323-1342.

Vozlyublennaia, N. (2013). Do firm characteristics matter for the dynamics of idiosyncratic risk? *Journal of International Financial Markets, Institutions and Money*, *27*, 35-46.

Weerasinghe, A., Chapple, L., & Williamson, A. (2024). Cultural diversity and Indigenous participation on Australian corporate boards: Harder but better decisions. *Accounting & Finance*, *64*(1), 221-246.