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ESG Disclosure and Economic Value of Listed Insurance Companies in Nigeria

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Abstract

This study examined how Environmental, Social, and Governance (ESG) disclosure affects economic value added (EVA) among Nigerian listed insurance companies. The inquiry was triggered by the continuing volatility in business value in developing nations, which still face considerable obstacles from weak institutions, regulatory inefficiencies and infrastructural restrictions. The study used EVA as a value-based measure to examine the question of whether ESG disclosure leads to economic value creation in emerging insurance markets. The study design adopted was ex post facto. The study covered the 23 insurance businesses listed on the Nigerian Exchange Group (NGX) from 2013 to 2023 using a census technique. Data were acquired from public annual reports, and the connection between ESG disclosure and EVA was tested using Panel-Corrected Standard Errors (PCSE) regression. The results reveal that ESG disclosure has a low explanatory power for EVA among the listed Nigerian insurance firms and the economic significance of the ESG metrics is negligible. Only environmental disclosure was significantly related to EVA and the association was negative. Social and governance disclosure had no significant effect. Among the control variables, profitability and firm age were positively and significantly associated with EVA, whereas firm size and leverage were not significant. ESG integration in the sector therefore appears to be at an early stage, contributing little economically meaningful value beyond the influence of profitability and firm age. Previous studies have largely relied on accounting-based or market-based performance measures, with limited use of EVA. Few have also examined the individual ESG components in the Nigerian insurance context. By applying EVA as a superior measure of economic value and analysing the ESG components separately, this study provides more refined evidence on ESG–value relationships in a developing economy.

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1. Introduction

The economic value of enterprises is an essential indicator of the performance of enterprises and is conducive to the development of the national economy. At the macro level, firm value contributes to gross domestic product, job creation, capital formation, and economic stability. At the firm level, it is a sign of management efficiency and maximization of shareholder wealth, frequently measured by market valuation and financial performance indicators such as share price performance and value-based measures (Gholami et al., 2022; Hassani and Bahini, 2022). In developed economies, the valuation of firms is generally supported by deep capital markets, effective mechanisms of investor protection and efficient corporate governance systems, which in turn promote investor trust and stability in valuation (Eng et al., 2022; Gallucci et al., 2025). Even with these benefits, evidence indicates that the company value is not always on a steady increasing trend. Fluctuations can still arise from changes in macroeconomic conditions and firm-specific hazards even in reasonably mature markets (Rohendi et al., 2024).

In contrast, firms in developing economies face increased volatility of economic value (caused by structural and institutional constraints). Business valuation dynamics are usually affected by poor regulatory compliance, uneven policy application, lack of infrastructure, and underdeveloped capital markets in these environments (Alabi et al., 2024; Dagunduro et al., 2023; Yeye and Egbunike, 2023). Development economies such as Nigeria, however, also have significant growth prospects due to the growing markets, natural resources, and foreign direct investment. As long as better governance frameworks are in place, firm value could be enhanced (Hassani and Bahini, 2022; Rastogi et al., 2024). The question of what determines economic value in emerging economies is particularly relevant in this regard.

ESG disclosure has become a major non-financial factor in the value generation of firms. In addition to conventional financial reporting, ESG disclosures provide stakeholders with information about how firms manage environmental responsibilities, social interactions, and governance structures, which broadens the scope of corporate evaluation (Appannan et al., 2023; Bani-Khaled et al., 2025; Hamdouni, 2025). By signaling responsible corporate behavior and better risk management techniques, ESG disclosure is often thought to increase openness, minimize information asymmetry, and increase investor confidence (Bebbington et al., 2023; Finger and Rosenboim, 2022). Since its formal emergence in the early 2000s (Gündüz and Gündüz, 2025; Hassani and Bahini, 2022; Khan and Gupta, 2024; Pramesti et al., 2024), ESG has grown into a worldwide sustainability framework that is more and more embedded within corporate reporting systems and investment decision-making processes.

