



Corporate Governance and Credit Ratings in Nigeria

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Abstract

This study investigates the relation between corporate governance features and corporate credit ratings for a sample of 134 publicly traded firms from Nigeria for the period 2013 to 2022. Corporate governance features considered are foreign ownership, ownership concentration, family ownership, CEO ownership, board size, board independence, board gender, board meetings, board ownership, board remuneration, audit committee size, nomination committee size, remuneration committee size, risk committee size, and audit quality. In contrast to prior literature, credit ratings score is defined as the index of credit ratings factors. Further, the analysis examines the association between corporate governance characteristics and credit ratings. Comparable to general findings from studies using foreign data, the empirical analysis as a whole shows consistent significant link between the corporate governance mechanisms and corporate credit ratings. However, individual corporate governance mechanisms are found to influence corporate credit ratings in some cases. For example, family ownership, board gender, nomination

committee size, and audit quality (big4) show positive significant effects on credit ratings. However, remuneration committee size, leverage and firm size show negative significant effects on credit ratings. Foreign ownership, ownership concentration, board independence, board size, board meetings, board ownership, board remuneration, audit committee size and risk committee size show no significance in relation with credit ratings. Overall, results provide evidence that even under different conditions, corporate governance role vary across credit ratings. Consequently, these findings do not support that uniform board features should be mandated. This study suffers from some limitations. First, the study sample is limited to only 1,340 observations. However, this is due to number of listed firms on main board of the NGX. Second, the study period ended in 2022. Third, although this study examines the effect of corporate governance, not all the governance aspects have been examined in the study models. Nevertheless, this paper is significant to regulators, market players (credit rating agencies), banks, shareholders, and boards of directors, management, lenders (creditors), and a number of other stakeholders. It offers empirical evidence for both policy improvement, performance improvement, future research and it provides additional body of knowledge.

Keywords:

Audit Committee, Audit Quality, Board Gender, Board Independence, Board Ownership, Board Remuneration, Board Size, CEO Ownership, Corporate Governance, Credit Ratings Score, Family Ownership, Foreign Ownership, Nigeria, Nomination committee, Ownership Concentration, Remuneration Committee, Risk Committee.

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INTRODUCTION

There are growing concerns about the behaviour of credit rating agencies in Nigeria and many factors have been traced to be responsible for the changes in credit ratings score. But these scholarly works have continue to generate more inconclusive findings and therefore creating room for more research in these areas. Credit rating has been connected to corporate governance by a number of scholars from outside Nigeria (Alali et al., 2012; Alkhaldeh et al., 2021; Arora, 2020; Ashbaugh-Skaife et al., 2015; Dasilas & Papasyriopoulos, 2015; Sareen & Vij, 2015; Skaife et al., 2004). For example, Alali et al. (2012) investigate whether corporate governance affects firms' credit ratings and whether improvement in corporate governance standards is associated with improvement in investment grade rating among US firms. They find that firms characterized by stronger corporate governance have a significantly higher credit rating, and that this association is accentuated for smaller firms relative to larger firms. They find

that an improvement in corporate governance is associated with improvement in bond rating. Furthermore, Alkhalaf et al. (2021) investigate the role of corporate governance in improving the firms' credit rating using a sample of Jordanian listed firms. The empirical results show that the relationship between the governance variables and credit ratings: the board stockholders and board expertise are moderately significant; the board independence and role duality are weakly significant, while board size is insignificant.

Also, Arora (2020) attempt to discern the relationship between corporate governance and credit ratings by studying the Bombay Stock Exchange listed Indian firms that received a credit rating from CRISIL for their long-term debt during any of the 5 years from 2013–2014 to 2017–2018. The results show that board size, audit committee meetings, ownership concentration, leverage, profitability, firm size, and debt size are significant. In addition, Ashbaugh-Skaife et al. (2015) investigate whether firms with strong corporate governance benefit from higher credit ratings relative to firms with weaker governance. They document, after controlling for firm-specific risk characteristics, that credit ratings are negatively associated with the number of blockholders and CEO power, and positively related to takeover defenses, accrual quality, earnings timeliness, board independence, board stock ownership, and board expertise. They also provide evidence that CEOs of firms with speculative-grade credit ratings are overcompensated to a greater degree than their counterparts at firms with investment-grade ratings, thus providing one explanation for why some firms operate with weak governance.

Furthermore, Dasilas and Papasyriopoulos (2015) elucidate the relationship between corporate governance and credit ratings of large Greek listed firms for the period spanning from 2005 to 2010. Panel regression analysis demonstrates that corporate governance structures play significant role in credit ratings. Moreover, firm-specific determinants such as size, profitability, and asset structure and growth opportunities are also significant determinants of credit ratings. Also, Sareen and Vij (2015) examine the impact of compliance of corporate governance provisions by Indian companies on their long-term credit ratings using the ordinal logit regression model. The results suggest that corporate governance is an important determinant of credit ratings.

Skaife et al. (2004) investigate whether firms that exhibit strong governance benefit from higher credit ratings relative to firms with weaker governance. They document, after controlling for risk characteristics, that firm credit ratings are: (1) negatively associated with the number of blockholders that own at least a 5% ownership in the firm; (2) positively related to weaker shareholder rights in terms of takeover defenses; (3) positively related to the degree of financial transparency; and (4) positively related to over-all board independence, board stock ownership and board expertise, and negatively related to CEO power on the board.

There are no studies, which have examined the nexus between corporate governance and credit rating in Nigeria. For example, Okike (2007) addresses the issue of whether the governance mechanisms in Nigeria are adequate in the face of the changes and challenges in the global corporate scene. The study argues that whilst there is a case for adherence to global corporate governance standards, any Code of Best Practices adopted in Nigeria must reflect its peculiar socio-political and economic environment, whilst at the same time providing the right assurance to prospective and existing shareholders.

Furthermore, Adegbite et al. (2013) examine the influences of international organisations, rating agencies, and local institutions on the development of corporate governance practices in Nigeria. Findings indicate that the understanding and practice of corporate governance in Nigeria are in a flux and being pulled in multiple directions by the agents studied. Also, Kakanda et al. (2017) empirically and theoretically review the relationship between Corporate Governance, risk management, and firm performance. The study review and theoretical evidences have shown that board characteristics (board size, board composition, board meeting, and board expertise) have positive relationship with firm performance. Urhoghide and Omolaye (2017) examine the effect of corporate governance on financial performance of quoted oil and gas companies in Nigeria. The study finds that board size, board gender diversity and corporate governance practices have significant positive impact on financial performance. Board diligence and corporate governance reforms are positive but not significant while board political affiliation has significant negative relationship with financial performance of quoted oil and gas companies in Nigeria.

In addition, Hassan (2011) examines the effect of corporate governance mechanisms on the financial reporting quality of Nigerian banks. The results reveal that governance mechanisms have affected positively and strongly the financial information quality of the Nigerian banks. Sanda et al. (2010) investigate the effects of certain corporate governance mechanisms on the performance of firms listed on the Nigerian Stock Exchange using a sample of 93 firms for the period 1996 through 1999. Their results show an optimal board size of ten, favour concentrated over diffused ownership, and support separation of posts of CEO and chair. Moreover, while director shareholding is found to be an insignificant factor affecting firm performance, the results show expatriate CEOs performing better than their local counterparts. Furthermore, Uwuigbe et al. (2014) examine the effects of corporate governance mechanism on earnings management in Nigeria using a total of 40 listed firms in the Nigerian stock exchange market for the period 2007-2011. Findings from the study reveal that while board size and board independence have a significant negative impact on earnings management; on the other hand, CEO duality had a significant positive impact on earnings management for the sampled firms in Nigeria. Ahunwan (2002) provides an account of the nature of corporate governance in Nigeria and investigates the prospects for recent reforms contributing to more responsible governance and development.

Also, John and Ogechukwu (2018) investigate the effect of corporate governance on financial distress in the Nigerian banking industry and examines the discriminatory power of corporate governance mechanism of the board, audit committee, executive management and auditor in one model for financial distress prediction using annual financial statements of twenty banks between 2005 and 2015. The empirical evidence from the study suggests that financially distressed banks are characterized by large board size with members who may not be well versed in banking complexities, chairmen and CEOs with significant shareholding both individually and collectively. Furthermore, the evidence also shows that distressed banks suffer major decline in customer deposits despite increase in size. Nworji et al. (2011) investigate issues, challenges and opportunities associated with corporate governance and Bank failure in Nigeria and to see if a significant relationship exists between corporate governance and banks failure. The result of the findings reveals that the new code of corporate governance for banks is adequate to curtail bank

distress. It is evidence from the empirical studies carry out in Nigeria, that there are no single empirical studies on the nexus between corporate governance and credit ratings. The motivation of this paper is to fill this research gap.

