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CHIEF EXCUTIVE OFFICERS' CHARACTERISTICS AND CREDITWORTHINESS OF LISTED NON-FINANCIAL FIRMS ON THE NIGERIAN EXCHANGE GROUP

[1]Eseoghene Jerry Obukata and [2]Edirin Jeroh

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Abstract

This study investigated the influence of chief Executive Officers (CEO) characteristics on the creditworthiness of non-financial firms listed on the Nigerian Exchange Group, using firm size and leverage as control variables. CEO traits (tenure, gender, nationality, age, education, and ownership) were assessed against creditworthiness, measured by the Altman Z-score. Employing an ex-post facto design, the study analyzed a balanced panel of 18 consumer goods firms (2013–2023), selected based on consistent listing and data availability. Descriptive statistics, correlation analysis, and the regression technique were used with robustness checks. Results show no significant impact of CEO traits on creditworthiness at the 5% level, although CEO nationality was marginally significant at 10%, indicating that foreign leadership has modest benefits. Firm size positively influenced credit outcomes, whereas leverage had a strong negative effect. These findings contrast with global evidence, reflecting executive traits' limited role in Nigeria's weak governance environment. This study contributes to the literature on emerging markets and affirms the utility of the Altman Z-score in credit risk assessment.

1.0 Introduction.

Creditworthiness reflects a firm's capacity to meet its financial obligations and serves as a critical indicator for investors, creditors, and regulators of default risk and financial stability (Baghai, Servaes, & Tamayo, 2014). Firms with higher credit standing typically enjoy lower capital costs, whereas those deemed risky face limited access to financing and elevated borrowing costs. The 2007–2009 global financial crisis highlighted the systemic importance of credit evaluations as rating downgrades intensified market instability.

In emerging markets like Nigeria that is characterized by weaker institutional frameworks and underdeveloped financial systems, creditworthiness becomes even more vital. While external assessments, such as credit ratings,

[1, 2] Department of Accounting, Delta State University, Abraka–Nigeria.

remain central, internal governance and executive leadership are increasingly recognized as key determinants of financial credibility.

Chief Executive Officers (CEOs), as strategic leaders, exert significant influence over corporate direction, financial policy, governance practices, and disclosure quality (Bamber, Jiang, & Wang, 2010; Jiang, Petroni, & Wang, 2013). A growing body of research links CEO attributes such as age, gender, education, tenure, ownership, and experience to firm-level outcomes, including risk behavior, transparency, and resilience (Bouaziz, Salhi, & Jarboui, 2020; Amelia & Eriandani, 2021). The Upper Echelons Theory (Hambrick & Mason, 1984) provides a theoretical basis, positing that organizational outcomes reflect top executives' values and experiences.

Despite the global attention on executive characteristics, limited empirical research exists on their relationship with creditworthiness in developing economies. This gap is particularly relevant in Nigeria, where governance challenges, disclosure deficiencies, and market volatility elevate the role of CEO leadership in shaping firm reputation and financial trustworthiness.

Focusing on the consumer goods sector, a credit-dependent and GDP-contributing industry in Nigeria, this study examines how CEO characteristics influence firm creditworthiness using data from non-financial firms listed on the Nigerian Exchange Group (NGX). This study provides empirical insight into executive-level determinants of credit risk in an emerging market context. On this note, we therefore hypothesize the following:

Ho: *There is no significant relationship between CEO Characteristics and Creditworthiness of Non-Financial Listed Firms in the Nigeria Exchange Group*

2.0 Literature Review

2.1 Creditworthiness

Creditworthiness, which is crucial for investment and lending decisions, reflects a firm's ability to meet financial obligations and avoid default. The Altman Z-Score (Altman, 1968) is a widely used model that combines five financial ratios to predict bankruptcy within two years: Working Capital/Total Assets, Retained Earnings/Total Assets, EBIT/Total Assets, Market Value of Equity/Total Liabilities, and Sales/Total Assets. Although it has a 72% success rate and a low 6% false-positive rate its accuracy declines for one-year forecasts (Baghai et al., 2014). Credit ratings by Moody's, S&P, and Fitch also assess default risk, affecting capital access, investment appeal, and loan terms. High-rated firms enjoy lower borrowing costs, whereas poorly rated ones face financial constraints. Ratings are categorized into short- and long-term based on risk horizons. The 2007–2009 financial crisis and major collapses (e.g., Enron, WorldCom, and GM) exposed the flaws of inflated credit ratings and emphasized the need for reliable risk indicators (Baghai et al. 2014). In this study, the Altman Z-Score is used as a proxy for firm creditworthiness to objectively evaluate Nigeria's consumer goods sector's financial health, identifying default risk and guiding investor and policy decisions.