Regulators and norm setters worldwide have developed frameworks to enhance the quality and comparability of ESG reporting. For instance, the European Union has enhanced the disclosure of sustainability through legislation such as the Non-Financial Reporting Directive and the Corporate Sustainability Reporting Directive to promote transparency and accountability (Mahmood et al., 2026; Gallucci et al., 2025). International frameworks on sustainability, such as the Global Reporting Initiative (GRI), have prompted companies to include ESG issues in their reporting procedures (GRI, 2021; KPMG, 2020). In Nigeria, the Financial Reporting Council of Nigeria has also developed sustainability reporting requirements to promote non-financial disclosure processes and better investor decision-making (Financial Reporting Council of Nigeria, 2020). Nonetheless, the consistency, trustworthiness, and comparability of ESG disclosures are still questionable, especially in emerging nations where regulatory enforcement is still growing (Khanchel and Lassoued, 2025).

The empirical evidence on the association between ESG disclosure and business value is still equivocal. While some studies report a positive association between ESG disclosure and financial performance due to improved transparency and reduced risk (Almulhim and Metwally, 2025; Khan

and Gupta, 2025; Su et al., 2025), others find weak, insignificant, or context-dependent relationships (Cherian and Seranmadevi, 2025). Institutional context, measurement approach and market development disparities are widely cited as reasons for these inconsistencies (Bani-Khaled et al., 2025). In developed economies, ESG disclosure tends to have stronger positive effects due to more developed regulatory structures and investor sophistication, while findings in emerging economies are more mixed due to weaker institutional support and limited ESG integration in investment decisions (Dagunduro et al., 2024; Makhija et al., 2025; Yao et al., 2025).

While the literature on ESG disclosure and company performance is increasing, there remain major gaps, especially for research on emerging economies and individual sectors. First, most of the previous studies have focused on accounting-based or market-based performance measures such as return on assets, return on equity, and Tobin's Q, with little focus on value-based measures such as EVA that provide a more accurate representation of true economic profit after accounting for the cost of capital (Useche et al., 2025; Mahmood et al., 2026; Wiredu et al., 2023). This represents a measurement gap in ESG performance research. In addition, empirical evidence on the relationship between ESG and business value is inconsistent and equivocal among studies. Although some studies find positive effects of ESG disclosure on firm value (Almulhim and Metwally, 2025; Khanchel and Lassoued, 2025), others find insignificant or nonlinear relationships (Latifah and Soewarno, 2023; Liu et al., 2025; Pizzi et al., 2023; Rastogi et al., 2024; Suharto et al., 2025; Wahyuningrum et al., 2023; Zhao et al. 2025) and many do not provide a consistent theoretical explanation for these inconsistencies. There is less evidence from Nigeria on whether ESG disclosure translates into genuine economic value creation in the insurance industry, especially when ESG is disaggregated into ESG components.

This study consequently looks into the economic worth of listed insurance companies in Nigeria in connection with ESG disclosure. It specifically analyzes the impact of environmental disclosure, social disclosure and governance disclosure on EVA. The study intends to contribute to the literature by giving contextual data from an emerging market and by enriching the knowledge on the role of non-financial disclosures in value creation in the insurance business. The findings are anticipated to provide useful insights for regulators, policymakers and practitioners by showing the extent to which ESG disclosure contributes to the creation of economic value in Nigeria's insurance industry. These insights can be helpful for legislative reforms and corporate initiatives to improve transparency, integration of sustainability and long-term value generation in emerging economies.

2. Literature review

This section reviews the empirical evidence and theoretical foundations of the study.

2.1. Theoretical framework

The paper draws on four complementary theories: stakeholder theory, agency theory, signaling theory and legitimacy theory, which explain the methods via which ESG disclosure may impact EVA in listed insurance businesses in Nigeria. EVA, unlike traditional accounting measurements of performance, measures the economic profit left after subtracting the cost of capital. Hence, the selected theories are applied to explain the influence of ESG disclosure on value creation through cost structures, risk perceptions, information asymmetry, and capital market reactions.