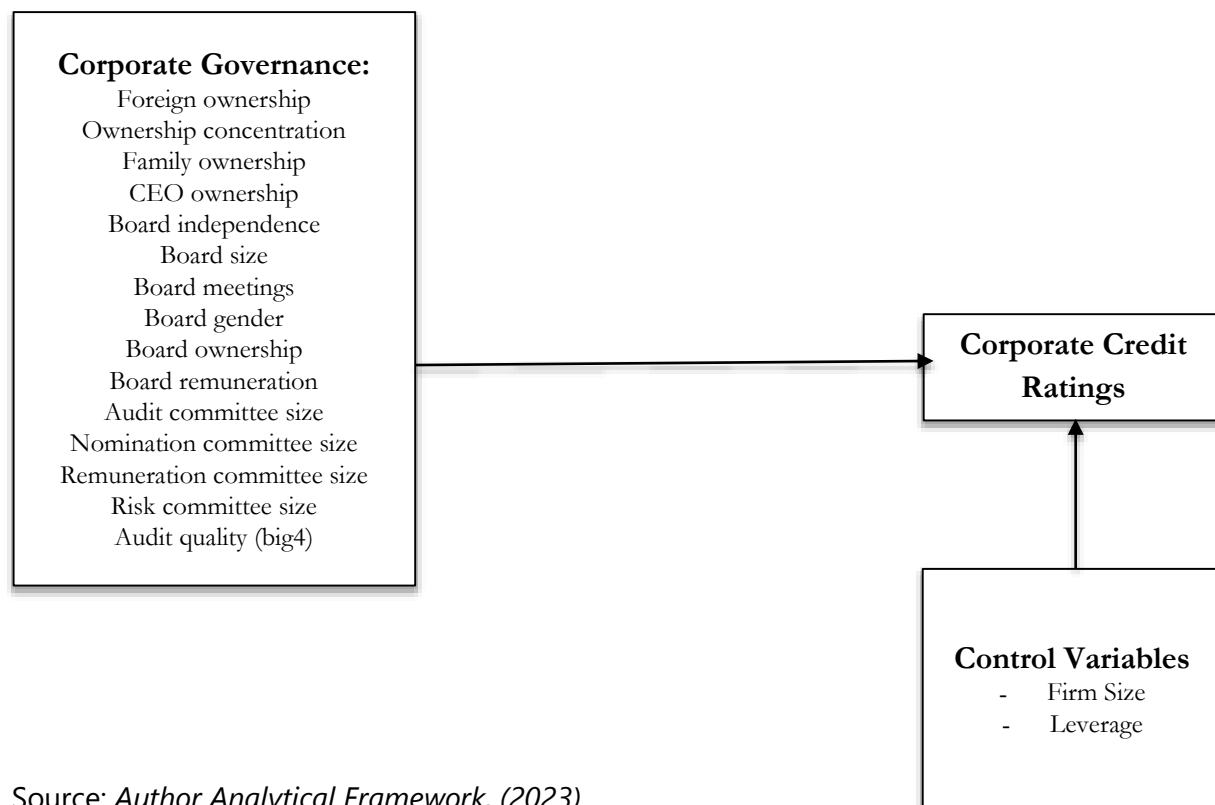
Credit ratings research explains and predicts how credit ratings are assigned by the issuer at a given time, based on observable covariates that affect the credit quality of firms (Duffie & Singleton, 2003). While techniques have evolved, much of the literature relies on conventional models (standard logit/probit models and linear. This paper uses a Generalised Method of Moments (GMM) to estimate the effect of corporate governance on credit ratings in Nigeria. The corporate governance variables considered in this study based on empirical literature from outside Nigeria are board size, board independence, board gender, board meetings, board ownership and board remuneration. Credit ratings score used in this paper is based on an index derived from the ability of a firm to pay back its debts addressing leverage and liquidity problems. This paper is significant to regulators, market players (credit rating agencies), banks, shareholders, and boards of directors, management, lenders (creditors), and a number of other stakeholders. It offers empirical evidence for both policy improvement, performance improvement, future research and it provides additional body of knowledge. In terms of scope, the data is obtained from 2013 to 2022. The variables are limited to corporate governance characteristics and credit rating score.

The remainder of the paper is organized into four sections. Section 2 presents literature review, covering both conceptual, theoretical and empirical literature. Section 3 presents the methodology, covering research design, population and sample, sources and methods of data collection, analyses and post estimations diagnostics. Section 4 presents the descriptive statistics, results of diagnostics, correlation matrix and regression results. Section 5 presents the conclusions, drawn based on the empirical results and offers both policy and performance improvement recommendations based on the conclusions.

LITERATURE REVIEW

The agency theory has been widely adopted in diverse studies by scholars to provide theoretical understanding of what determines credit ratings score in empirical literature. Basically, agency theory posits that companies' corporate governance mechanisms exist in order to protect or maximise the interests of shareholders. Agency theory, therefore, focuses in resolving conflicts of interest between shareholders and management. Thus, the analytical framework for this study will further be explained by the agency theory. The agency theory is the most widely used theory to explain corporate governance. Agency theory is derived from the concept of stewardship accounting, which recognizes that the shareholders are Principals, while the management of the firm are the Agents. To put it clearly, agency theory is a principle that is used to explain and resolve issues in the relationship between business principals and their agents. Most commonly, that relationship is the one between shareholders, as principals, and company executives, as agents.

Agency theory was developed by Jensen and Meckling (1976). They suggested a theory of how the governance of a company is based on the conflicts of interest between the company's owners (shareholders), its managers and major providers of debt finance. Each of these groups has different interests and objectives. The score of credit ratings made by a company will depend on a good corporate governance system in place. With corporate governance attributes, a firm which is generally accepted with a high corporate governance will want to maintain its stewardship with stakeholders, specifically, shareholders by way of high credit ratings. In effect, with corporate governance attributes, organizations seek to ensure that they operate within the bounds and norms of the society and serve the owners well by projecting a high credit ratings score. Corporate governance can be used to change the rules under which the agent operates and restore the principal's interests. The principal, by employing the agent to represent the principal's interests, must overcome a lack of information about the agent's performance. Agents must have incentives encouraging them to act in unison with the principal's interests. Figure 1 illustrates the interaction with credit ratings score and corporate governance characteristics (which include foreign ownership, family ownership, ownership concentration, board size, board independence, board meetings, board gender, board ownership, board remuneration, CEO ownership, audit quality, audit committee, nomination committee, remuneration committee, and risk committee).



Source: *Author Analytical Framework, (2023).*

In terms of corporate governance characteristics, there are various views on the concept. Some authors proxy corporate governance by board size. In conformity with previous studies that measured board size by the total number of company directors (Cheng, 2008; Karamanou & Vafeas, 2005; Kumar & Singh, 2012; Parsa & Kouhy, 2008), this study employs the number of members on the board as a measure of board size (BS). Others view it from board independence

(Ahmed & Duellman, 2007; Bhagat & Black, 2001; Boone et al., 2007; Hermalin & Weisbach, 2001; Krishnan, 2005; Kumar & Singh, 2012). In this study, consistent with the aforesaid studies, board independence (BIND) is operationalised as the proportion of independent non-executive directors (NEDs) to the total number of board members (Number of independent non-executive board members divided by total number of board members).

Furthermore, there is board meetings measured by the number of times the board meets in a given year. There is board gender diversity, measured by the number of female directors sitting on the board. There is also board ownership, measured by the total directors direct and indirect shares owned divided by total numbers of shares (%). There is board remuneration, measured as total director remuneration divided by sales or revenue (%). There is CEO ownership, measured as number of CEO shares divided by total numbers of shares (%). There is also audit quality, measured as dummy where "1" is assigned to companies that use PWC, Deloitte, E&Y and KPMG as external auditors and "0" otherwise. Furthermore, there is audit committee size, measured as the total directors and non-directors in the audit committee. There is nomination committee size, measured as is the total directors and non-directors in the board nomination committee.

Also, there is remuneration committee size, measured as is the total directors and non-directors in the board remuneration committee. There is risk committee size, measured as the total directors and non-directors in the board risk committee. In conclusion, following the past literature, it is clear that corporate governance is seen from the perspective of foreign ownership, family ownership, ownership concentration, board size, board independence, board meetings, board gender, board ownership, board remuneration, audit quality, audit committee, nomination committee, remuneration committee, and risk committee. In terms of corporate credit ratings score, there is oneness on the concept. Scholars have proxy corporate credit ratings as the ability to pay back thereby reducing leverage and improving liquidity (Alali et al., 2012; Alkhaldeh et al., 2021; Arora, 2020; Ashbaugh-Skaife et al., 2015; Dasilas & Papasyriopoulos, 2015; Sareen & Vij, 2015; Skaife et al., 2004).

In order to understand the relationship between corporate governance characteristics considered in this study and credit ratings, there have been various studies conducted outside Nigeria. For example, Alali et al. (2012) investigate whether corporate governance affects firms' credit ratings and whether improvement in corporate governance standards is associated with improvement in investment grade rating among US firms. They find that firms characterized by stronger corporate governance have a significantly higher credit rating. Furthermore, Alkhaldeh et al. (2021) investigate the role of corporate governance in improving the firms' credit rating using a sample of Jordanian listed firms. The empirical results show that board stockholders and board expertise are moderately significant; board independence and role duality are weakly significant, while board size is insignificant.