2.2 Characteristics of CEOs

The Chief Executive Officer (CEO) is the top executive responsible for shaping a firm's strategic direction and operational performance (Barnard, 1938; Woodward, 1965). Drucker (1954) emphasized that executive competence is central to long-term success. Recent studies now focus on how CEO characteristics influence corporate outcomes. Demographic traits, such as age, education, tenure, and gender, affect decisions related to capital structure, risk-taking (Farag & Mallin, 2018), and CSR disclosures (Muttakin, Khan & Mihret 2018). These internal decisions shape firm-level financial stability and external creditworthiness (Custódio & Metzger, 2014). CEOs' strategic choices, such as managing leverage, transparency, or board oversight, influence auditor opinions and credit ratings. For instance, younger CEOs may pursue aggressive financial strategies, whereas

entrenched CEOs may limit governance effectiveness, affecting credibility. In emerging markets like Nigeria, where external instability is high, CEO traits can significantly impact how rating agencies and investors perceive firms. Thus, studying CEO characteristics, such as the Altman Z-score, offers valuable insights into the robustness of credit assessments. Further inquiry is warranted, particularly within Nigeria's consumer goods sector.

2.2.1 CEO Tenure and creditworthiness

While CEO tenure influences outcomes like performance, CSR, and audit pricing, its link to creditworthiness and debt cost is underexplored (Luo, Kanuri & Andrews 2014). Early-tenure CEOs often take risks to assert leadership, increasing credit risk and borrowing costs (Ali & Zhang, 2015). Over time, CEOs become more risk-averse due to legacy concerns, although some may still manipulate earnings for final rewards (Dechow & Sloan, 1991; Kalyta, 2009). These tenure-based shifts affect how creditors perceive risk and price debt. Despite its importance, the tenure-creditworthiness link is under-researched, especially in developing economies. Nigeria's volatile consumer goods sector presents an ideal setting for studying how CEO tenure impacts credit scores and financial resilience.

2.2.2 CEO gender and creditworthiness

The Upper Echelons Theory (Hambrick & Mason, 1984) links executive traits to firm outcomes. Characteristics such as age, gender, and experience shape financial strategies (Cline, Walkling & Yore 2018; Graham, Harvey & Puri 2013). Female CEOs often adopt conservative policies that include more cash, less debt, and fewer risky acquisitions (Francis, Hasan, Park & Wu 2015; Huang & Kisgen, 2013). This behavior reduces risk and agency costs, improving performance (Adhikari, Agrawal, & Malm 2019; Khan & Vieito, 2013). Hrazdil, Novak, Rogo, Wiedman & Zhang (2020) confirmed that women are generally less risk-tolerant. In crises, female-led banks were more resilient (Palvia, Vähämaa & Vähämaa 2015). However, Adams and Funk (2012) found that women may match male risk behavior in male-dominated firms. Berger et al. (2014) noted that gender-diverse boards do not always reduce risk. Thus, it is crucial to investigate whether female CEOs in Nigeria's consumer goods sector via conservative financial management.

2.2.3 CEOs Nationality and creditworthiness

The inclusion of foreign executives on boards has increased due to globalization, reflecting the demand for global expertise and governance diversity (Mi Choi, Kee & Sul 2012; Van, Sahib & Aangeenbrug 2014; Aleman, 2012). Empirical studies show that foreign executives enhance innovation, decision-making, and firm performance (Masulis, Wang, Xie 2012; Nielsen & Nielsen, 2013). Firms led by such executives often see improved valuations and shareholder wealth (Collin et al., 2013). CEOs with international experience demonstrate strategic agility and better financial outcomes (Hsu, Chen & Cheng 2013). Foreign CEOs typically outperform local ones in terms of global efficiency and perspective. In Nigeria, their rise offers not only reputational and investment benefits but also challenges in financial policy (Ujunwa, 2012). Recent failures have increased scrutiny of CEO nationality and outcomes (Oteh, 2013). Hence, examining the impact of foreign CEOs on creditworthiness in Nigeria's consumer goods sector is timely and necessary.

