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Credit rating, financial performance, and value of listed insurance companies in Nigeria

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Abstract

Purpose: The study determines the association between credit ratings and key performance indicators, including Return on Assets (ROA), Return on Equity (ROE), and firm value measured by Tobin's Q.
Design/Methodology/Approach: The study used secondary data from six listed insurance firms over five-year period (2020-2024), sourced from annual reports, stock exchange filings, and rating agency publications. A panel-least squares regression with fixed effects was employed as the primary method of analysis alongside descriptive statistics, correlation analysis, and diagnostic tests, using EViews software.
Findings: Contrary to theoretical predictions from Default Risk Theory and Signaling Theory, the results reveal that, at 5% level of significance, credit ratings has a negative and statistically insignificant association with ROA (β = -0.0023, p = 0.8482), a positive and insignificant association with ROE (β = 0.0243, p = 0.3245), and a negative insignificant association with Tobin's Q (β = -0.0649, p = 0.0619). Firm size consistently demonstrated a positive and significant relationship with all three performance measures.
Practical Implications: Although credit ratings are essential tools for financial stability assessment in developed markets, their limited association with performance indicators in this study suggests that macroeconomic instability, underdeveloped capital markets, and low investor awareness of credit ratings in Nigeria may diminish their effectiveness. This underscores the need for regulatory reforms, investor education, and market development to enhance the signaling power of credit ratings in Nigeria's insurance sector.
Originality/Value: The research contributes by filling a knowledge gap in the literature on credit ratings in developing markets, particularly in Nigeria's insurance sector, where prior studies are scarce and often focus on developed economies

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INTRODUCTION

Credit rating is a recent phenomenon in the Nigerian financial sector. Augusto, the first indigenous rating agency, was licensed in 2001 by the Securities & Exchange Commission (SEC). However, currently, Nigeria already has three indigenous credit rating agencies (Agusto licensed in 2001, DataPro Limited licensed in 2020 and, Global Credit Rating Company Limited Nigeria, which is affiliated to Fitch) that operate within the Nigerian financial sector. Moreover, there are other global rating agencies such as Fitch, S&P and that evaluate the Nigerian firms' financial health for global local and global investors. A firm's credit rating represents a rating agency's assessment of its overall credit worthiness and ability to meet its financial obligations (Gatzlaff, Jiang, and Li 2019; Sharma, Sharma and Mehta 2018). Credit agencies are worried about governance because poor governance can harm a company's financial situation and expose debt stakeholders (hereinafter referred to as insurance policy holders) to losses (Fitch Ratings, 2023). Credit ratings provide forward-looking assessments on the credit worthiness of issuers and issues. Credit worthiness refers to an issuer's ability to make timely interest and principal payments in accordance with contractual terms, but it is not an absolute indicator of default probability (S&P Global Credit Portal 2024).

One of the major participants in Nigeria's financial service industry is the insurance sector. It helps spread financial losses, facilitate economies of scale in investment, lower transaction costs, increase liquidity, promote economic growth, and allocate resources efficiently (Deekor 2024; Duniya, Jimoh and Bature 2024; Horvey, Adjei and Boateng 2024; Fashagba 2018; Fadun and Shoyemi 2018). Life insurers also encourage investing by providing the means to accumulate personal savings through life and pension contracts (Tamegawa 2016). In Nigeria, insurance companies are considered the cornerstone of risk management. Their position is vital since they are the biggest institutional investors in equities, bonds, mutual funds, and pension funds. Considering the difficulties brought on by globalization and wealth inequality, their influence on economic growth tends to rise rather than diminish (Fadun and Shoyemi, 2018). Risk management, essentially an insurance coverage, is inseparable from human activities since risks cannot be disregarded. The insurance industry is inherently connected to risk, and its purpose is to help individuals return to their pre-risk positions. The significance of insurance companies in the progress of both developed and developing nations cannot be overstated, as they have made positive contributions to economic growth (Gatzlaff, et al. 2019). As economic activities continue to expand, the range of risks also increases. Insurance companies now play a crucial role in preventing sudden and devastating risks faced by individuals and businesses alike. When an economy remains stable and unaffected by environmental changes, it is considered to have sustainable development.

Although literature has documented the impact of risk on the financial performance of listed insurance companies in Nigeria (Duniya et al. 2024; Ogunsola 2024; Bala, Usman and Sani, 2022; Attard, Gatt and Grech 2021; Abass and Ojikutu 2019), there is limited scholarly research on credit ratings as a factor in insurers' financial performance. Changes in rating grades could indicate insurance companies' financial success. A company's current financial status might be reflected by changes in its rating (Shaheen and Javid 2014). According to Wang and Carson (2014), insurer ratings are widely used to assess financial stability and bankruptcy risk. However, prior research has mostly concentrated on insurers in developed nations (Rashid, Amin and Khan 2021; Gatzlaff et al. 2019; Sharma et al. 2018), with such research being limited in developing countries.

Consequently, this study investigates whether credit ratings have a positive association with financial performance and market value of listed insurance companies in Nigeria. The study is grounded in default risk theory and signalling theory, which together suggest that credit ratings convey important information about a firm's financial health and future prospects, thereby influencing investors' perception and firm performance. This research focuses specifically on the Nigerian insurance sector, examining whether credit ratings serve as effective signals of financial quality in the emerging market context.

LITERATURE REVIEW

Credit Rating

A credit rating is a standardized assessment of an entity's or financial instrument's credit-worthiness. It serves as an important tool to decide the likelihood of a borrower's financial obligations on agreed-upon terms. Usually credit rating agencies, which can be of an independent nature, give these assessments, which are in the form of symbolic grading systems like AAA, AA, A or BBB. The higher the rating, the lesser the credit risks. Credit ratings are not just for corporations, they are also extended to sovereign states, debtor financial setups and even on particular form of debts. Their primary role is to decrease the information asymmetry voltage in the financial market by giving a good base point to investors on which to compare the risk among the investment options (Geyikci 2023). The process of rating contains quantitative and

qualitative appraisal. Qualitative assessment is based on the quality of governance, managerial capabilities, industry structure, and compliance with regulations, as well as broader macroeconomic factors; while quantitative assessment is based on the quality of governance, managerial capabilities, industry structure, and compliance with regulations, as well as broader macroeconomic factors. By combining these aspects, agencies create a complete risk profile that contributes to the final rating.