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Furthermore, Dasilas and Papasyriopoulos (2015) elucidate the relationship between corporate governance and credit ratings of large Greek listed firms for the period spanning from 2005 to 2010. Panel regression analysis demonstrates that corporate governance structures play significant role in credit ratings. Also, Sareen and Vij (2015) examine the impact of compliance of corporate governance provisions by Indian companies on their long-term credit ratings using the ordinal logit regression model. The results suggest that corporate governance is an important determinant of credit ratings. Skaife et al. (2004) investigate whether firms that exhibit strong governance benefit from higher credit ratings relative to firms with weaker governance. They document that firm credit ratings are negatively associated with the number of blockholders that own at least a 5% ownership in the firm; and positively related to board independence, board stock ownership and board expertise, and negatively related to CEO power on the board.

On the basis of these aforementioned empirical studies, the following hypotheses are stated and tested:

H₁: Foreign ownership has no significant effect on corporate credit ratings in Nigeria.

H₂: Family ownership has no significant effect on corporate credit ratings in Nigeria.

H₃: Ownership concentration has no significant effect on corporate credit ratings in Nigeria.

H₄: Board size has no significant effect on corporate credit ratings in Nigeria.

H₅: Board independence has no significant effect on corporate credit ratings in Nigeria.

H₆: Board meetings have no significant effect on corporate credit ratings in Nigeria.

H₇: Board gender has no significant effect on corporate credit ratings in Nigeria.

H₈: Board ownership has no significant effect on corporate credit ratings in Nigeria.

H₉: Board remuneration has no significant effect on corporate credit ratings in Nigeria.

H₁₀: CEO ownership has no significant effect on corporate credit ratings in Nigeria.

H₁₁: Audit quality (Big4) has no significant effect on corporate credit ratings in Nigeria.

H₁₂: Audit committee size has no significant effect on corporate credit ratings in Nigeria.

H₁₃: Nomination committee size has no significant effect on corporate credit ratings in Nigeria.

H₁₄: Remuneration committee size has no significant effect on corporate credit ratings in Nigeria.

H₁₅: Risk committee size has no significant effect on corporate credit ratings in Nigeria.

The remainder of the paper is organized into three sections. Section 3 presents the methodology, covering research design, population and sample, sources and methods of data collection, analyses and post estimations diagnostics. Section 4 presents the descriptive statistics, results of diagnostics, correlation matrix and regression results. Section 5 presents the conclusions, drawn based on the empirical results and offers both policy and performance improvement recommendations based on the conclusions.

METHODOLOGY

This section explains the techniques and approach employed in carrying out the empirical study on the nexus between corporate governance and credit ratings in Nigeria. To this end, the section begins with the research design, closely followed by the population of the study. This is followed by the sample size and sampling techniques, before we have a method of data collections which is closely followed by model specification and technique of data analysis. In this study, the research method adopted was an expo-facto type of research and content analysis technique. The study is longitudinal covering a period of ten (10) years. That is, from 2013 to 2022 employing companies quoted in the Nigerian Exchange.

The population of the study consists of all the one hundred and thirty four (134) companies quoted on the main board of the Nigerian as at 31st December, 2022. The financial statements of these quoted firms were statutorily published and made available to the general public. The sampling technique employed was purposive since companies were included in the sample if they meet the criteria for selection. These criteria were based on: the companies are quoted on the Nigerian Exchange for 2013-2022; there were access to their annual financial reports within the period. Thus, only firms that had all relevant data due to continuous existence. Our final sample size as aforementioned was arrived at based on the availability of data for ten years for all the research variables. This chosen sample size for the study is thus, consistent or in line with the suggestion made by Kerjice and Morgan (1970) that a minimum of five percent (5%) of a defined population is considered as being adequate sample size required for generalization. The sample is 86%.

The study uses secondary data (historical data) collected in respect of the variable captured covering the time frame of ten years (2013 to 2022) which were obtained from the financial statements and accounts of the sampled firms. Most previous studies have used annual financial statements. According to Gray et al (1995), annual financial statements is the main official and legal document produced by companies on a regular basis and an important medium for their communications. Companies exercise control over the annual financial statements to prevent any possible journalistic information distortion or interpretation (Gray et al 1995). According to Tilt (2001) financial statements are mandatory by legislation to be regularly produced particularly by all quoted corporate entities and by these facts making comparisons quite easy or simple. In this study, secondary data will be used. Table 1 is a report of variables, their definitions and measurements.

Table 1 Variables, Definitions, and Measurements

S/N	Variables	Notation and Sources	A priori
	CRS	AAA (4), BBB (3), CCC(2), DDD(1)	
1	Foreign ownership	FO, measured as dummy where "1" is assigned when there is 5% and above block foreign institutional shareholders and "0" for otherwise.	+
2	Ownership concentration	OC, measured as the total number of block shareholders with 5% and above ownership.	-
3	Family ownership	FAO, measured as the shares ownership concentration of all single individuals with block shareholding of 5% and above	-
4	Board Size	Board Size (BS) was measured by the number of directors sitting on the board. (Parsa & Kouhy, 2008)	+/-
5	Board Independence	Board Independence (BI) is measured using number of independent non-executive board members divided by total number of board members (Ienciu, 2012)	+
6	Board Meetings	BM, measured as the number of the board meetings held by the board of directors in a year.	+/-
7	Board Gender	(iv) Board Gender Diversity (BGD) measurement is by the number of female directors sitting on the board (Rao, Tilt & Lester 2012)	+/-
8	Board ownership	BO, measured as directors' direct and indirect shares divided by the numbers of shares (%).	+ ₋
9	Board remuneration	BR, measured as total director remuneration divided by sales or revenue (%)	+
10	Audit committee size	ACS, measured as is the total directors and non-directors in the audit committee	-
11	Nomination committee size	NCS, measured as is the total directors and non-directors in the board nomination committee	+
12	Remuneration committee size	RCS, measured as is the total directors and non-directors in the board remuneration committee	+
13	Risk committee size	RICS, measured as is the total directors and non-directors in the risk committee	+
14	Audit quality (big4)	AQ, measured as dummy where "1" is assigned to companies that use PWC, Deloitte, E&Y and KPMG as external auditors and "0" otherwise	+
15	CEO ownership	CO, measured as CEO direct and indirect shares divided by numbers of shares (%)	+

Source: *Author's Compilation (2016)*

In this study, the model specified captures corporate governance attributes and the extent of credit ratings adapted from Alkhawaldeh et al. (2021), which was modified for the purpose of establishing the relationship between dependent variables and the combinations of several independent variables captured in the study. The model reflect the identified corporate governance attributes and the extent of credit ratings. The model is specified as:

$$CRS_{i,t} = \beta_0 + \beta_1FO_{i,t} + \beta_2OC_{i,t} + \beta_3FAO_{i,t} + \beta_4CO_{i,t} + \beta_5BS_{i,t} + \beta_6BI_{i,t} + \beta_7BG_{i,t} + \beta_8BM_{i,t} + \beta_9BO_{i,t} + \beta_{10}BR_{i,t} + \beta_{11}ACS_{i,t} + \beta_{12}NCS_{i,t} + \beta_{13}RCS_{i,t} + \beta_{14}RICS_{i,t} + \beta_{15}AQ_{i,t} + \beta_{16}LEV_{i,t} + \beta_{17}FS_{i,t} + \epsilon_{i,t}$$

Whereas:

β_0 = Constant

β_{1-17} = Beta coefficients

i = Firms script (in this case, i = 134 firms)

t = Time script (In this case, t = 10 years)

ϵ_t = Idiosyncratic error term

Consequently, the model examines corporate governance characteristics and the extent of credit ratings. Thus, our *a priori* Expectations are stated as:

Whereas:

$X_1 > 0$: A rise in foreign ownership will lead to increase in credit ratings;

$X_2 < 0$: A rise in ownership concentration will lead to decrease in credit ratings;

$X_3 < 0$: A rise in family ownership will lead to decrease in credit ratings;

$X_4 > 0$: A rise in CEO ownership will lead to increase in credit ratings;

$X_5 > 0$: A rise in board size will lead to increase in credit ratings;

$X_6 > 0$: A rise in board independence will lead to increase in credit ratings;

$X_7 > 0$: A rise in board gender will lead to increase in credit ratings;

$X_8 > 0$: A rise in board meetings will lead to increase in credit ratings;

$X_9 > 0$: A rise in board ownership will lead to increase in credit ratings;

$X_{10} > 0$: A rise in board remuneration will lead to increase in credit ratings;

$X_{11} > 0$: A rise in audit committee size will lead to a corresponding rise in credit ratings;

$X_{12} > 0$: A rise in nomination committee size will lead to a corresponding rise in credit ratings;

$X_{13} > 0$: A rise in remuneration committee size will lead to a corresponding rise in credit ratings;

$X_{14} > 0$: A rise in risk committee size will lead to a corresponding rise in credit ratings;

$X_{15} > 0$: A rise in audit quality will lead to a corresponding rise in credit ratings.