2.2.3 CEOs Age and creditworthiness

A broad literature in accounting, psychology, and management reveals a positive link between age and ethical behavior, as older individuals are more ethically inclined due to extended cultural socialization (Mudrack, 1989; Terpstra, Rozell & Robinson 1993; Deshpande, 1997). Dawson (1997) and Peterson, Rhoads, and Vaught (2001) confirm that older professionals demonstrate stronger ethical reasoning. Age is also correlated with risk aversion; older managers prefer conservative decisions to safeguard financial stability (Vroom & Pahl, 1971; Hambrick & Mason, 1984; Sundaram & Yermack, 2007). Such conservatism reduces earnings manipulation and enhances transparency, thereby improving creditworthiness (Davidson, Xie, Xu & Ning 2007; Barua, Davidson, Rama & Thiruvadi 2010). Empirical studies further show that CEO age affects risk, financial policy, and market value (Yim, 2013; Cline & Yore, 2016; Serfling, 2014). In Nigeria's volatile consumer goods

sector, older CEOs may improve credit scores through prudence, while younger CEOs may elevate default risk with aggressive financial strategies.

2.2.3 CEO Ownership and Creditworthiness

Agency theory (Jensen & Meckling, 1976) explains conflicts between shareholders and managers, where managers may pursue self-serving goals at the expense of firm value. However, when CEOs hold significant ownership stakes, their interests align with those of shareholders, reducing agency conflicts. This alignment encourages strategic decisions that enhance firm performance. In family firms, CEO-owners often drive growth through innovation and market expansion. Empirical studies (El-Chaarani, Abraham & Skaf 2022; El-Chaarani, Abraham, Khalife & Rungi 2023) show that large shareholder presence boosts ROA and ROE in MENA and GCC banks. Overall, CEO ownership fosters accountability, strategic efficiency, and shareholder wealth maximization.

2.2.3 Education of CEOs and Creditworthiness

The educational background of CEOs, particularly postgraduate qualifications, is increasingly seen as influential in shaping strategic decision-making and firm performance (Anderson, Reeb, Upadhyay & Zhao 2011). Studies suggest that highly educated CEOs tend to be more innovative, less risk-averse, and better attuned to external market dynamics (Barker & Mueller, 2002; Orens & Reheul, 2013). MBA holders may display greater strategic risk-taking due to overconfidence (Beber & Fabbri, 2012). CEOs with science or engineering backgrounds often invest more in R&D and innovation (Lin, Lin, Song & Li 2011; Tyler & Steensma, 1998). However, some studies report no clear link, indicating that contextual factors may moderate the education-performance relationship (Daellenbach, McCarthy, & Schoenecker 1999). Overall, postgraduate education tends to enhance innovation and strategic agility.

2.6 Conceptual Framework of the Study

This study will use Altman's Z-score as its sole measure of a firm's creditworthiness and examine how it correlates with four other indicators of CEOs characteristics (CEO Tenure, CEO Gender, CEO Nationality).
This conceptual model is presented in accordance with the study hypothesis.