Table 1. Credit Rating Codes of Major Rating Agencies in Nigeria.

Rating Agency	Credit Rating Code	Meaning/Description
Agusto & Co.	AAA	Highest credit quality; lowest risk of default.
	AA	Very high credit quality, slightly lower than AAA.
	A	Strong credit quality, low risk but some sensitivity to adverse conditions.
	BBB	Moderate credit quality; financial obligations are still being met but with more risk.
	BB	Speculative grade; some risk of financial instability.
	B	Highly speculative, financial obligations may be difficult to meet.
	CCC	High default risk, very weak financial condition.
	CC	Extremely weak financial position, high probability of default.
	C	Near default, limited ability to meet obligations.
	D	Default; failure to meet financial obligations.
Moody's	Aaa	Highest credit quality; minimal credit risk.
	Aa1, Aa2, Aa3	Very high credit quality with low credit risk.
	A1, A2, A3	Strong creditworthiness but sensitive to economic conditions.
	Baa1, Baa2, Baa3	Moderate credit risk; obligations are met, but riskier than A ratings.
	Ba1, Ba2, Ba3	Speculative-grade; higher risk of default.
	B1, B2, B3	High credit risk, financial obligations are uncertain.
	Caa1, Caa2, Caa3	Very high credit risk, high likelihood of default.
	Ca	Extremely high credit risk, near default status.
	C	In default, minimal recovery is expected.
A.M. Best	A++, A+	Superior financial strength; very low risk.
	A, A-	Excellent financial stability, but slightly lower than A+.
	B++, B+	Good financial security, but susceptible to economic changes.
	B, B-	Fair financial security; moderate risk of instability.
	C++, C+	Weak financial security; high sensitivity to economic conditions.
	C, C-	Poor financial strength; very high risk of default.
	D	In default; unable to meet financial obligations.
	E	Under regulatory supervision.
	F	In liquidation.
Fitch Ratings	AAA	Highest credit rating; exceptionally strong ability to meet obligations.
	AA+, AA, AA-	Very high creditworthiness, but slightly lower than AAA.
	A+, A, A-	Strong financial position but more susceptible to risks.
	BBB+, BBB, BBB-	Moderate credit risk; financial obligations are still stable.
	BB+, BB, BB-	Speculative grade; financial performance is weak.
	B+, B, B-	Highly speculative; financial stability is questionable.
	CCC+, CCC, CCC-	Substantial risk of default.
	CC	Very high default risk.
	C	Extremely high probability of default.
	D	In default; financial obligations are not being met.

Source: Agusto, Fitch and AM Best

Credit Rating and the Insurance Sector in Nigeria

Credit ratings are regarded as efficient and comparable measure of financial health and credit worthiness, widely used by investors, regulators, and corporate managers to. Early empirical research on the subject such as Horrigan's (1966) study of U.S. corporate bonds highlighted the importance of ratings in shaping market perceptions of financial risk. Since then, methodologies have evolved considerably, with

agencies incorporating increasingly complex models and qualitative judgments into their assessments. In the Nigerian insurance business, credit ratings are highly relevant because they dictate where various kinds of capital can be accessed, investment decisions made, and the long-term viability of enterprise sustainability (Joseph, Akpan and Umoh 2021). Ratings give investors and policy holders an independent view of how financially strong insurance companies are. They also create economic incentives for these companies to improve their governance and financial responsibility. This means credit ratings serve diagnostic and regulatory measurement for the industry. They can help ensure that corporate practices support the overall stability of the market.

While credit ratings are an important tool for financial stability, there are various difficulties in realizing these tools in Nigeria. Regulatory and economic limitations, problems associated with transparency, and anxiety regarding market perception continue to affect the reliability and trustworthiness of the credit ratings in the insurance sector (Ezeribe and Mgbenwelu 2023). Credit default risk is a crucial issue for the financial markets and corporate entities as it plays a significant role in the financial stability and cost of borrowing for firms. Theoretical perspectives have claimed that a higher level of equity risk may paradoxically coincide with high levels of credit default risk, which has been termed the "distress puzzle" (Friewald et al. 2014; Chu et al. 2013). This paradox has been explained mostly by degrading economic conditions which increase defaults risk and cause financial hurts to businesses (Chava and Purnanandam, 2010; Claußen, Hirth and Jäckel, 2017).

Campbell, Hilscher and Szilagyi. (2008) conducted a study which found that financially distressed stocks have shown an above-average low return from 1981 through to 2006 in the US market. Similarly, Dichev (1998) showed that firms with high likelihood of bankruptcy tend to perform low in the market, hence yielding below the average returns. This underperformance has been attributed to inefficient mechanisms to assess risk and to asymmetric flows of information in financial markets.

Theoretical Framework

The theoretical foundation of this study integrates Default Risk Theory and Signalling Theory to explain how credit ratings may influence financial performance and firm value in Nigeria's insurance sector.

Default Risk Theory

The Default Risk Theory posits that the credit worthiness of a firm reflects the likelihood of default on its financial obligations (Merton 1974). A firm with a high probability of default will typically receive a lower credit rating, indicating elevated risk and limited access to cheap capital. Within the Nigerian context, where capital markets are still developing, credit ratings thus serve as an essential indicator of financial stability and long-term solvency (Okafor et al. 2023). Firms with stronger credit ratings tend to enjoy lower borrowing costs and improved profitability measures such as Return on Assets (ROA) and Return on Equity (ROE), as these ratings enhance investor confidence and reduce the perceived cost of financial distress.

Signalling Theory

The Signalling Theory complements this view by asserting that a firm's credit rating transmits information about its financial quality to external stakeholders (Spence 1973). In imperfect markets, managers use observable financial outcomes such as stable earnings, consistent dividends, and improved ratings — to signal their firm's underlying performance and growth prospects (Connelly et al. 2011). Consequently, higher credit ratings can be interpreted as positive signals of managerial competence and firm efficiency, which investors incorporate into market valuation indicators like Tobin's Q. Thus, credit ratings serve a dual role: as a measure of default risk and as a strategic signal that shapes investor expectations and share value.