The econometric techniques adopted in this study is the ordered logistic panel regression technique. The rationale for its usage is based on the following justifications: the dependent variable is ordered (1, 2, 3, 4); the data collected is paneled (balanced). Ordered logistic panel data regression provides better results in these scenarios (Muhammad, 2012). The individual statistical significance test (T-test) and overall statistical significance test (F-test) will also be used for the goodness of fit of the model and the coefficient of determination (R^2 is used to measure the degree of explanation by the independent (CG) and control variables (leverage and firm size) in the variations in the dependent variable (credit ratings). Our data analysis will be done after descriptive statistics, diagnostic tests, and correlation analysis. All analyses would be conducted at 5% level of significance using STATA 16 software.

In the case of test of normality of residuals, the Kdensity estimate determines if the data series were normally distributed by aligning with normal distribution line. If the residuals is normally distributed, then the graph must be well shaped. In that case, a series would be normally distributed if the graph aligns well with normal distribution curve. In addition, multicollinearity occurs in multiple regression models. This is a situation where two or more independent variables are 'collinear', that is, when they exist exactly depending on the number of independent variables. If it is found in multiple regression analysis that some of the independent variables are highly intercorrelated, then the problem of multicollinearity has occurred. In a null shell, if multicollinearity is found among the independent variables, it means that they are perfectly correlated. If perfect correlation occurred between the explanatory variables, the parameter coefficients will therefore be indeterminate. When multicollinearity occurred, there must be large

standard errors of the estimated coefficients. When this violation happens, it is certainly not a problem of the model or the disturbance term and thus, does not affect the Best Linear unbiased Estimators (BLUE) properties of the model. We employ two (2) different statistical instruments to test for the degree of multicollinearity (correlation and variance inflation factors). If the correlation coefficient is up to 80 percent, multicollinearity is a serious source of concern and in that case, the variance inflation result is above 10.

Heteroskedasticity refers to nonexistence of homoscedasticity and it is a constant variance assumption. It means absence or nonexistence of non-constant variance resulting in the breakdown of Best Linear Unbiased Estimators properties by which consistency and efficiency properties are lost. When Breusch-Pagan-Godfrey test or White test is carried out, the decision rule therefore, is that there is no heteroskedasticity if the F- statistics and the observed R-square values are in that order greater than the critical values at 5% level of significance. Conversely, if the critical values at 5% level of significance is greater than the F- statistics and the observed R-square values, our conclusion would be that there is homoscedasticity. Model specification error test check whether there is or are specification errors in the model. This helps us to correctly specific the model used by the study. The remainder of the paper is organized into two sections. Section 4 presents the descriptive statistics, results of diagnostics, correlation matrix and regression results. Section 5 presents the conclusions, drawn based on the empirical results and offers both policy and performance improvement recommendations based on the conclusions.

RESULTS AND DISCUSSIONS

Table 2 is a report of the descriptive statistics of the variables of interest in the study. Descriptive statistics are summaries and they provide scholars with the first hand opportunity to review the variables and determine the appropriate cause of action, specifically, in the choice of regression method(s).

Table 2 Descriptive Statistics

Variable	Obs	Mean	Std. Dev.	Min	Max
CRS	1340	2.127	1.139	1	4
FO	1340	.452	.498	0	1
OC	1340	34.663	24.699	0	91
FAO	1340	2.055	3.311	0	9
CO	1340	1.143	2.445	0	16.131
BI	1340	73.244	13.119	16.67	100
BG	1340	15.553	13.364	0	66.67
BS	1340	9.239	3.155	3	21
BM	1340	4.901	1.75	1	16
BO	1340	22.736	28.557	0	138.9
BR	1340	1.157	1.992	.009	11.463
ACS	1340	6.054	.452	4	9
NCS	1340	.53	1.417	0	9
RCS	1340	1.167	1.854	0	8
RICS	1340	6.943	2.304	0	14
AQ	1340	.553	.498	0	1
LEV	1340	70.976	46.67	.67	395.45
SIZE	1340	4.859	1.015	2.62	7.45

Source: STATA 16 Outputs

From Table 2, the number of observations is 1,340 arising from 2013 to 2022 (10 years) coverage multiplied by the 134 firms. The dependent variable (*CRS*) averages 2.127, with a standard deviation of 1.139, suggesting that the degree of volatility is 53.55 percent ($1.139/2.127$). This is considered to be high, given the concept of averaging, in which a figure above 50 percent is seen as high. Furthermore, the minimum and maximum means are 1 and 4, respectively. Also, foreign ownership (*FO*) averages .452, which is less than 1, suggesting that foreign shareholders hold less than 5 percent equity interests in the firms studied. The standard deviation is .498, suggesting that the degree of volatility is extremely high at 110 percent ($.498/.452$). This is considered to be too high, suggesting that foreign shareholders are volatile among the firms studied. Furthermore, the minimum and maximum means are 0 and 1, respectively.

Furthermore, from Table 2, ownership concentration (*OC*) averages 34.66, which suggests that 34.66 percent of the firms under consideration in this paper have owners with a minimum of 5 percent shareholding. However, it has a standard deviation of 24.669, suggesting that the degree of volatility is 71.25 percent ($24.669/34.663$). This is considered to be high, given the concept of averaging, in which a figure above 50 percent is seen as high. Furthermore, the minimum and maximum means are 0 and 91 percent, respectively. Also, family ownership (*FAO*) averages 2.055, which suggests that 2.1 percent of the firms under consideration in this paper have family held shares of a minimum of 5 percent. However, it has a standard deviation of 3.311 percent, suggesting that the degree of volatility is 161 percent ($3.311/2.055$). This is considered to be extremely high and therefore attract the attention of stakeholders. Furthermore, the minimum and maximum means are 0 and 9 percent, respectively.

In addition, from Table 2, CEO ownership (*CO*) averages 1.143, which suggests that 1.14 percent of the firms under consideration in this paper have CEOs with about 1 percent shareholding. However, it has a standard deviation of 2.445, suggesting that the degree of volatility is 214 percent ($2.445/1.143$). This is considered to be extremely high, it, therefore, requires the attention of management. Furthermore, the minimum and maximum means are 0 and 16.13 percent, respectively. Also, board independence (*BI*) averages 73.244, which suggests that 73 percent of the firms under consideration in this paper have boards made up of largely independent and non-executive directors. However, it has a standard deviation of 13.12 percent, suggesting that the degree of volatility is low at 18 percent ($13.12/73.244$). This is considered to be friendly. Furthermore, the minimum and maximum means are 16.67 and 100 percent, respectively.

Also, Table 2 shows that board gender (*BG*) averages 15.553 which suggests that about 15.55 percent of the firms under consideration in this paper have at least a woman on their boards. However, it has a standard deviation of 13.364, suggesting that the degree of volatility is 86 percent ($13.364/15.553$). This is considered to be extremely high; it therefore, requires the attention of management. Furthermore, the minimum and maximum means are 0 and 16.13 percent, respectively. Also, board size (*BS*) averages 9 members, which suggests that the firms under consideration in this paper have average boards size made up of 9 members. However, it has a standard deviation of 3 percent, suggesting that the degree of volatility is low at .334 percent ($3/9$). This is considered to be friendly. Furthermore, the minimum and maximum means are 3 and 21 members, respectively.

Similarly, board meetings (BM) averages 5 times, which suggests that the firms under consideration in this paper have average boards meetings made up of 5 times. However, it has a standard deviation of 2 times, suggesting that the degree of volatility is low at 36 percent (1.75/4.901). This is considered to be friendly. Furthermore, the minimum and maximum means are 1 and 16 times, respectively. Also, board ownership (BO) averages 22.736 percent, which suggests that the about 23 percent of the equity of the firms under consideration are held board members. However, it has a standard deviation of 28.557 percent, suggesting that the degree of volatility is extremely high at 126 percent (28.557/22.738). Furthermore, the minimum and maximum means are 0 and 100 percent, respectively.

In addition, board remuneration (BR) averages 1.157 percent, which suggests that the firms under consideration in this paper have average boards' remuneration of 1.2 percent. However, it has a standard deviation of 1.992 percent, suggesting that the degree of volatility is extremely high at 172 percent (1.992/1.157). Furthermore, the minimum and maximum means are .009 and 11.463 percent, respectively. Similarly, audit committee size (ACS) averages 6 members, which suggests that the firms under consideration in this paper have average audit committee members of 6. However, it has a standard deviation of a member, suggesting that the degree of volatility is not worrisome. Furthermore, the minimum and maximum means are 4 and 9 members, respectively. Also, nomination committee size (NCS) averages 1 member, which suggests that the firms under consideration in this paper have average nomination committee member of 1. However, it has a standard deviation of a member, suggesting that the degree of volatility is extremely high. Furthermore, the minimum and maximum means are 0 and 9 members, respectively. This is to say that some of the firms under review in this study do not have nomination committee at all. In addition, remuneration committee size (RCS) averages 1 member, which suggests that the firms under consideration in this paper have average nomination committee member of 1. However, it has a standard deviation of 2 members, suggesting that the degree of volatility is worrisome. Furthermore, the minimum and maximum means are 0 and 8 members, respectively.