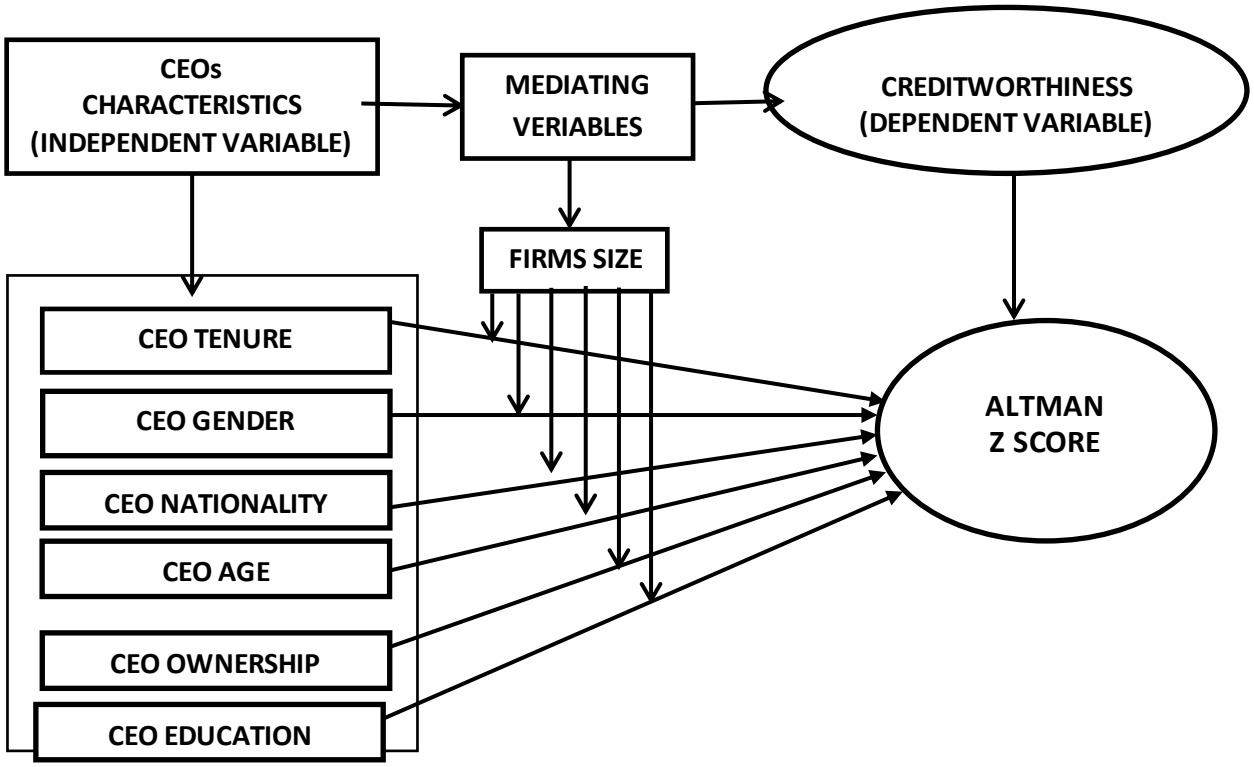

Figure 1: Heuristic Model of the Study

Source: Researchers' Conceptualization, 2025

2.7 Theoretical Review

2.7.1 Upper Echelons Theory (UET)

Hambrick and Mason (1984) propounded Upper Echelons Theory, which posits that organizational outcomes, such as strategic direction, risk posture, and performance, reflect the cognitive bases and values of top executives. Due to bounded rationality (March & Simon, 1958), CEOs rely on personal experiences and demographic heuristics (e.g., age, education, tenure) when making decisions (Finkelstein & Hambrick, 1996). UET has been widely applied in studies on innovation, mergers, and corporate social responsibility (Hambrick & Cannella, 2004), but its application to creditworthiness, especially in emerging economies, remains limited. In Nigeria's governance-constrained context, UET offers a valuable lens to explore how CEO traits shape firms' financial credibility and risk exposure.

2.7.2 Signaling Theory

Signaling Theory as articulated by Spence (1973) explains how informed agents, like CEOs, transmit observable signals (such as credentials, ownership, or tenure) to reduce information asymmetry and gain stakeholder trust. In weak institutional environments (Akerlof, 1970; Uzzi, 1999), these signals are crucial for creditors and external parties assessing firm risk. Empirical evidence indicating that CEO attributes serve as proxies for managerial quality and governance integrity (Connelly et al., 2011), especially where formal disclosure mechanisms are inadequate. In Nigeria's underdeveloped credit infrastructure, CEO characteristics may function as informal but influential signals of creditworthiness.

2.7.3 The Agency Theory

The Agency Theory of Jensen and Meckling (1976) highlights the conflict between owners (principals) and managers (agents) arising from divergent interests. Where monitoring mechanisms are weak, as is common in many Nigerian firms, agency costs increase, potentially impairing financial health (Fama & Jensen, 1983). CEO attributes such as ownership stake, compensation structure, and board influence are often used to align incentives and curb opportunistic behavior (Kisangi, 2021). Given the prevalence of concentrated ownership and fragile governance structures in Nigeria, Agency Theory is particularly apt for investigating how executive traits affect corporate accountability and credit risk.

2.7.4 Solvency Theory

Solvency Theory assesses an entity's ability to meet long-term obligations without compromising operational continuity (Azadegan et al., 2020). It emphasizes financial soundness indicators such as earnings capacity, debt levels, and capital structure efficiency (Owolabi et al., 2012; Ebeke et al., 2021). The theory intersects with the perspectives of pecking order and resource dependence by highlighting the roles of internal funding and external capital access. In Nigeria's highly leveraged consumer goods sector, CEO decisions that affect solvency through risk appetite, leverage choices, or investment conservatism are central to evaluating firm creditworthiness.