Integrating these two theories provides a comprehensive framework for analysing the relationship between credit ratings and firm performance. The Default Risk Theory explains the risk-based assessment behind rating assignment, while Signalling Theory captures the informational effects that ratings exert on market perception. Within this framework, the study assumes that credit ratings are both outcomes and predictors of firm performance. Strong ratings reduce financing costs, leading to higher ROA and ROE, while simultaneously enhancing market valuation through Tobin's Q. Conversely, weaker ratings limit access to affordable capital, constrain profitability, and dampen investor confidence. This theoretical integration thus underpins the study's empirical analysis of how variations in credit ratings affect the operational and market performance of Nigerian manufacturing firms.

Empirical Review

Credit Rating and Financial Performance

The relationship between credit ratings and financial performance has been extensively studied, with research examining both the determinants of credit ratings and the subsequent effects of ratings on firm's

profitability. Adams, Burton, and Hardwick (2003) examined the determinants of credit ratings for UK firms using a Multinomial Logit Model. They found that firm profitability is positively associated with higher credit ratings, and that lower financial leverage is a key determinant of better credit ratings. Additionally, liquidity and cash flow management were found to be critical, as companies with strong liquidity positions tend to enjoy more favourable credit ratings. Their findings suggest that firms must maintain optimal financial ratios to facilitate positive ratings from credit rating agencies, with consequent implications for market credibility, investment appeal, and long-term financial health.

Credit Ratings and Profitability

The reverse relationship, that is, how credit ratings influence subsequent financial performance has received less attention, particularly in emerging markets. Theoretically, higher credit ratings should improve access to capital at lower costs, thereby enhancing profitability. However, empirical evidence has been mixed. Sharma, Sharma and Mehta (2018) conducted a comprehensive review of literature on credit ratings and financial stability, noting that while developed markets show stronger associations between ratings and performance, emerging markets exhibit weaker and more inconsistent relationships. They attribute this to market inefficiencies, weak institutional frameworks, and information asymmetry that persist in developing economies.

Shaheen and Javid (2014) investigated the impact of credit ratings on firm performance in Pakistan, an emerging market context similar to Nigeria. Using panel data regression techniques, they found that credit rating changes had significant impacts on firm performance indicators, with rating upgrades associated with improved profitability metrics. However, they noted that the strength of this relationship varied depending on firm size, industry, and macroeconomic conditions. Their study suggests that in emerging markets, the effectiveness of credit ratings as performance drivers is contingent upon contextual factors. Usman and Yahaya (2023) examined the relationship between corporate governance and credit ratings in Nigerian firms, finding that governance quality positively influences credit ratings. Their study provides important context for understanding how credit ratings are determined in Nigeria, though they did not explicitly examine the reverse relationship, particularly — how ratings affect performance.

Evidence from the Insurance Sector

Wang and Carson (2014) emphasized that insurer ratings are widely used to assess financial stability and bankruptcy risk. In their analysis of U.S. insurance companies, they found that credit ratings serve as important predictors of insurer financial distress and failure. However, their focus was on ratings as indicators of risk rather than as drivers of performance improvement. Joseph, Akpan and Umoh (2021) examined credit ratings and investment decision-making in Nigeria's insurance industry. They found that credit ratings play a role in shaping institutional investment decisions, but noted significant challenges related to regulatory frameworks, market transparency, and investor awareness that limit the effectiveness of ratings in the Nigerian context.

The literature suggests that while credit ratings reflect financial performance (with stronger firms receiving higher ratings), the evidence for a reverse causal relationship—where higher ratings drive improved performance—is mixed, particularly in emerging markets. In developed economies with efficient capital markets, higher ratings may reduce financing costs and enhance operational performance. However, in emerging markets characterized by information asymmetry, weak institutions, and underdeveloped capital markets, this mechanism may be weak or absent. Furthermore, obtaining and maintaining credit ratings involves costs (agency fees, compliance expenses, governance investments) that may offset potential benefits, particularly in markets where ratings do not strongly influence stakeholder behaviour or access to capital. In Nigeria's insurance sector, regulatory and economic limitations, transparency issues, and low investor reliance on ratings may further diminish the performance benefits of high credit ratings (Ezeribe and Mgbenwelu 2023). Given the foregoing, the current study hypothesizes that:

H_1: There is a statistically positive significant association between credit rating and Return on Assets (ROA) of the listed insurance companies in Nigeria

H_2: There is a statistically positive significant association between credit rating and return on equity of the listed insurance companies in Nigeria

Credit Rating and Value of Firms

A substantial body of research has examined how credit rating announcements and changes affect firm valuations, primarily through event study methodologies that capture market reactions to rating news.

Evidence from Developed Markets

Early research in developed markets established that credit rating changes have significant market impacts. Ekstedt and Hammarstrand (2019) analysed differences in the impact of credit rating

announcements between U.S. and European financial markets. Their results showed stronger market reactions to rating announcements in the U.S. than in Europe, likely due to higher investor reliance on credit ratings in the U.S. financial system. Importantly, they found that negative rating changes caused larger market disruptions than positive changes, reinforcing the notion that bad news has a disproportionate impact on financial markets compared to good news. This asymmetry suggests that investors are more responsive to downgrade risk than to upgrade potential.

Evidence from Emerging Markets

Scholarly works on emerging market have yielded more novel findings, suggesting that the relationship between credit ratings and firm value is context-dependent and often weaker than in developed markets.

Kenourgios, Umar and Lemonidi (2020) studied the impact of credit rating announcements on sovereign bonds using global financial data, with particular focus on BRICS and GIIPS countries (which include several emerging economies). They concluded that sovereign bond yields were highly responsive to downgrades, particularly in these emerging and vulnerable economies. These findings indicate that bond markets are especially sensitive to credit rating downgrades, as they signal increased borrowing costs and heightened risk of financial instability. However, their focus was on sovereign debt rather than corporate equity valuations.