In the same vein, risk committee size (RICS) averages 7 members, which suggests that the firms under consideration in this paper have average nomination committee members of 7. However, it has a standard deviation of 2 members, suggesting that the degree of volatility is not worrisome. Furthermore, the minimum and maximum means are 0 and 14 members, respectively. Finally, among the corporate governance attributes, audit quality (AQ), which means in this study firms using one of the big4 auditors .553. However, it has a standard deviation of .498, suggesting that the degree of volatility is worrisome (90 percent). Furthermore, the minimum and maximum means are 0 and 1 members, respectively.

On the control variables, leverage (LEV) averages 71 percent, which suggests that the firms under consideration in this paper have average leverage of 71 percent. However, it has a standard deviation of 47 percent, suggesting that the degree of volatility (66 percent) is worrisome. Furthermore, the minimum and maximum means are 67 percent and 395.45 percent. In the same vein, firm size (SIZE) averages 4.859, with standard deviation of 1.015, suggesting that the degree of volatility is not worrisome. Furthermore, the minimum and maximum means are 2.62 and 7.45. Furthermore, we conduct correlation analysis and the results are reported in Table 3.

Table 3: Correlation Matrix

Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	
(1) CRS	1.000																		
(2) FO	-0.045 (0.253)	1.000																	
(3) OC	0.013 (0.737)	0.471*	1.000																
(4) FAO	0.110* (0.005)	-0.127*	0.210*	1.000															
(5) CO	0.037 (0.343)	-0.048 (0.221)	0.053 (0.179)	0.178* (0.000)	1.000														
(6) BI	0.094* (0.016)	-0.141* (0.000)	-0.131* (0.001)	-0.069 (0.078)	-0.003 (0.936)	1.000													
(7) BG	0.122* (0.002)	-0.041 (0.300)	-0.046 (0.238)	-0.020 (0.607)	-0.101* (0.010)	0.135* (0.001)	1.000												
(8) BS	0.037 (0.352)	0.002 (0.967)	0.013 (0.732)	-0.037 (0.348)	-0.005 (0.905)	0.059 (0.135)	0.113* (0.004)	1.000											
(9) BM	-0.026 (0.514)	0.035 (0.381)	0.162* (0.000)	-0.021 (0.595)	-0.048 (0.235)	0.011 (0.780)	0.102* (0.011)	0.334* (0.000)	1.000										
(10) BO	-0.031 (0.430)	0.063 (0.110)	-0.013 (0.733)	-0.021 (0.597)	0.047 (0.228)	-0.012 (0.754)	-0.011 (0.771)	-0.075 (0.058)	-0.058 (0.145)	1.000									
(11) BR	0.060 (0.125)	-0.231* (0.000)	0.323* (0.000)	0.311* (0.000)	0.405* (0.000)	0.053 (0.175)	0.003 (0.940)	0.102* (0.009)	0.007 (0.855)	0.005 (0.907)	1.000								
(12) ACS	-0.013 (0.735)	0.062 (0.111)	0.098* (0.012)	0.024 (0.546)	-0.130* (0.001)	-0.094* (0.017)	-0.044 (0.267)	-0.004 (0.926)	0.117* (0.003)	0.029 (0.465)	-0.148* (0.000)	1.000							
(13) NCS	0.040 (0.318)	-0.062 (0.120)	0.010 (0.811)	0.037 (0.358)	0.112* (0.005)	0.076 (0.058)	-0.106* (0.008)	0.051 (0.204)	-0.027 (0.511)	0.104* (0.009)	0.117* (0.003)	-0.043 (0.283)	1.000						
(14) RCS	-0.073 (0.067)	-0.150* (0.000)	-0.076 (0.056)	0.003 (0.946)	0.063 (0.112)	0.011 (0.781)	-0.072 (0.072)	-0.064 (0.111)	-0.103* (0.011)	0.046 (0.244)	0.121* (0.002)	-0.035 (0.378)	0.309* (0.000)	1.000					
(15) RICS	0.016 (0.690)	0.143* (0.000)	0.056 (0.150)	-0.036 (0.358)	-0.002 (0.961)	-0.024 (0.548)	0.015 (0.696)	-0.003 (0.935)	0.102* (0.010)	0.138* (0.000)	-0.227* (0.000)	0.106* (0.007)	-0.051 (0.204)	-0.004 (0.929)	1.000				
(16) AQ	0.071 (0.071)	0.017 (0.661)	0.042 (0.289)	-0.011 (0.785)	-0.069 (0.078)	0.078* (0.049)	0.239* (0.000)	0.347* (0.000)	0.288* (0.000)	-0.277* (0.000)	-0.029 (0.456)	-0.033 (0.401)	-0.102* (0.011)	-0.121* (0.002)	-0.056 (0.156)	1.000			
(17) LEV	-0.405* (0.000)	-0.064 (0.103)	-0.027 (0.486)	0.105* (0.008)	-0.071 (0.071)	-0.060 (0.131)	0.055 (0.165)	-0.139* (0.000)	0.001 (0.976)	0.051 (0.192)	-0.050 (0.201)	0.024 (0.546)	-0.032 (0.416)	-0.059 (0.136)	-0.045 (0.255)	-0.065 (0.100)	1.000		
(18) SIZE	-0.082* (0.036)	0.116* (0.003)	0.089* (0.024)	-0.057 (0.150)	0.010 (0.804)	-0.107* (0.007)	0.160* (0.000)	0.638* (0.000)	0.379* (0.000)	-0.204* (0.000)	0.041 (0.297)	-0.012 (0.757)	-0.026 (0.521)	-0.099* (0.013)	-0.014 (0.723)	0.538* (0.000)	-0.018 (0.641)	1.000	

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.1$

From Table 3, it shows that the bivariate relationship between foreign ownership, board meetings, board ownership, audit committee size, remuneration committee size, on one hand and credit ratings, on the other hand, are negative but insignificant. Also, it shows that the bivariate relationship between ownership concentration, CEO ownership, board size, board remuneration, nomination committee size, risk committee size, big4, on the one hand and credit ratings, on the other hand, are positive but insignificant. However, it shows that the bivariate relationship between family ownership, board independence, board gender and credit ratings are positive but significant. In contrast, it shows that the bivariate relationship between leverage, firm size and credit ratings are positive and significant. Furthermore, the highest beta coefficient in Table 3 is .471, which is, between CRS and OC, which is not up to .80, meaning that the level of multicollinearity is not worrisome. This result is supported by the results in Table 4 as follows.

Table 4 Results of Multicollinearity Test (Variance inflation factor)

	VIF	1/VIF
SIZE	2.347	.426
OC	2.033	.492
BR	2.021	.495
BS	1.816	.551
FO	1.802	.555
AQ	1.621	.617
CO	1.295	.772
BM	1.275	.785
FAO	1.208	.828
BO	1.183	.846
RCS	1.179	.848
NCS	1.168	.856
RICS	1.144	.874
BI	1.112	.9
BG	1.11	.901
ACS	1.087	.92
LEV	1.074	.931
Mean VIF	1.44	.

STATA 16 Outputs

From Table 4, it is clear that the level of collinearity among independent and control variables is not worrisome, that is, it is not up to 10. In fact, the mean VIF is 1.44. We also carry out heteroskedasticity test and the results are reported in Table 5 as follows.