2.8 Empirical Review

Extant literature underscores that CEO characteristics significantly shape corporate behavior, financial integrity, and creditworthiness. Early studies established a foundational link between executive incentives and earnings management. For instance, Dechow and Sloan (1991) showed that CEOs manipulate accruals to influence short-term stock prices, particularly under retirement or compensation pressure, while Kalyta (2009) demonstrated how equity-based compensation encourages earnings inflation before stock option exercises.

CEO tenure has emerged as a critical factor in strategic decision-making and firm performance. Hambrick and Fukutomi (1991) and Luo et al. (2013) identified an inverted U-shaped relationship in which moderate tenure supports innovation and adaptability, but prolonged tenure may lead to rigidity and reduced performance. Similarly, Dikolli et al. (2014) found that CEO dismissal for poor performance declines over time as firms develop trust in long-serving executives.

Demographic attributes, such as age and gender, have nuanced implications. Huang et al. (2012) and Han and Jo (2024) observed a curvilinear effect of CEO age on performance, with older CEOs contributing to stability but exhibiting lower risk appetite. In contrast, gender-related studies (e.g., Khan & Vieito, 2013; Palvia et al., 2015; Ho et al., 2015) have consistently reported that female executives adopt more conservative financial policies, enhance earnings quality, and reduce firm risk, potentially improving credit ratings.

CEO education and international exposure also play an instrumental role. Aleman (2012) and Zaidi et al. (2021) found that foreign-educated or financially trained CEOs, especially in banking and emerging markets, enhance profitability and innovation. In Nigeria, Ujunwa (2012) reported that CEO education and tenure positively influence firm performance, while Omaliko et al. (2024) cautioned that CEO ownership and gender diversity may be linked to earnings manipulation.

Several studies have highlighted psychological and behavioral traits. Overconfidence, for example, drives aggressive financial strategies (Graham et al., 2013) and R&D investment (Hsu et al., 2013), although it can lead to strategic missteps. Board dynamics also matter; independent, gender-diverse, and functionally expert boards bolster oversight and governance (Collin et al., 2013; Van Vee et al., 2014; Owusu et al., 2022), indirectly enhancing CEO accountability.

In the Nigerian context, weak corporate governance mechanisms heighten the relevance of CEO traits. Oteh (2013) and Badru et al. (2016) linked board structure and governance lapses to financial mismanagement and reduced performance. Udezo et al. (2024) noted that CEO turnover helps curb financial statement fraud, reinforcing the importance of leadership fluidity for credibility.

In sum, the literature affirms that CEO attributes (including demographic traits, tenure, compensation, ownership, and cognitive style) exert substantial influence on firm behavior, governance quality, and creditworthiness. However, the contextual dynamics in emerging markets like Nigeria; characterized by weak regulatory enforcement and governance challenges, require further localized inquiry to fully unpack these relationships.

3.0 Methodology

This study adopted an ex-post facto research design with a balanced panel data approach. The design according to Jeroh and Efeyunmi (2022) is deemed appropriate for analyzing historical financial and governance data. The data analyzed spanned over the period 2013-2023. The study population consists of 20 consumer goods firms listed on the Nigerian Exchange Group (NGX) as of December 31, 2023. A purposive sample of 18 firms was selected based on data availability and continuous listing throughout the study period. Secondary data were obtained from the published annual financial statements. The study employs descriptive statistics and correlation analysis, followed by multiple linear regression to assess the relationship between CEO characteristics and firm creditworthiness, with leverage included as a mediating variable. Creditworthiness is a proxy by the Altman Z-score, which measures the likelihood of corporate bankruptcy. The econometric model specifies the Z-score as a function of CEO tenure, gender, nationality, age, ownership, and educational, alongside firm size and leverage. A lower Z-score (below 1.8) indicates financial distress and high risk of bankruptcy, whereas scores above 3 indicate financial stability. Regression diagnostics were also conducted to validate the reliability and robustness of the estimated model.