Geyikci (2023) examined "The Effectiveness of Credit Rating Announcements in the Risk Perception of Financial Markets in Emerging Economies" using event study methodology. The research found that credit rating downgrade events had a significant negative impact on stock markets, increasing market volatility. The results provided evidence that markets tend to react more strongly to negative than to positive announcements, as downgrades signal financial distress and reduced investor confidence. However, Geyikci also noted substantial heterogeneity across emerging markets, with some countries showing strong reactions and others showing muted responses, depending on market development and institutional quality.

Zega, Massie and Tasik (2017) conducted a study on market reactions to Indonesia's Investment Grade Rating Announcement using event study methodology. Their result showed that positive credit rating announcements caused short-term increases in stock prices, but the effect diminished over time. This suggests that although investors initially view credit upgrades favourably, the long-term impact may be limited unless accompanied by substantial economic improvements. This finding highlights a key challenge in emerging markets: rating changes may generate temporary sentiment shifts without fundamentally altering long-term valuations.

Evidence from Insurance Markets

Kjendalen and Torsnes (2022) conducted an empirical study specifically in the European insurance market, examining the effect of credit rating change announcements on stock prices. Their research employed an event study approach demonstrating that downgrades had a negative impact on stock prices, while upgrades had minimal or insignificant positive effects. This asymmetry indicates investor scepticism toward positive rating changes, possibly due to concerns about the credibility of rating agencies or doubts about sustained improvements in credit quality. Their focus on the insurance sector is particularly relevant to the current study, though their European context differs significantly from Nigeria's institutional environment.

The Distress Puzzle

Theoretical perspectives have identified what has been termed the "distress puzzle"—the paradox that higher equity risk may coincide with elevated credit default risk (Friewald et al., 2014; Chu et al., 2013). This paradox has been explained largely by deteriorating economic conditions that simultaneously increase default risk and harm firm valuations (Chava and Purnanandam 2010; Claußen, Hirth and Jäckel 2017). Campbell, Hilscher and Szilagyi (2008) found that financially distressed stocks exhibited below-average returns from 1981 through 2006 in the U.S. market. Similarly, Dichev (1998) showed that firms with high bankruptcy probability tend to underperform in the market, yielding below-average returns. This underperformance has been attributed to inefficient risk assessment mechanisms and information asymmetry in financial markets. These findings suggest that in some contexts, markers of financial distress (including low credit ratings) may be associated with poor market valuations, though the direction of causality remains debated.

Research specifically examining credit ratings and firm value in emerging market insurance sectors remains limited. Rashid, Amin and Khan (2021) examined credit ratings and firm value in emerging economies more broadly, finding mixed results. They noted that in markets with weak institutional frameworks and low investor sophistication, credit ratings often fail to serve as effective signals of firm quality, resulting in weak or inconsistent relationships with market valuations. Gatzlaff, Jiang and Li (2019)

provided international evidence on credit ratings and firm performance across multiple countries. Their findings suggested that the relationship between credit ratings and firm value varies substantially across institutional contexts, with stronger effects observed in countries with well-developed capital markets, strong rule of law, and high levels of investor protection.

The literature reveals that credit rating changes significantly affect firm valuations in developed markets, with downgrades typically causing sharp negative reactions and upgrades generating modest positive responses. However, in emerging markets, these effects are more heterogeneous and often weaker, reflecting market inefficiencies, institutional constraints, and low investor sophistication.

In Nigeria's context, several factors may further attenuate the relationship between credit ratings and firm value: (1) underdeveloped capital markets with low liquidity and limited institutional participation; (2) macroeconomic instability that creates noise and overwhelms rating signals; (3) weak regulatory enforcement and corporate governance standards that reduce rating credibility; (4) low investor awareness and understanding of credit ratings; and (5) transparency challenges and perceived conflicts of interest in rating practices (Ezeribe and Mgbenwelu 2023).

Furthermore, the "distress puzzle" literature suggests that in some contexts, relationships between credit risk indicators and firm valuations may be non-linear or even counterintuitive. In markets where information asymmetry is high and risk assessment mechanisms are inefficient, credit ratings may fail to function as intended signals of firm quality.

Given these considerations and the limited prior research on credit ratings in Nigeria's insurance sector, this study hypothesizes that:

H_3: There is a statistically positive significant association between credit rating and value of the listed insurance companies in Nigeria

METHODS

This study adopts an ex-post facto research design, which is appropriate for examining relationships using existing data without experimental manipulation. It utilizes secondary data obtained from audited annual reports of sampled firms and credit rating publications from Agusto & Co., which is the most established indigenous rating agency in Nigeria. Data were collected for six (6) listed insurance companies registered on the Nigerian Exchange Group (NGX) over a five-year period from 2020 to 2024, yielding a balanced panel of 30 firm-year observations.

The rationale for selecting these firms is threefold: (i) they are subject to credit rating evaluation by recognized rating agencies, (ii) they have publicly available financial reports with consistent disclosure quality, and (iii) they were actively traded on the NGX during the study period. A purposive sampling technique was adopted to select firms meeting the following criteria: (a) availability of credit ratings from Agusto & Co. or A.M. Best for at least five consecutive years, (b) consistent reporting of financial statements and stock market data without major gaps or restatements, and (c) active trading on the NGX during the study period. The final sample comprises firms that have been rated for at least five consecutive years from 2020 to 2024, ensuring sufficient data availability for meaningful panel data analysis.

Variable Measurement

Dependent Variables

Three performance indicators serve as dependent variables:

Return on Assets (ROA): Measures operational efficiency and profitability by indicating how effectively a firm utilizes its assets to generate earnings. It is calculated as Net Income divided by Total Assets. Higher ROA indicates superior asset utilization and operational performance.

Return on Equity (ROE): Measures shareholder returns by indicating how effectively a firm generates profit from shareholders' equity. It is calculated as Net Income divided by Total Shareholders' Equity. Higher ROE indicates better returns to equity investors.

Tobin's Q: Measures market value relative to asset replacement cost, serving as a proxy for firm value and growth prospects. It is calculated as Market Capitalization divided by Total Assets. A Tobin's Q greater than 1 suggests that the market values the firm above its asset replacement cost, indicating positive growth expectations and intangible value.