Table 5 Results of Heteroskedasticity of Residuals Test

White's test for Ho: homoskedasticity

against Ha: unrestricted heteroskedasticity

chi2(168) = 241.24

Prob > chi2 = 0.0002

Cameron & Trivedi's decomposition of IM-test

Source	chi2	df	p
Heteroskedasticity	241.240	168	0.000
Skewness	59.090	17	0.000
Kurtosis	55.480	1	0.000
Total	355.810	186	0.000

STATA 16 Outputs

From Table 5, it is clear that the p-value of heteroskedasticity is .000, which is less than the threshold of .05. Therefore, there is presence of heteroskedasticity in the study model. This result requires robustness regression during the final regression. Furthermore, we carry put Panel Ordered Logistic Regression, because the data is panel but credit ratings, which is the dependent variable in the paper is ordered. The results of panel ordered logistic regression analysis are reported in Table 6 as follows:

Table 6 Results of Panel Ordered Logistic Regression

CRS	Coef.	Robust St.Err.	t-value	p-value	[95% Conf Interval]	Sig
FO	-.2926466	.1861878	-1.57	0.116	-.6575679 .0722747	
OC	.0041279	.0044814	0.92	0.357	-.0046555 .0129112	
FAO	.0799079	.0263864	3.03	0.002	.0281916 .1316243	***
CO	.009384	.0354453	0.26	0.791	-.0600874 .0788554	
BI	.0029166	.0066673	0.44	0.662	-.0101512 .0159843	
BG	.023661	.0062109	3.81	0.000	.0114879 .035834	***
BS	-.0068757	.0357214	-0.19	0.847	-.0768884 .0631369	
BM	-.0104921	.0562923	-0.19	0.852	-.1208229 .0998387	
BO	-.0006114	.0032191	-0.19	0.849	-.0069208 .005698	
BR	-.0060508	.0620367	-0.10	0.922	-.1276406 .1155389	
ACS	-.0673691	.1680046	-0.40	0.688	-.396652 .2619137	
NCS	.0980713	.0530048	1.85	0.064	-.0058162 .2019588	*
RCS	-.1386156	.0477482	-2.90	0.004	-.2322004 -.0450308	***
RICS	.0193029	.0359054	0.54	0.591	-.0510703 .0896761	
AQ	.4060576	.2099313	1.93	0.053	-.0054002 .8175155	*
LEV	-.0382631	.0054575	-7.01	0.000	-.0489596 -.0275665	***
SIZE	-.2223437	.1345023	-1.65	0.098	-.4859632 .0412759	*
Constant	-.2926466	.1861878	-1.57	0.116	-.6575679 .0722747	
Constant	.0041279	.0044814	0.92	0.357	-.0046555 .0129112	
Constant	.0799079	.0263864	3.03	0.002	.0281916 .1316243	
Mean dependent var		2.168	SD dependent var		1.135	
Pseudo R ²		0.738	Number of obs		1340	
Chi-square		99.590	Prob > chi ²		0.000	
Akaike crit. (AIC)		1423.050	Bayesian crit. (BIC)		1511.055	

*** $p < .01$, ** $p < .05$, * $p < .1$

STATA 16 Outputs

From Table 5, it is clear that family ownership, board gender, nomination committee size, and audit quality (big4) show positive significant effects on crediting ratings. In contrast, remuneration committee size, leverage, and firm size show negative significant effects on credit ratings. Furthermore, foreign ownership, ownership concentration, CEO ownership, board independence, board size, board meetings, board ownership, board remuneration audit committee size, and risk committee size are not significant in relation with credit ratings. Among the variables that are significant, family ownership, board gender, remuneration committee size, and leverage are significant at 1 percent; nomination committee size, audit quality (big4) and firm size are significant at 10 percent. These results are consistent with the results obtained by several scholars (Alali et al., 2012; Alkhawaldeh et al., 2021; Arora, 2020; Ashbaugh-Skaife et al., 2015; Dasilas & Papasyriopoulos, 2015; Sareen & Vij, 2015; Skaife et al., 2004). The R² is high (.738), which

translates into 73.8 percent, implying that the corporate governance attributes considered in this study were able to jointly explain the variation in credit ratings to the tune of 73.8 percent. The $\text{Prob} > \chi^2$ is significant at 1 percent (.000), suggesting that the model is fit for explaining the relationship between corporate governance and credit ratings in Nigeria. The remainder of the paper is one section. Section 5 presents the conclusions, drawn based on the empirical results and offers both policy and performance improvement recommendations based on the conclusions.

CONCLUSIONS AND RECOMMENDATIONS

We have examined the effects of corporate governance attributes on corporate credit ratings in Nigeria using 134 listed firms on the main board of the Nigerian Exchange for 10 years (2013 to 2022). Corporate governance variables considered are foreign ownership, ownership concentration, family ownership, CEO ownership, board size, board independence, board gender, board meetings, board ownership, board remuneration, audit committee size, nomination committee size, remuneration committee size, risk committee size, and audit quality. Credit ratings as the dependent variable was measured with credit ratings score derived from financial ratios, indicating the ability of the firms to pay back their debts. Fifteen hypotheses were developed and tested based on the results in Section 4: results and discussions. The descriptive statistics show that crediting ratings, which is the dependent variable of the study is ordered and balanced, suggesting that for each firm and for each year, the data was available. Furthermore, thirteen (13) corporate governance variables were tested in relation to their effects on credit ratings. Also, two (2) control variables were tested in relation to their effects on credit ratings.

By way of summary, descriptive statistics, diagnostic tests, correlation matrix and ordered logistic panel regression analysis were carried out in the study. This study suffers from some limitations. First, the study sample is limited to only 1,340 observations. However, this is due to the number of listed firms on the Main Board of the Nigerian Exchange. Second, the study period ended in 2022. Third, although this study examines the effect of corporate governance, not all the governance aspects have been examined in the study model. Nevertheless, this paper is significant to regulators, market players (credit rating agencies), banks, shareholders, and boards of directors, management, lenders (creditors), and a number of other stakeholders. It offers empirical evidence for both policy improvement, performance improvement, future research as it provides additional body of knowledge to stakeholders. It is recommended that firms with less than 8 board members should increase the size to at least 8 as suggested by the Nigerian Corporate Governance Code (2018). It is also recommended to carry out studies that would increase the coefficient of determination (R^2) from the 73.8 percent to 100 percent. Although, this study was done in Nigeria, future research may expand it to include data from regions or continents, sectors, large companies, small companies, highly geared companies and lowly geared companies.

REFERENCES

- Abdulfatah, L. A., Yahaya, O. A., Agbi, S. E., & Mustapha, L. O. (2022). Mediating effect of firm value on the relationship between dividend payout and growth opportunities of listed consumer goods firms in Nigeria. *Nigerian Journal of Accounting and Finance*, 14(2), 94-111.
- Abdulwahab, A. I., Bala, H., Adamu, A., Yahaya, O. A., & Khatoon, G. (2023). Does board independence moderate the nexus involving ownership formation and financial performance? Evidence from Nigerian Exchange Group. *POLAC International Journal of Economic and Management Science*, 9(2), 1-9.
- Abdulwahab, A. I., Bala, H., Yahaya, O. A., & Khatoon, G. (2023). Moderating effect of risk committee presence on the nexus between CEO characteristics and dividend policy: Evidence from listed companies in Nigeria. *Nigerian Journal of Management Sciences*, 24(1), 165-176.
- Adegbite, E., Amaeshi, K., & Nakajima, C. (2013). Multiple influences on corporate governance practice in Nigeria: Agents, strategies and implications. *International Business Review*, 22(3), 524-538.
- Adewinmisi, G. O., Ahmed, M., & Yahaya, O. A. (2022). Audit committee independence and audit quality of listed deposit money banks in Nigeria. *International Journal of Accounting and Finance*, 1(3), 16-26.
- Ahmed, A. S., & Duellman, S. (2007). Accounting conservatism and board of director characteristics: An empirical analysis. *Journal of accounting and economics*, 43(2-3), 411-437.
- Ahmed, Y., & Yahaya, O. A. (2023). New insights on board structure and income smoothing hypothesis. *Asian Economic and Financial Review*, 4(1), 784-803.
- Ahunwan, B. (2002). Corporate governance in Nigeria. *Journal of Business Ethics*, 37, 269-287.
- Alali, F., Anandarajan, A., & Jiang, W. (2012). The effect of corporate governance on firm's credit ratings: further evidence using governance score in the United States. *Accounting & Finance*, 52(2), 291-312.
- Alkhalwaldeh, A. A., Jaber, J. J., Boughaci, D., & Ismail, N. (2021). A novel investigation of the influence of corporate governance on firms' credit ratings. *Plos one*, 16(5), e0250242.
- Apochi, J. G., Mohammed, S. G., & Yahaya, O. A. (2022). Ownership structure, board of directors and financial performance: Evidence in Nigeria. *Global Review of Accounting and Finance*, 13(1), 77-98.
- Apochi, J. G., Mohammed, S. G., Onyabe, J. M., & Yahaya, O. A. (2022). Does corporate governance improve financial performance? Empirical evidence from Africa listed consumer retailing companies. *Management Studies*, 12(1), 111-124.
- Arora, T. S. (2020). Impact of corporate governance on credit ratings: an empirical study in the Indian context. *Indian Journal of Corporate Governance*, 13(2), 140-164.
- Ashbaugh-Skaife, H., Collins, D. W., & LaFond, R. (2006). The effects of corporate governance on firms' credit ratings. *Journal of accounting and economics*, 42(1-2), 203-243.
- Awen, B. I., & Yahaya, O. A. (2023). Can the CEO reverse the increasing leverage of listed firms in Nigeria? *International Journal of Research in Business and Social Science*, 12(1), 423-433.