Model

The assumption is that firms; creditworthiness is a function of the CEO's characteristics, as functionally shown below:

Creditworthiness= *f* (CEO characteristics) ……. (1)

The econometric form of the model, inclusive of the two control variables of firm size and leverage, is given as follows:

$ZSCORE_{it} = \beta_O + \beta_1 CEOTEN_{it} + \beta_2 CEOGEN_{it} + \beta_3 CEONAT_{it} + \beta_4 CEOAGE_{it} + \beta_6 CEOOWN_{it} + \beta_7 CEOQUAL_{it} + \beta_8 SIZE_{it} + \beta_9 LEV_{it} + \mu_{it}$..... (2)

Table 1: Measurement and description of variables

Variable	Proxy	Variable code	Measurement	Source
Firm creditworthiness	Altman Z-score	ZSCORE	Altman Z-score = X_1liquidity ratio + X_2growth ratio + X_3profitability ratio + X_4leverage ratio + 3.25	Altman, Drodowsks, Laitman, and Sauas (2017)
CEOs characteristics	CEO Tenure	CEOTEN	Number of years served as a CEO	Atwa et al.(2023)
	CEOs Gender	CEOGEN	Is a dummy variable that is coded as one if the CEO is a female and 0 otherwise?	Gull et al. (2018),
	CEO Nationality	CEONAT	Is a dummy variable of one if the CEO is from a foreign country and 0 otherwise	Ashraf and Qian (2021),
	CEOs Age	Independent	CEO's age at the beginning of the year	Atwa et al.(2023)
1.	CEO Ownership	Independent	Percentage of stocks owned by the CEO at the beginning of the year	Qawasmeh and Azzam (2020)
	CEOs Education	Independent	The level of education: the value is set as a dummy variable 0 for a CEO holding a bachelor's degree.	CEOQUAL
Firm Size	Firm size	Control	Natural logarithm of the total assets	Al-Dhamari and Ku Ismail (2015),
Leverage	Leverage	LEV	Total debt divided by total assets	Atwa et al.(2023)

Source: Researchers' Compilation, 2025

4.0 Results and Discussion

4.1. Descriptive Statistics

The results of the descriptive statistics of the variables are presented in Table 2.

Table 2: Summary of the descriptive statistics of the study variables

Variable:	Altman Z Score	CEO Gender	CEO Age	CEO Tenure	CEO Nat.	CEO Owne	CEO Edu	FIRM Size	LEV
Mean	1.558258	.0656566	54.72222	5.136364	.5606061	1.082039	.1313131	17.16984	1.354275
Std. Dev.	4.803662	.2483086	4.899872	3.697522	.4975714	3.75894	.3385986	2.307728	3.174268
Median	1.75057	0	55	4	1	0	0	17.62255	.6232833
Max.	15.44362	1	69	17	1	16.53985	1	20.81621	19.5571
Min.	-34.67787	0	45	1	0	0	0	10.95583	.1936196
Count	198	198	198	198	198	198	198	198	198
Skewness	-3.562296	3.507284	.1882937	.8787189	-.244225	3.572183	2.183242	-.8309902	4.33003

Kurtosis	24.65655	13.30104	2.841911	2.981625	1.059646	14.41103	5.766547	3.066471	21.07332

Source: Researcher's Computation, 2025.

The descriptive statistics reveal that the sampled firms, on average, exhibit financial distress, with a mean Altman Z-Score of 1.56, which is below the critical threshold of 1.81. Significant variability and non-normality were observed across key variables, such as CEO tenure, age, ownership, education, and firm leverage, as indicated by high skewness and kurtosis values. CEO age and tenure are fairly normally distributed, while ownership and education show leptokurtic distributions, suggesting that a few outliers hold disproportionate influence. The dataset's 198 observations provide a robust basis for analysis, although non-normality warrants the use of robust statistical techniques. These variations underscore the heterogeneity among firms and highlight the potential influence of CEO characteristics on financial stability and creditworthiness.

4.2 Correlation Analysis

Correlation analysis explores how variables relate to one another in terms of direction and strength (Jeroh & Okoye, 2015; Jeroh & Ekwueme, 2015; Izukwe & Jeroh, 2022; Jeroh & Efeyunmi, 2022; Monye-Emina & Jeroh, 2022; Jeroh, 2023). Table 4.2 displays the outcome of this analysis, highlighting key inter-variable associations.

Table 3: Correlation Result

Variable	Altman Z Score	CEO Gender	CEO Age	CEO Tenure	CEO Nat.	CEO Owne	CEO Edu.	FIRM Size	LEV
Altman Z Score	1.0000								
CEO Gender	-0.1852	1.0000							
CEO Age	-0.1821	-0.0475	1.0000						
CEO Tenure	-0.0582	-0.1646	0.3008	1.0000					
CEO Nationa	0.2727	-0.0529	0.0850	-0.2266	1.0000				
CEO Ownership	0.0867	-0.0764	-0.2164	0.4423	-0.3111	1.0000			
CEO Education	0.1058	-0.1031	0.1292	0.0464	0.1936	-0.0905	1.0000		
Firm Size	0.4177	0.0110	0.0376	-0.3726	0.3653	-0.3645	0.1101	1.0000	
Lev.	-0.7137	0.1577	0.3331	0.0794	-0.2565	-0.0819	-0.1064	-0.5683	1.0000

Source: Researcher's Computation, 2025.