Independent Variable

Credit Rating (CR): The primary independent variable represents the firm's creditworthiness as assessed by Agusto & Co., Nigeria's leading indigenous rating agency. Credit ratings are originally assigned as letter grades (e.g., AAA, AA, A, BBB, BB, B, etc.) following international rating conventions.

For empirical analysis, these ordinal letter grades are converted into numerical values using the following coding scheme:

AAA rating = 4 (Highest credit quality; lowest risk of default)
AA rating = 3 (Very high credit quality)
A rating = 2 (Strong credit quality)
BBB and below = 1 (Moderate to high credit risk)

This coding scheme follows conventions established in prior empirical studies (Sharma et al. 2018; Shaheen and Javid 2014) and allows credit ratings to be incorporated into linear regression models. However, it is acknowledged that this approach involves treating an ordinal categorical variable as continuous, which assumes equal intervals between rating categories—an assumption that may not perfectly hold in practice. As a limitation, this measurement approach may not fully capture non-linear relationships between rating changes. Future research could employ alternative specifications such as dummy variables for each rating category or threshold models to address this limitation.

Control Variable

Firm Size (FS): Measured as the natural logarithm of total assets, firm size serves as a control variable to account for scale effects on financial performance. Larger firms may benefit from economies of scale, greater market power, diversification advantages, and enhanced access to capital markets. Conversely, they may face bureaucratic inefficiencies or diseconomies of scale. Controlling for firm size allows the study to isolate the effect of credit ratings on performance while holding constant the influence of firm scale.

Model Specification

The relationship between credit ratings and financial performance is estimated using the following panel regression model:

$$ROA_{it} = \beta_0 + \beta_1 CR_{it} + \beta_2 FS_{it} + \varepsilon_{it} \quad (1)$$

$$ROE_{it} = \beta_0 + \beta_1 CR_{it} + \beta_2 FS_{it} + \varepsilon_{it} \quad (2)$$

$$Tobins\ Q_{it} = \beta_0 + \beta_1 CR_{it} + \beta_2 FS_{it} + \varepsilon_{it} \quad (3)$$

Where:
ROA_{it}= Return on Asset of the 6 listed Insurance companies
CR_{it} = Credit Rating of firm i at the time t
FS_{it} = Firm Size (Natural Log of total asset)
ROE_{it} = Return on Asset of the 6 listed insurance companies

$$Tobins\ Q_{it} = Value\ of\ firms \quad (4)$$

Where:
ε_{it} = Error term capturing unobserved variations for equation

Table 2. Sources and Measurement of Variables

Variable	Definition	Measurement	Source
Credit Rating (CR)	Firm's creditworthiness score	Rating agencies' classifications	Agusto & Co., and A.M. Best
Return on Assets (ROA)	Profitability indicator	Net income / Total assets	Company financial reports
Return on Equity (ROE)	Shareholder returns	Net income / Shareholder equity	Annual reports, NGX
Tobin's Q	Market value vs asset replacement cost	Market capitalization / Total assets	NGX, company filings
Firm Size (FS)	Scale of company operations	Natural log of total assets	Annual reports

Estimation Method and Diagnostic Tests

Panel least squares regression with both firm and period fixed effects is employed as the primary estimation method. The inclusion of firm fixed effects controls for unobserved, time-invariant characteristics

specific to each insurance company (e.g., corporate culture, management quality, historical reputation). The inclusion of period fixed effects controls for common macroeconomic shocks or regulatory changes affecting all insurers in a given year (e.g., economic recession, policy reforms, and pandemic effects).

Despite the relatively small sample size (N=30), fixed effects estimation is justified because it addresses potential omitted variable bias arising from unobserved firm-specific and tiSAXZme-specific factors that could confound the relationship between credit ratings and performance. The within-firm variation over time provides sufficient information for estimating the effects of interest.

Some diagnostic tests were conducted to ensure the validity of the regression results:

1. **Multicollinearity:** Variance Inflation Factors (VIF) were computed to check for multicollinearity among independent variables. VIF values below 10 indicate acceptable levels of collinearity.
2. **Heteroskedasticity:** The Breusch-Pagan test was conducted to detect heteroskedasticity in the residuals. If detected, robust standard errors (White's heteroskedasticity-consistent standard errors) were applied to ensure valid inference.
3. **Serial Correlation:** The Durbin-Watson statistic was examined to detect first-order autocorrelation in the residuals. Values close to 2 suggest no significant autocorrelation.

Limitations

It is important to acknowledge potential endogeneity concerns. Credit ratings may be influenced by firm performance (reverse causality), as rating agencies consider financial metrics when assigning ratings. Additionally, unobserved factors (e.g., management quality, strategic initiatives) may simultaneously affect both credit ratings and performance (omitted variable bias). While fixed effects partially mitigate this concern by controlling for time-invariant unobserved heterogeneity, they do not fully resolve reverse causality or time-varying omitted variables. Given these limitations and the observational nature of the data, the results of this study should be interpreted as associations rather than definitive causal effects. The findings indicate whether credit ratings are correlated with performance and firm value after controlling for firm size and fixed effects, but they do not establish that changes in credit ratings causally drive changes in performance. Future research employing instrumental variable approaches, natural experiments, or quasi-experimental designs would be valuable for establishing causal relationships.

RESULTS AND DISCUSSIONS

Descriptive Statistics

Table 3. Descriptive Statistics

	CR	FIRMSIZE	ROA	ROE	TOBIN_SQ
Mean	1.966667	10.51048	0.074175	0.177616	0.182796
Median	2.000000	10.69538	0.061385	0.154268	0.146662
Maximum	4.000000	11.61949	0.235371	0.446836	0.655633
Minimum	1.000000	0.180448	0.010910	0.023114	0.001286
Std. Dev.	0.889918	2.006121	0.046325	0.096798	0.160838
Skewness	0.363165	-4.750177	1.696835	1.188513	1.233529
Kurtosis	2.037275	25.09718	6.430552	4.168608	4.051128
Jarque-Bera	1.817995	723.1779	29.10711	8.769873	8.989060
Probability	0.402928	0.000000	0.000000	0.012464	0.011170
Sum	59.00000	315.3144	2.225265	5.328494	5.483894
Sum Sq. Dev.	22.96667	116.7111	0.062234	0.271724	0.750195
Observations	30	30	30	30	30

Source: E views Output version 11 (2025)

The mean credit rating of 1.967 (approximately 2.0) indicates that, on average, the sampled insurance companies hold ratings around the "A" grade level on the numerical scale. The standard deviation of 0.890 suggests moderate variability in credit ratings across firms and over time. Ratings range from a minimum of 1 (BBB or below) to a maximum of 4 (AAA), reflecting heterogeneity in creditworthiness among the sampled

insurers. The near-normal distribution (skewness = 0.363, kurtosis = 2.037, Jarque-Bera p-value = 0.403) suggests that credit ratings are approximately symmetrically distributed without extreme outliers.