- Awen, B. I., & Yahaya, O. A. (2023). Determinants of environmental disclosure quality using Probit estimation among deposit money banks in Nigeria In Warfare, Command and Capacity Building in Nigeria.
- Awen, B. I., & Yahaya, O. A. (2023). Gender and nationality among board members and audit quality in Nigerian Listed Firms. *Audit and Accounting Review*, 3(1), 40-57.
- Awen, B. I., Adewinmisi, G. O., & Yahaya, O. A. (2022). The influence of ownership structure on dividend policy in reducing agency problems in Nigeria listed non-financial services companies. *International Journal of Accounting and Finance*, 12(3), 99-111.
- Awen, B. I., Lamido, A. I., & Yahaya, O. A. (2023). Board size, independence and dividend policy in Nigeria. *International Journal of Economics and Finance*, 15(5), 72-91.
- Awen, B. I., Onyabe, J. M., & Yahaya, O. A. (2022). Can the board of directors increase firm value? Evidence from the Nigerian Exchange Group. *Korean Accounting Review*, 47(12), 82-97.
- Balogun, J. E., Agbi, S. E., Yahaya, O. A., & Joshua, S. G. (2023). Institutional ownership and firm value of listed manufacturing companies in Nigeria: the moderating role of dividend payout. *Nigerian Journal of Accounting and Finance*, 15(1), 85-111.
- Bhagat, S., & Black, B. (2001). The non-correlation between board independence and long-term firm performance. *J. Corp. L.*, 27, 231.
- Boone, A. L., Field, L. C., Karpoff, J. M., & Raheja, C. G. (2007). The determinants of corporate board size and composition: An empirical analysis. *Journal of financial Economics*, 85(1), 66-101.
- Cheng, S. (2008). Board size and the variability of corporate performance. *Journal of financial economics*, 87(1), 157-176.
- Dasilas, A., & Papasyriopoulos, N. (2015). Corporate governance, credit ratings and the capital structure of Greek SME and large listed firms. *Small Business Economics*, 45, 215-244.
- Duffie, D., & Singleton, K. J. (2003). *Credit risk: pricing, measurement, and management*. Princeton university press.
- Hassan, S. U. (2011). Corporate governance and financial reporting quality: A study of Nigerian money deposit banks.
- Hermalin, B., & Weisbach, M. S. (2001). Boards of directors as an endogenously determined institution: A survey of the economic literature.
- Itopa, E., Alexander, S., & Yahaya, O. A. (2022). Board of directors and earnings management: Evidence from the Nigerian Exchange Group. *Journal of Accounting and Finance*, 22(3), 45-59.
- Itopa, E., Imam, M., Musa, U., & Yahaya, O. A. (2019). Corporate governance and capital structure: Evidence from Nigeria listed financial services firms. *Journal of Business Management and Economic Research* (2602-3385), 3(12), 75-89.
- John, A. T., & Ogechukwu, O. L. (2018). Corporate governance and financial distress in the banking industry: Nigerian experience. *Journal of Economics and Behavioral Studies*, 10(1 (J)), 182-193.
- Kakanda, M. M., & Salim, B. (2017). Corporate governance, risk management disclosure, and firm performance: A theoretical and empirical review perspective. *Asian Economic and Financial Review*, 7(9), 836.

- Karamanou, I., & Vafeas, N. (2005). The association between corporate boards, audit committees, and management earnings forecasts: An empirical analysis. *Journal of Accounting Research*, 43(3), 453-486.
- Krishnan, J. (2005). Audit committee quality and internal control: An empirical analysis. *The accounting review*, 80(2), 649-675.
- Kumar, N., & Singh, J. P. (2012). Outside directors, corporate governance and firm performance: Empirical evidence from India. *Asian Journal of Finance & Accounting*, 4(2), 39.
- Lamido, I. A., Ibrahim, M. F., & Yahaya, O. A. (2023). Audit committee and financial performance: Evidence from Nigeria. *Review of Applied Management and Social Sciences*, 6(1), 581-590.
- Lamido, I. A., Yusuf, M. J., & Yahaya, O. A. (2023). A meta-analysis of female directors and instability in firm value in Nigeria. *China Journal of Accounting Studies*, 11(7), 325-337.
- Lateef, O. M., Saheed, Z. S., & Yahaya, O. A. (2015). Institutional factors and personal tax compliance in Kaduna State, Nigeria. *Res.on Humanities and Social Sciences*, 5(24), 146-157.
- Murtala, S., & Yahaya, O. A. (2023). The effects of risk committee characteristics on bank asset quality. *Asian-Pacific Journal of Management and Technology*, 4(1), 35-51.
- Nworji, I. D., Adebayo, O., & David, A. O. (2011). Corporate governance and bank failure in Nigeria: Issues, challenges and opportunities. *Research journal of finance and accounting*, 2(2), 1-19.
- Okike, E. N. (2007). Corporate governance in Nigeria: The status quo. *Corporate Governance: An International Review*, 15(2), 173-193.
- Okodo, B. D., Aliu, M. M., & Yahaya, O. A. (2019). Assessing the reliability of the internal audit functions: The issues. *Journal of Contemporary Research in Business, Economics and Finance*, 1(1), 46-55.
- Onyabe, J. M., Tijjani, B., & Yahaya, O. A. (2023). CEO and integrated reporting: Evidence from Africa listed communication services companies. *Afro-Asian Journal of Finance and Accounting*, 13(2), 86-99.
- Sanda, A. U., Mikailu, A. S., & Garba, T. (2010). Corporate governance mechanisms and firms' financial performance in Nigeria. *Afro-Asian Journal of Finance and Accounting*, 2(1), 22-39.
- Sareen, R., & Vij, M. (2014). Corporate Governance and Credit Ratings. *Journal of Business Thought*, 103-125.
- Skaife, H. A., Collins, D. W., & LaFond, R. (2004). The effects of corporate governance on firms' credit ratings. Available at SSRN 511902.
- Suleiman, U., Popoola, A., & Yahaya, O. A. (2022). Equity financing and financial performance of listed deposit money banks in Nigeria. *International Journal of Research in Innovation and Social Science*, 6(12), 618-624.
- Tijjani, B., & Yahaya, O. A. (2022). Does corporate governance improve energy information disclosure among Nigeria listed manufacturing firms? *Journal of Advanced Research in Business and Management Studies*, 26(3), 15-26.
- Tijjani, B., & Yahaya, O. A. (2023). A bibliometric analysis of corporate ownership demographics and sustainability reporting quality in Nigeria. *International Journal of Managerial and Financial Accounting*, 15(3), 393-410.

- Tijjani, B., & Yahaya, O. A. (2023). The impact of CEO female gender diversity and nationality on Internal Control System Disclosure: Empirical Evidence from Nigeria. *Int Research Journal of Management, IT and Social Sciences*, 10(2), 50-61.
- Tnushi, P. T., Yahaya, O. A., & Agbi, S. E. (2023). Ownership structure and dividend policy of listed deposit money banks in Nigeria. *International Journal of Management Science and Business Administration*, 10(1), 68-82.
- Urhoghide, R. O. O., & Omolaye, K. E. (2017). Effect of corporate governance on financial performance of quoted oil and gas in Nigeria. *International Journal of Business and Social Science*, 8(7), 114-124.
- Usman, M., & Yahaya, O. A. (2023). Board Committees' Independence and Intellectual Capital Efficiency in Corporate Nigeria. *The Journal of Business*, 8(1), 36-47.
- Usman, M., & Yahaya, O. A. (2023). Do corporate governance mechanisms improve earnings? *China Journal of Accounting Research*, 16, 1-13.
- Usman, M., & Yahaya, O. A. (2023). The dynamics between a CEO and risk disclosure in Nigeria. *Accounting and Auditing Review*, 30(1), 1-13.
- Usman, S. O., & Yahaya, O. A. (2023). Effect of board characteristics on firm value in Nigeria. *Journal of Economics and Finance*, 47(1), 44-60.
- Usman, S. O., & Yahaya, O. A. (2023). The CEO power and sustainability reporting of listed firms in Nigeria. *J. of Business Mgt. and Accounting*, 13(7), 106-125.
- Uwuigbe, U., Peter, D. S., & Oyeniyi, A. (2014). The effects of corporate governance mechanisms on earnings management of listed firms in Nigeria. *Accounting and Management Information Systems*, 13(1), 159.
- Yahaya, O. A. & Lamidi, Y. S. (2015). Empirical examination of the financial performance of Islamic bank in Nigeria. *International Journal of Accounting Research*, 2(7), 1-13.
- Yahaya, O. A. (2006). Empirical evidence on the effect of size on the profitability of commercial banks in Nigeria. *Journal of Social Studies*, 11(4), 33-39.
- Yahaya, O. A. (2014). Social disclosure and financial performance: Evidence from Nigeria listed firms. *Nigerian Journal of Accounting Research*, 10(2), 47-66.
- Yahaya, O. A. (2017). Firm performance and dividend policy: A panel data analysis of listed consumer-goods companies in Nigeria. *Nigerian Journal of Management Technology and Development*, 8(1), 306-322.
- Yahaya, O. A. (2018). Environmental reporting practices and financial performance of listed environmentally-sensitive firms in Nigeria. *Savanna: A Journal of the Environmental and Social Sciences*, 24(2), 403-412.
- Yahaya, O. A. (2019). Intellectual capital management and financial competitiveness of listed oil and gas firms in Nigeria. *Enugu State University of Technology Journal of Management Sciences*, 12(1&2), 86-96.
- Yahaya, O. A. (2021). Analysts' forecasts and stock prices: Evidence from Nigeria. *Iranian Journal of Accounting, Auditing and Finance*, 5(2), 01-10.
- Yahaya, O. A. (2022a). Corporate governance and profitability: An Application of Agency Theory. *Journal of Accounting Research*, 34(2), 406-421.