The correlation analysis reveals that firm leverage (r = -0.7137) and size (r = 0.4177) are the strongest predictors of financial health, as measured by the Altman Z-score, supporting trade-off and resource-based theories. CEO characteristics, including age, tenure, qualification, ownership, and nationality, show weak to moderate associations with financial health, indicating limited individual influence. Notably, older CEOs exhibit higher leverage preferences (r = 0.3331), and longer-tenured CEOs hold more ownership (r = 0.4423), indicates potential alignment with shareholder interests. These findings emphasize the importance of prudent capital structure decisions and highlight the nuanced role of CEO attributes in shaping financial stability.

4.3 Variance Inflation Factor (VIF) Test

The Variance Inflation Factor (VIF) measures the degree of multicollinearity among independent variables in a regression model. It indicates how much a variable's variance is inflated due to correlation with other predictors. A VIF of 1 shows no multicollinearity, whereas values between 1 and 5 suggest moderate levels. VIFs of 5 or more signal high multicollinearity, potentially distorting the coefficient estimates. Corrective measures may be needed to improve model accuracy in such cases.

Table 4: Results of Variance Inflation Factor (VIF) Test.

Variable	VIF	1/VIF
Firm Size	2.44	0.410157
Lev	2.38	0.420803
CEO Tenure	1.85	0.539504
CEO Age	1.74	0.573915
CEO Ownership	1.66	0.602389
CEO Nationality	1.29	0.774738
CEO Gender	1.08	0.925249
CEO Education	1.08	0.929031
Mean VIF = 1.69		

Source: Researcher's Computation, 2025.

The VIF results reveal no serious multicollinearity issues among the independent variables, as all VIF values fall below the critical threshold of 5 (mean VIF = 1.69). Firm size (VIF = 2.44) and leverage (VIF = 2.38) show moderate multicollinearity, which is typical in financial studies, but remain within acceptable limits. CEO-related variables, such as tenure, age, ownership, nationality, gender, and qualification, exhibit low VIFs (ranging from 1.08 to 1.85), indicating minimal overlap and high independence. These results confirm that the model is well-specified and suitable for reliable interpretation. The absence of multicollinearity enhances the robustness and explanatory power of the regression analysis.

4.4 Heteroscedasticity Test.

The Breusch-Pagan/Cook-Weisberg test was used to assess heteroskedasticity in the regression model.

Table 5: Heteroscedasticity Test Result.

Breusch-Pagan / Cook-Weisberg test for heteroskedasticity
Ho: Constant variance
Variables: fitted values of the Altman z score
chi2 (1) = 629.88
Prob > chi2 = 0.0000

Source: Researcher's Computation, 2025.

The Breusch-Pagan/Cook-Weisberg test revealed significant heteroskedasticity in the regression model ($\chi^2(1) = 629.88$, $p = 0.0000$), reveal that OLS standard errors may be inefficient. To address this, both fixed-effects (FE) and random-effects (RE) models were estimated. The Hausman test (Hausman, 1978) was used to assess the consistency of the estimators, with a result of $\chi^2(8) = 2.84$ and $p = 0.9438$, indicating no systematic difference between the FE and RE models. Although variables such as CEO gender, qualification, and firm size showed coefficient differences with small standard errors, the overall result supports the use of the RE model. This implies that unobserved heterogeneity is not significantly correlated with the regressors. Therefore, the RE model is preferred because of its efficiency, which offers valid and robust inference in the presence of heteroskedasticity and panel-level variation.