The mean firm size is 10.510 (natural log of total assets), with a median of 10.695, indicating that most firms have similar asset sizes. However, the minimum value of 0.180 is notably lower than the mean and median, suggesting the presence of at least one observation with substantially smaller assets or a potential data entry issue. The highly negative skewness (-4.750) and extremely high kurtosis (25.097) indicate a left-skewed distribution with heavy tails, and the Jarque-Bera test strongly rejects normality ($p < 0.001$). This anomaly warrants further investigation. Upon review, the minimum value appears to be an outlier, possibly resulting from a data recording error or a firm with exceptionally low assets in a particular year. To ensure robustness, sensitivity analyses were conducted excluding this observation, and the main results remained qualitatively similar (results available upon request).

The mean ROA is 0.074 (7.4%), indicating that, on average, sampled insurers generate approximately 7.4 cents of profit for every naira of assets. The median ROA of 0.061 (6.1%) is lower than the mean, suggesting positive skewness (confirmed by skewness = 1.697). ROA ranges from a minimum of 0.011 (1.1%) to a maximum of 0.235 (23.5%), reflecting considerable variation in operational efficiency across firms and time periods. The positive skewness and high kurtosis (6.431) indicate that most firms have relatively low ROA, with a few firms achieving exceptionally high profitability. The Jarque-Bera test rejects normality ($p < 0.001$), consistent with the observed skewness and kurtosis.

The mean ROE is 0.178 (17.8%), indicating that, on average, sampled insurers generate approximately 17.8 cents of profit for every naira of shareholders' equity. The median ROE of 0.154 (15.4%) is lower than the mean, again suggesting positive skewness (confirmed by skewness = 1.189). ROE ranges from 0.023 (2.3%) to 0.447 (44.7%), reflecting substantial variation in returns to equity investors. The distribution is positively skewed and leptokurtic (kurtosis = 4.169), and the Jarque-Bera test rejects normality ($p = 0.012$).

The mean Tobin's Q is 0.183, indicating that, on average, the market values sampled insurers at approximately 18.3% of their asset book value. This suggests that the market, on average, undervalues these firms relative to their asset replacement costs (Tobin's $Q < 1$). The median of 0.147 is lower than the mean, indicating positive skewness (confirmed by skewness = 1.234). Tobin's Q ranges from a minimum of 0.001 to a maximum of 0.656, reflecting wide variation in market valuations. The positive skewness and kurtosis (4.051) indicate that most firms have low Tobin's Q values, with a few firms approaching higher valuations. The Jarque-Bera test rejects normality ($p = 0.011$). The generally low Tobin's Q values (well below 1) suggest that investors perceive limited growth prospects or assign low intangible value to Nigerian insurance firms, possibly due to macroeconomic uncertainties, regulatory challenges, or sectorial underdevelopment.

Regression Analysis

Table 4. Model 1: Effect of Credit Rating on Return on Assets (ROA)

Dependent Variable: ROA

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	-0.038775	0.033799	-1.147222	0.2663
CR	-0.002277	0.011725	-0.194244	0.8482
FIRMSIZE	0.011173	0.002392	4.671740	0.0002
	Effects Specification			
Cross-section fixed (dummy variables)				
Period fixed (dummy variables)				
R-squared	0.875531	Mean dependent var		0.074175
Adjusted R-squared	0.799466	S.D. dependent var		0.046325
S.E. of regression	0.020745	Akaike info criterion		-4.623878
Sum squared resid	0.007746	Schwarz criterion		-4.063399
Log likelihood	81.35816	Hannan-Quinn criter.		-4.444575
F-statistic	11.51038	Durbin-Watson stat		1.748909
Prob(F-statistic)	0.000005			

Source: E-views Output version 11 (2025)

The result on Table 4 indicates that Credit Rating (CR) has a negative but statistically insignificant association with ROA (β = -0.0023, p = 0.8482). The negative coefficient suggests that, holding firm size constant, higher credit ratings are weakly associated with lower ROA, though this relationship is not statistically distinguishable from zero at conventional significance levels (1%, 5%, or 10%). This finding is counterintuitive from a theoretical perspective, as higher credit ratings are generally expected to signal lower risk, reduce financing costs, and enhance operational performance. However, the insignificance of the coefficient implies that credit ratings do not meaningfully explain variation in ROA within this sample.

Firm Size (FIRMSIZE) exhibits a positive and statistically significant association with ROA (β = 0.0112, p = 0.0002). This indicates that larger insurance companies, as measured by total assets, tend to achieve higher ROA, consistent with economies of scale, operational efficiencies, and greater market power. The coefficient suggests that a one-unit increase in log (total assets) is associated with an approximate 1.12 percentage point increase in ROA, holding credit rating constant. The model demonstrates strong overall fit, with an R-squared of 0.8755 and an adjusted R-squared of 0.7995, indicating that the model (including credit rating, firm size, and fixed effects) explains approximately 80% of the variation in ROA. The F-statistic of 11.510 ($p < 0.0001$) confirms that the model is jointly significant, meaning that the explanatory variables collectively have a statistically meaningful effect on ROA. The Durbin-Watson statistic of 1.749 is close to 2, suggesting no significant first-order autocorrelation in the residuals.

We therefore reject hypothesis H_1, suggesting a negative insignificant association between credit ratings and ROA in this context.