- Yahaya, O. A. (2022b). Can the CEO improves intellectual capital? *International Journal of Finance, Accounting and Economics Studies*, 3(1), 84-100.
- Yahaya, O. A. (2022c). Chief executive officer and firm value: Evidence from Nigeria listed non-financial services companies. *Journal of Economic and Financial Studies*, 10(3), 12-21.
- Yahaya, O. A. (2022d). Does Board Gender Diversity influence Dividend Pay-Out? Evidence from Nigeria Non-Financial Services Sector. *International J. of Accounting, Finance and Risk Management*, 7(2), 25-33.
- Yahaya, O. A. (2022e). Does CEO characteristics affect dividend policy? *Review of Accounting Studies*, 27(2), 375-389.
- Yahaya, O. A. (2022f). Does CEOs influence earnings management? *South African Journal of Accounting Research*, 36(2), 1-13.
- Yahaya, O. A. (2022g). Electronic payments system and economic growth in Nigeria. *International Journal of Management and Economics*, 5(20), 45-54.
- Yahaya, O. A. (2022h). Female directors and financial performance. Does audit committee play a role? *Advances in Accounting*, 58(C), 248-258.
- Yahaya, O. A., & Alexander, A. A. (2015). Business process management and financial performance: An exploratory study of listed deposit money banks in Nigeria. *Accounting Frontier*, 17(1), 43-75.
- Yahaya, O. A., & Alkasim A. (2021). Sustainability and profitability of listed insurance firms in Nigeria. *International Journal of Innovative Research in Accounting and Finance*, 6(1), 17-28.
- Yahaya, O. A., & Andow, H. A. (2015). Capital structure and firm's financial performance: Panel evidence of listed conglomerate firms in Nigeria. *Kaduna Business Management Review*, 2(1), 1-25.
- Yahaya, O. A., & Apochi, J. (2021). Board of directors and corporate social responsibility reporting of quoted companies in Nigeria. *Journal of Accounting, Finance and Auditing Studies*, 7(2), 38-52.
- Yahaya, O. A., & Apochi, J. G. (2022). The board of directors' influence on the intellectual capital of Nigeria listed firms. *Journal of Accounting, Auditing and Finance*, 37(2), 1-17.
- Yahaya, O. A., & Awen, B. I. (2020). Bank-specific attributes and operational efficiency: Evidence from Efficient-Structure Hypothesis. *Journal of Business and Social Review in Emerging Economies*, 6(3), 1087-1098.
- Yahaya, O. A., & Awen, B. I. (2021). Chief executive officers and bankruptcy of quoted resources companies in Nigeria. *Fountain Journal of Management Sciences*, 10(2), 970-980.
- Yahaya, O. A., & Awen, B. I. (2022). Does ownership structure lead to optimal financial structure? *Seisense Journal of Management*, 5(4), 51-64.
- Yahaya, O. A., & Lamido, I. A. (2022). Corporate social responsibility and financial performance. Evidence from Nigeria. *International Journal of Accounting and Finance Review*, 10(1), 107-120.
- Yahaya, O. A., & Mohammed, S. G. (2022). Does board of directors improve profitability? *Accounting*, 8, 269-275.
- Yahaya, O. A., & Ogwiji, J. (2021). Risk committee traits and profitability of Nigerian banking sector. *Accounting, Finance and Management: Texts and Applications*, 01-14.

- Yahaya, O. A., & Onyabe, J. M. (2020). Firm life cycle and financial performance: Evidence from Nigeria. *Journal of Accounting and Finance in Emerging Economies*, 6(3), 723-732.
- Yahaya, O. A., & Onyabe, J. M. (2022a). Audit committee and integrated reporting. *European Research Studies Journal*, 25(4), 305-318.
- Yahaya, O. A., & Onyabe, J. M. (2022b). Do audit fees and auditor independence affect audit quality? *Asian Journal of Finance and Accounting*, 14(1), 66-80.
- Yahaya, O. A., & Onyabe, J. M. (2022c). The nexus between audit committee and audit fees. *Journal of International Business Studies*, 53(6), 966-984.
- Yahaya, O. A., & Tijjani, B. (2020). Internal corporate governance and intellectual capital of listed oil and gas firms in Nigeria. *European Journal of Accounting, Auditing and Finance Research*, 8(9), 98-112.
- Yahaya, O. A., & Tijjani, B. (2021). Size, age and leverage of Nigeria quoted oil and gas corporations. *Advanced International Journal of Banking, Accounting and Finance*, 3(6), 51-60.
- Yahaya, O. A., & Yakubu, I. (2022). Risk committee's influence on enterprise risk management. *Journal of Risk and Financial Management*, 15(4): 120, 1-15.
- Yahaya, O. A., & Yusuf, M. J. (2020). Ethical behavioural disclosure and financial performance of listed industrial goods firms in Nigeria. *Sustainable Business and Society in Emerging Economies*, 2(2), 13-20.
- Yahaya, O. A., Farouk, B. K. U., Lamidi, S. Y., Yusuf, M. J., & Dania, I. S. (2015). Impact of competition on the financial performance of listed deposit money banks in Nigeria. *Journal of Economics and Sustainable Development*, 6(18), 52-61.
- Yahaya, O. A., Kutigi, U. M., & Ahmed, M. (2014). Country-specific characteristics as determinants of financial performance: Evidence from listed deposit money banks in Nigeria. *Journal of Accounting*, 3(2), 77-101.
- Yahaya, O. A., Kutigi, U. M., & Ahmed, M. (2015). International financial reporting standards and earnings management behavior of listed deposit money banks in Nigeria. *European Journal of Business Management*, 7(18), 70-82.
- Yahaya, O. A., Kutigi, U. M., Solanke, A. A., Onyabe, J. M. & Usman, S. O. (2015). Current assets management and financial performance: Evidence from listed deposit money banks in Nigeria. *Int Journal of African and Asian Studies*, 13, 45-56.
- Yahaya, O. A., Lamidi, Y. S., Kutigi, U. M., & Ahmed, M. (2015). The correlation between risk management and organizational performance: an empirical investigation using panel data. *Research Journal of Finance and Accounting*, 6(16), 136-146.
- Yahaya, O. A., Mohammed, I., & Mohammed, S. G. (2022). Board governance and sustainability disclosure of Nigeria Listed Deposit Money Banks. *European Journal of Accounting, Auditing and Finance Research*, 10(5), 126-146.
- Yahaya, O. A., Ohiaka, I. Z., Ahmed, M. N., Mustapha, L. O., Jimoh, O. I., Onyabe, J. M. (2015). Principal components analysis of local government revenue in Nigeria: 1993–2014. *Public Policy and Administration Research*, 5(10), 38-47.
- Yahaya, O. A., Onyabe, J. M., & Usman, S. O. (2015). Determinants of productivity of listed deposit money banks: An empirical estimation using panel data. *J.l of Accounting*, 4(1), 79-93.

- Yahaya, O. A., Onyabe, J. M., & Usman, S. O. (2015). International financial reporting standards and value relevance of accounting information of listed deposit money banks in Nigeria. *Journal of Economics and Sustainable Dev.*, 6(12), 85-93.
- Yahaya, O. A., Onyabe, J. M., Yusuf, M. J., & Bilyaminu, T. (2019). Financial mix and financial performance of listed consumer goods firms in Nigeria. *Journal of Accounting and Management*, 2(1), 226-237.
- Yahaya, O. A., Tanko, M., & Muhammad, L. M. (2017). Effects of corporate characteristics on earnings quality of listed deposit money banks in Nigeria. *Journal of Management Sciences*, 8(1), 47-64.
- Yahaya, O. A., Yusuf, M. J., & Dania, I. S. (2015). International financial reporting standards' adoption and financial statement effects: Evidence from listed deposit money banks in Nigeria. *Research J. of Finance and Accounting*, 6(12), 107-122.
- Yakubu, I., Ahmed, M. N., Yahaya, O. A., & Agbi, S. E. (2023). Audit committee and audit report lag: moderating role of ownership concentration of listed consumer goods firms in Nigeria. *European Journal of Accounting, Auditing and Finance Research*, 11(7), 77-100.
- Yakubu, S., & Yahaya, O. A. (2023). Auditors' characteristics and variability in integrated reporting gravity. *International Journal of Accounting, Finance and Business*, 8(50), 234-255.
- Yusuf, M. J., & Yahaya, O. A. (2023). CEO attributes and financial performance of listed firms in Nigeria. *International Journal of Economics, Finance and Management Sciences*, 11(2), 112-124.