According to Freeman (1984), stakeholder theory is the foundation of the study. It maintains that businesses generate profits by satisfying the needs of many constituencies, such as investors, government agencies, workers, consumers, and the general public. Economic value analysis suggests that ESG disclosure could boost EVA by lowering regulatory pressure, boosting the firm's reputation,

and increasing trust among stakeholders, all of which could result in a lower cost of capital. On the other hand, ESG-related operations in developing nations like Nigeria could lead to higher operational and regulatory costs with little apparent return on investment right away. Because of this cost-benefit analysis, it is easier to see how ESG disclosure, based on efficiency and market perception, might either increase or decrease EVA.

Agency theory, based on Jensen and Meckling (1976), characterizes ESG disclosure as a means to alleviate the knowledge imbalance between managers and shareholders. From an EVA perspective, agency problems develop when managers devote resources to ESG activities that do not provide proportional economic benefits and therefore reduce residual revenue. ESG disclosure, especially governance-related disclosure, can assist in reducing these agency conflicts through increasing openness and aligning managerial actions with shareholder wealth maximization. However, if ESG spending is seen as overinvestment or managerial inefficiency, it may increase agency costs and lower EVA. Such opposing effects give a theoretical foundation for mixed ESG–EVA results.

According to signaling theory (Spence, 1973), organizations utilize ESG disclosure to communicate their quality, risk profile, and long-term sustainability to the market in an information-asymmetric environment. Credible ESG disclosure could be a good indication with regard to EVA. This decreases perceived risk and lowers the cost of capital, boosting economic value. Since EVA is sensitive to capital costs, any reduction in the cost of capital might add value creation. However, in emerging markets such as Nigeria, where investors are still working on improving their perception of ESG information, ESG disclosures may not always be viewed as value-relevant signals and their influence on EVA may be limited or even negative in case of symbolic compliance.

ESG disclosure is a tool for companies to maintain congruency between their actions and societal norms, according to legitimacy theory (Suchman, 1995). Especially in highly regulated industries like insurance, companies report ESG information to gain legitimacy and maintain their social licence to operate. Legitimate ESG actions may have higher short-term costs due to compliance, reporting requirements and sustainability investments without immediate revenue generation. These efforts may help long-term survival and stability, but they may lower EVA in the short term, especially in cases when ESG enforcement mechanisms are still evolving.

By integrating these ideas, we can explain the link between ESG and EVA. There are three primary ways in which ESG disclosure can impact EVA. EVA can be diminished firstly by putting more effort into compliance and sustainability. Furthermore, better transparency and signaling effects may lower capital risk and cost, resulting in higher EVA. Finally, it may enhance stakeholder connections and legitimacy, resulting in longer-term value but not necessarily higher EVA. ESG efforts in Nigeria are either perceived as value-enhancing investments or compliance-driven costs.

2.2. Empirical review

This section reviews relevant empirical studies on ESG disclosure and economic value, with particular attention to EVA and evidence from both developed and emerging economies. The review follows the study objectives.

2.2.1. Environmental disclosure and economic value

The evidence on the relationship between environmental disclosure and economic value is still varied. The results are mostly dependent on institutional quality, disclosure credibility and market maturity. Evidence from established markets tends to show a value-enhancing effect. For instance, Gallucci et al. (2025) reported that climate-related environmental disclosures improved firms' access to credit in the European markets. Khanchel and Lassoued (2025) reported that environmental disclosure lowers the cost of capital among S&P 500 firms, thereby improving firm value via reduced

perception of risk. Likewise, Su et al. (2025) showed that although environmental disclosures could lead to unfavorable short-term market reactions, they help with long-term value creation by increasing transparency and investor confidence.