Table 5. Model 2: Effect of Credit Rating on Return on Equity (ROE)
Dependent Variable: ROE
Method: Panel Least Squares

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	-0.065637	0.069110	-0.949734	0.3548
CR	0.024287	0.023974	1.013072	0.3245
FIRMSIZE	0.018599	0.004890	3.803508	0.0013
	Effects Specification			
Cross-section fixed (dummy variables)				
Period fixed (dummy variables)				
R-squared	0.880813	Mean dependent var		0.177616
Adjusted R-squared	0.807976	S.D. dependent var		0.096798
S.E. of regression	0.042417	Akaike info criterion		-3.193351
Sum squared resid	0.032386	Schwarz criterion		-2.632872
Log likelihood	59.90027	Hannan-Quinn criter.		-3.014049
F-statistic	12.09301	Durbin-Watson stat		2.008893
Prob(F-statistic)	0.000004			

Source: E views Output version 11 (2025)

The result on Table 5 reveals that Credit Rating (CR) has a positive but statistically insignificant association with ROE (β = 0.0243, p = 0.3245). The positive coefficient suggests that higher credit ratings are weakly associated with higher returns to equity, though this relationship is not statistically significant at conventional levels. This finding is more aligned with theoretical expectations than the ROA result. Higher credit ratings may enhance investor confidence, reduce equity risk premiums, and improve access to capital, potentially leading to higher ROE. However, the lack of statistical significance suggests that these mechanisms are not strongly operative within the Nigerian insurance sector during the study period.

Firm Size (FIRMSIZE) again shows a positive and statistically significant association with ROE (β = 0.0186, p = 0.0013). This suggests that larger insurance companies achieve higher returns on equity, potentially due to greater capital efficiency, diversification benefits, or market power. The coefficient indicates that a one-unit increase in log(total assets) is associated with an approximate 1.86 percentage point increase in ROE, holding credit rating constant. The model exhibits excellent fit, with an R-squared of 0.8808 and an adjusted R-squared of 0.8080, indicating that approximately 81% of the variation in ROE is

explained by the model. The F-statistic of 12.093 ($p < 0.0001$) confirms the model's joint significance. The Durbin-Watson statistic of 2.009 is very close to 2, suggesting no significant autocorrelation.

Given the positive but insignificant coefficient on credit rating, we reject hypothesis H_2. While the direction of the relationship is consistent with theoretical predictions (positive association between credit ratings and ROE), the lack of statistical significance means we cannot confirm that credit rating has positive association with return on equity of listed insurance companies in Nigeria.

Table 6. Model 3: Effect of Credit Rating on Firm's Value (Tobin-Q)
Dependent Variable: TOBIN_SQ
Method: Panel Least Squares

Variable	**Coefficient**	**Std. Error**	**t-Statistic**	**Prob.**
C	-0.111344	0.093940	-1.185262	0.2513
CR	-0.064868	0.032587	-1.990581	0.0619
FIRMSIZE	0.040123	0.006647	6.036354	0.0000
	Effects Specification			
Cross-section fixed (dummy variables)				
Period fixed (dummy variables)				
R-squared	0.920237	Mean dependent var		0.182796
Adjusted R-squared	0.871494	S.D. dependent var		0.160838
S.E. of regression	0.057657	Akaike info criterion		-2.579442
Sum squared resid	0.059838	Schwarz criterion		-2.018963
Log likelihood	50.69163	Hannan-Quinn criter.		-2.400140
F-statistic	18.87906	Durbin-Watson stat		1.734954
Prob(F-statistic)	0.000000			

Source: E views Output version 11 (2025)

Table 6 presents the result for the effect of Credit Rating on firm value, measured by Tobin's Q. The results reveal that Credit Rating (CR) has a negative and marginally significant association with Tobin's Q ($\beta = -0.0649$, $p = 0.0619$). However, at 10% significance level, this coefficient is statistically significant, indicating a weak inverse relationship between credit ratings and firm value. Specifically, a one-unit increase in credit rating (e.g., moving from A to AA) is associated with an approximate 6.49 percentage point decrease in Tobin's Q, holding firm size constant. This finding is highly counterintuitive and challenges theoretical expectations derived from Signalling Theory and Tobin's Q Theory. According to these theories, higher credit ratings should signal lower risk and better financial health, thereby increasing investor confidence and elevating market valuations. The observed negative relationship suggests that, within the Nigerian context, credit ratings may not function as effective positive signals to equity investors, or that other factors dominate market valuation decisions.

Firm Size (FIRMSIZE) exhibits a strong positive and statistically significant association with Tobin's Q ($\beta = 0.0401$, $p < 0.0001$). This indicates that larger insurance firms enjoy higher market valuations relative to their assets, likely due to greater stability, brand reputation, diversification, and investor confidence. The coefficient suggests that a one-unit increase in log (total assets) is associated with an approximate 4.01 percentage point increase in Tobin's Q, holding credit rating constant. The model demonstrates excellent overall fit, with an R-squared of 0.9202 and an adjusted R-squared of 0.8715, indicating that approximately 87% of the variation in Tobin's Q is explained by the model. The F-statistic of 18.879 ($p < 0.0001$) confirms the model's strong joint significance. The Durbin-Watson statistic of 1.735 suggests no significant autocorrelation.

Given the negative and marginally significant coefficient on credit rating (at the 10% level), we reject hypothesis H_3. Not only is the relationship statistically significant (albeit marginally), but it is in the opposite direction to that predicted by theory. Instead of credit ratings having a positive effect on firm value, the evidence suggests a negative association. This counterintuitive finding directly contradicts the predictions of Signalling Theory and Tobin's Q Theory, and warrants careful interpretation in light of Nigeria's institutional and market context.

Discussion of Findings

This study set out to investigate whether credit ratings have positive association with financial performance and market value of listed insurance companies in Nigeria, anchored on Default Risk Theory and Signalling Theory. These theories predict that higher credit ratings should positively influence firm performance and market valuation by signalling lower risk, reducing financing costs, and enhancing stakeholder confidence. However, the empirical evidence from this study does not support these theoretical predictions and vice versa.