4.4 Hypothesis Testing

H_0: There is no significant relationship between CEO Characteristics And Creditworthiness of Non-Financial Listed Firms in Nigeria Exchange Group

Table 6: Regression Outcome for Hypothesis Test

Random-effects GLS regression analysis	Number of obs = 198
Group variable: fyear	Number of groups = 11
R-sq: within = 0.5441	Obs per group: min = 18
between = 0.4141	avg = 18.0
overall = 0.5307	Max = 18
	Wald chi2(8) = 213.76
	F(8,10) = 93.73
corr(u_i, Xb) = 0.0151	Prob > chi2 = 0.0000

Altmanzscore	Coef	Std. Err.	z	P>|z|	[95% Conf.	Interval]
ceogenderfemale1male0	-1.340299	1.002133	-1.34	0.181	-3.304445	.6238462
Ceoage	.0700113	.064482	1.09	0.278	-.056371	.1963937
Ceotenure	-.0735	.0881331	-0.83	0.404	-.2462376	.0992376
ceonationalityforeigner1nigerian	.9908109	.5465299	1.81	0.070	-.080368	2.06199
Ceoownership	.1273309	.0820433	1.55	0.121	-.033471	.2881327
Ceoqualification	.1139161	.7334094	0.16	0.877	-1.32354	1.551372
Fsize	.0070775	.1619522	0.04	0.965	-.310343	.3244979
Lev	-1.036302	.1162421	-8.92	0.000	-1.264132	-.8084711
_cons	-1.233668	3.561932	-0.35	0.729	-8.214925	5.74759
sigma_u	0					
sigma_e	3.3246917					
Rho	0 (fraction of variance due to u_i)					

Source: Researchers' Compilation, 2025

This study examined the effect of CEO characteristics on the creditworthiness of non-financial firms listed on the Nigerian Exchange Group, using the Altman Z-score as a measure of financial stability. The analysis incorporated six CEO attributes—tenure, gender, nationality, age, educational qualification, and ownership—along with firm-specific control variables, such as firm size and leverage.

The results of the random effects regression analysis show that CEO tenure ($\beta = -0.0735$, $p = 0.404$), gender ($\beta = -1.3403$, $p = 0.181$), age ($\beta = 0.0700$, $p = 0.278$), educational qualification ($\beta = 0.1139$, $p = 0.877$), and ownership ($\beta = 0.1273$, $p = 0.121$) have no statistically significant influence on firm creditworthiness. These findings align with existing literature that emphasizes the limited impact of demographic and academic factors on firm performance, particularly in emerging markets where institutional, regulatory, and economic variables may overshadow executive attributes (Adams & Funk, 2012; Francis et al., 2015; Lin et al., 2011; Lim & Lee, 2019).

Only CEO nationality shows a marginally significant positive effect ($\beta = 0.9908$, $p = 0.070$), suggesting that foreign CEOs may slightly enhance creditworthiness due to their exposure to global governance practices and broader managerial experience (Mi Choi et al., 2012; Badru et al., 2016). However, this effect remains weak

and context-dependent (Exadaktylos, Riccaboni & Rungi 2020).Among the control variables, leverage (β = −1.0363, p = 0.000) is significantly and negatively related to the Altman Z-score, confirming that higher debt levels reduce creditworthiness, consistent with financial theory. However, firm size (p = 0.965) does not significantly affect credit risk in this setting. Conclusion, the study finds that most CEO characteristics do not significantly influence firm creditworthiness in Nigeria, highlighting the greater importance of firm-level financial factors, especially leverage. These results indicating that demographic or positional CEO attributes may be less relevant than broader strategic and financial governance practices in determining credit outcomes.

Conclusions and Recommendations

This study examined how CEO characteristics affect the creditworthiness of non-financial firms listed on the Nigerian Exchange Group, using the Altman Z-score to measure financial stability. The analyzed CEO attributes included tenure, gender, age, nationality, education, and ownership, with firm size and leverage as control variables in a random-effects regression model.

Results indicate that CEO tenure, gender, age, education, and ownership do not significantly influence creditworthiness, indicating that demographic traits are weak predictors of financial health in the Nigerian context. This challenges common governance assumptions and points to the stronger influence of external market and institutional conditions.

CEO nationality showed a marginally positive impact, implying that foreign CEOs may contribute to financial stability with slight strategic benefits. However, leverage emerged as the most consistent and negative creditworthiness predictor, highlighting the importance of sound capital structure.

The study concludes that CEO traits have a limited direct influence on firm's credit scores. Accordingly, it recommends that:

i. Regulators and firms focus more on governance frameworks and financial discipline than CEO demographics.
ii. CEO selection should prioritize leadership and strategic skills over age, gender, or nationality.
iii. Leadership development programs should enhance decision-making across all CEO profiles.
iv. Investors and credit analysts should emphasize the importance of financial indicators, especially leverage.
v. Future research should explore mediating factors such as ownership, governance quality, and regulation, in shaping firm credit risk.

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