Findings for emerging economies, however, are more mixed. According to Suharto et al. (2025), ESG environmental practices had no significant impact on firm value in Indonesian mining firms, while Rastogi et al. (2024) found a nonlinear relationship between ESG and firm value in India, suggesting environmental disclosure does not result in a linear value-enhancing manner. Moreover, Hassani and Bahini (2022) believe that in some cases, ESG disclosure may not be effective in reducing information asymmetry, especially in cases of poor or unevenly applied disclosure requirements. Disparities in findings have often been attributed to disparities in regulatory enforcement, investor acumen, and the degree to which environmental disclosure is integrated into investment decision-making. The poor and even negative correlation of environmental disclosure with business value may be because, in developing economies, environmental disclosure is more of a compliance issue rather than a value-driven issue.

Therefore, the evidence implies that the impact of environmental disclosure on economic value is not universal but context-dependent, especially in emerging countries where ESG integration is still developing. This study consequently explores whether environmental disclosure significantly affects EVA across listed insurance firms in Nigeria.

H1: Environmental disclosure does not significantly affect the EVA of listed insurance companies.

2.2.2. Social disclosure and economic value

Empirical research usually finds a positive relationship between social disclosure and economic value, but the extent and significance of this relationship depends on the circumstances. Social disclosure has been associated with increased stakeholder trust, less risk, and superior financial performance in both developed and emerging markets. For example, Finger and Rosenboim (2022) find that companies with strong social values are more likely to experience higher stakeholder willingness to contribute financially, implying direct value generation. Similarly, Useche et al. (2025) indicate that ESG policies containing social dimensions help increase financial strength, minimize bankruptcy risk, and boost EVA in Latin America. Eng et al. (2022) further emphasize that the value relevance of ESG depends on the quality of disclosure, as firm-specific disclosures are more influential than generic reporting among United States corporations.

Nevertheless, in a few emerging economies, the link is less strong or indirect. Rohendi et al. (2024) find that there is no direct effect of ESG disclosure on business value, but it is mediated via competitive advantage. Yeye and Egbunike (2023) in Nigeria similarly found a positive but statistically insignificant association between ESG disclosure and business value, suggesting that the market is less sensitive to social information. These inconclusive results are frequently explained by poor institutional enforcement, limited investor knowledge, and the underdevelopment of ESG valuation tools in emerging countries. In these settings, social disclosure might increase reputation but not be properly factored into corporate valuation, especially when measured through EVA. Given these inconsistencies, this study explores whether social disclosure significantly influences the economic value of listed insurance companies in Nigeria.

H2: Social disclosure does not significantly affect the EVA of listed insurance companies.

2.2.3. Governance disclosure and economic value

Most studies on governance disclosure have found a more stable positive link with company value than with environmental and social aspects, but there are still contextual variances. Governance methods like board structure, transparency, and oversight systems have been proven to improve business performance and value creation in mature markets. For example, Almulhim and Metwally

(2025) demonstrate that ESG disclosure increases corporate performance, especially when backed by governance mechanisms like sustainability committees. Likewise, Makhija et al. (2025) reveal that board gender diversity strengthens the ESG–EVA nexus, suggesting that governance quality boosts the efficiency of ESG outcomes.

The effects of governance are more varied in emerging markets. Alomair and Metwally (2025) find that ESG disclosure can counteract agency-related inefficiencies such as tax avoidance, therefore enhancing business value. However, Mahmood et al. (2026) and Sekimoto and Amran (2025) indicate that governance-related ESG effects are extremely sensitive to the maturity of institutions and the credibility of disclosures, with higher effects in more established regulatory settings such as the European Union and Japan. These discrepancies show governance disclosure may not be inevitably associated with increased economic value in all settings. In undeveloped nations, governance reporting could be hampered by standardization effects, inadequate enforcement and minimal differentiation among enterprises, therefore lowering its valuation impact when examined using EVA. This study consequently explores whether governance disclosure significantly influences the economic value of listed insurance companies in Nigeria.