The regression results show a negative but statistically insignificant association between credit ratings and ROA, leading to the rejection of H_1 (which predicted a significant positive effect). This indicates that variations in firms' creditworthiness, as assessed by rating agencies, do not significantly explain differences in operational efficiency, and certainly not in the positive direction predicted by theory. The negative sign, though not statistically significant, may reflect the costs associated with obtaining and maintaining credit ratings, including fees paid to agencies, compliance costs, and governance investments required to achieve higher ratings. These costs may offset any operational benefits in the short to medium term, particularly in a market where credit ratings do not strongly influence customer acquisition, pricing power, or competitive positioning. From the perspective of Default Risk Theory and Signalling Theory, which posit that positive signals (such as favourable credit ratings) should encourage stakeholder confidence and improve performance, this finding is counterintuitive. However, it reflects structural characteristics of the Nigerian insurance sector, including low insurance penetration, regulatory rigidity, weak financial intermediation, and limited integration with capital markets. These factors may dilute the signalling power of credit ratings, preventing them from translating into tangible operational improvements.

Credit ratings exhibit a positive but statistically insignificant association with ROE. Theoretically, creditworthy firms should benefit from lower financing costs, enhanced investor trust, and improved access to capital, which could boost returns to shareholders. The positive sign is consistent with this expectation, but the lack of statistical significance indicates that this mechanism is weak or inconsistent within the Nigerian context. Several factors may explain this finding. First, the Nigerian equity market for insurance firms is relatively underdeveloped, with low trading volumes, limited institutional investor participation, and weak integration with international capital markets. Second, many Nigerian insurance companies remain closely held or family-owned, with concentrated equity structures that limit the role of public equity markets in capital allocation and valuation. Third, weak corporate governance, limited disclosure transparency, and low investor sophistication may reduce the credibility and influence of credit ratings on equity returns. According to Oduware and Owoputi (2021), the Nigerian capital market has yet to fully internalize credit ratings in pricing equity risk or allocating capital, especially in the insurance sub-sector.

The most striking finding is the negative and marginally significant association between credit ratings and Tobin's Q. This result directly challenges theoretical predictions from Signalling Theory and Tobin's Q Theory, which suggest that higher credit ratings should elevate market valuations by conveying positive information about creditworthiness and future prospects. Several explanations may account for this paradoxical finding. Nigeria's equity market for insurance firms is characterized by thin trading, low liquidity, limited analyst coverage, and weak price discovery mechanisms. In such an environment, credit ratings may not be efficiently incorporated into stock prices, or they may even be misinterpreted by unsophisticated investors. Firms with higher credit ratings may be subject to stricter governance standards, more conservative financial policies, and higher capital requirements imposed by regulators or rating agencies. While these measures enhance financial stability, they may constrain growth, limit risk-taking, and reduce short-term profitability, thereby depressing market valuations.

Firms experiencing low market valuations may proactively seek higher credit ratings as a compensatory mechanism to signal stability and attract investment. This reverse relationship could generate a spurious negative correlation between ratings and Tobin's Q. Persistent macroeconomic instability (inflation, exchange rate volatility, political uncertainty) and weak institutional quality (poor contract enforcement, regulatory unpredictability) may dominate investor perceptions, overshadowing credit rating signals and reducing their influence on valuations. Empirical evidence suggests that Nigerian investors, both retail and institutional, may have limited awareness, understanding, or trust in credit ratings. As noted by Ezeribe and Mgbenwelu (2023), transparency challenges and perceived conflicts of interest in rating practices further erode confidence in ratings.

Across all three models, firm size emerges as a consistently strong and positive predictor of financial performance and firm value. Larger insurance companies enjoy higher ROA, higher ROE, and higher Tobin's Q, likely due to economies of scale, diversification benefits, enhanced market power, better access to capital, and greater brand credibility. This finding is consistent with prior empirical literature such as Attard, Gatt and Grech 2021) and underscores the importance of scale in driving competitive advantage in Nigeria's insurance sector.

Overall, the findings suggest that the Nigerian insurance sector operates in a financial environment where credit ratings function more as regulatory compliance tools or external certifications rather than as strategic instruments that meaningfully influence operational performance or market valuations. These findings are consistent with broader evidence from emerging markets, where credit ratings often exhibit weaker associations with firm performance and valuations compared to developed markets (Rashid, Amin and Khan 2021; Oduware and Owoputi 2021).

CONCLUSION AND RECOMMENDATIONS

This study examined the association between credit ratings and financial performance (measured by ROA and ROE) and firm value (measured by Tobin's Q) of six listed insurance companies in Nigeria over the period 2020-2024. Grounded in Default Risk Theory and Signalling Theory, the study hypothesized that credit ratings would serve as credible signals of creditworthiness, thereby positively influencing performance and market valuations. However, the empirical findings provide limited support for these theoretical predictions. The results reveal that credit ratings have a negative but statistically insignificant association with ROA (β = -0.0023, p = 0.8482), a positive but statistically insignificant association with ROE (β = 0.0243, p = 0.3245), and a marginally significant negative association with Tobin's Q (β = -0.0649, p = 0.0619 at the 10% level). In contrast, firm size consistently demonstrates strong positive and significant relationships with all three performance indicators, highlighting the importance of scale in Nigeria's insurance sector. These findings suggest that credit ratings do not function as effective strategic tools for enhancing financial performance or market value within Nigeria's insurance sector during the study period. Instead, credit ratings appear to serve primarily as regulatory compliance mechanisms or external certifications, with limited influence on operational outcomes or investor perceptions.

In enhancing the place of credit ratings on the financial performance of listed insurance companies in Nigeria, regulatory bodies such as the National Insurance Commission (NAICOM) and the Securities and Exchange Commission (SEC) must move beyond mere compliance. Equally, there is need for better understanding of the markets and higher levels of investor education with regard to the role and importance of credit ratings. Professional associations such as the Nigerian Insurers Association (NIA) and the Chartered Insurance Institute of Nigeria (CIIN) should be in the forefront in organising awareness programmes, workshops and briefing sessions in the industry to help in chipping up the investor confidence in the results of credit rating. A stable macroeconomic environment will enhance the predictive power of ratings and allow them to be more useful to market participants attempting to make investment and financial decisions.

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