H3: Governance disclosure does not significantly affect the EVA of listed insurance companies.

2.3. Summary of research gaps

There is a growing body of literature on ESG disclosure and company performance; nonetheless, there are significant gaps, notably in research on emerging economies and individual sectors. First, most of the previous studies use accounting-based or market-based performance measures, such as return on assets, return on equity, and Tobin's Q, with little attention to value-based measures, such as EVA, which provides a more accurate representation of true economic profit after accounting for the cost of capital (Useche et al., 2025; Mahmood et al., 2026). This represents an empirical gap in research on ESG performance. Furthermore, empirical results on the ESG-firm value association are inconsistent and equivocal among studies. Some studies find positive effects of ESG disclosure on firm value (Almulhim and Metwally, 2025; Khanchel and Lassoued, 2025), while others find insignificant or nonlinear relationships (Rastogi et al., 2024; Suharto et al., 2025). However, many studies fail to offer a unified theoretical explanation for these inconsistencies.

Most of the previous studies consider ESG as a composite measure, therefore concealing the varied effects of ESG components. Recent data indicate that disaggregating ESG characteristics yields more nuanced and reliable insights into business outcomes (Makhija et al., 2025; Wu et al., 2025). Also, most empirical evidence is based on developed economies or large emerging markets such as China, India, and Europe, with limited context-specific evidence from Nigeria, especially the insurance sector, which operates in a different institutional, regulatory, and market environment (Yeye and Egbunike, 2023; Dagunduro et al., 2024). The evidence on whether ESG disclosure results in real economic value creation is limited when considering emerging markets, where ESG reporting is often driven by compliance rather than value considerations, and where investor sensitivity to non-financial information is still relatively weak (Hassani and Bahini, 2022; Suharto et al., 2025).

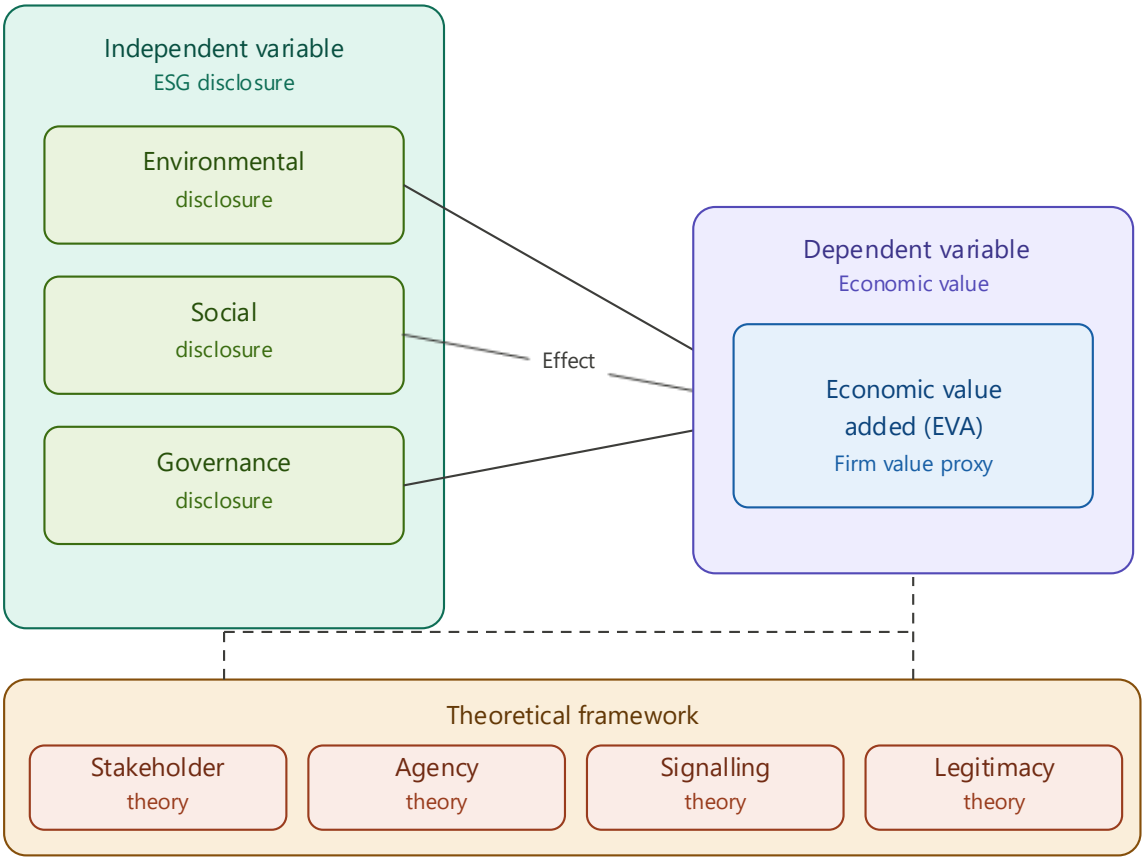
2.4. Conceptual framework

Figure 1 shows the conceptual framework of the relationship between ESG disclosure and the economic value of listed insurance enterprises in Nigeria. The dependent variable is economic value as measured by EVA and the independent constructs are environmental disclosure, social disclosure and governance disclosure. The model is based on the theoretical assumption that the impact of ESG disclosure on EVA is not a simple direct linear relationship, but a spectrum of linked mechanisms. Environmental disclosure is a proxy for the firms' commitment to the preservation of the environment

that may impact operating expenses, regulatory compliance load and risk exposure. Social disclosure is evidence of how a company interacts with employees, communities and other stakeholders, and can impact reputation, consumer loyalty and long-term viability. Governance disclosure indicates transparency, accountability and managerial supervision methods that directly address agency conflicts and efficiency of resource allocation. These characteristics of ESG disclosure are projected to impact EVA via their influences on cost of capital, agency costs, stakeholder trust, risk perception and regulatory legitimacy. The relationship is theoretically supported by stakeholder theory, agency theory, signaling theory and legitimacy theory, which explain how non-financial disclosures translate into economic results in capital markets. Stakeholder theory explains value creation through better stakeholder relationships, agency theory explains value effects through less managerial opportunism, signaling theory explains value implications through less information asymmetry, and legitimacy theory explains value effects through adherence to societal and regulatory expectations. This study applies these theoretical perspectives to explain how ESG disclosure can either increase or decrease EVA in the Nigerian insurance sector depending on whether ESG activities are perceived as value-adding investments or cost-adding compliance activities in an emerging market context.

3. Methodology

The ex post facto research approach was employed for this investigation because the data used were already existing and could not be modified or altered. This approach is suitable for the analysis of historical financial and sustainability data, guaranteeing objectivity and dependability in the evaluation of the correlations between variables. The data were obtained from the financial and sustainability reports of the companies studied, as the reports provide verifiable and standardized information on corporate disclosures and financial performance. The use of publicly available reports improves the transparency and uniformity of data collection. A census sample technique was used to cover the complete population of 23 listed insurance companies in Nigeria. This was a suitable strategy as the very modest number of listed insurance firms made it possible to consider all firms rather than selecting a sample. The whole population was reviewed, avoiding sampling bias and providing more generalizable results. The analysis was based on the span 2013-2023 for a robust analysis. The period was selected to study trends and volatility in ESG disclosures and their influence on economic value over a longer period. By looking at a decade's worth of data, we were able to see longer-term associations and lower the chances that a short-term anomaly would skew the conclusions. Data analysis was done via descriptive statistics (mean, median, variance, standard deviation, skewness and kurtosis) and inferential statistics (panel regression analysis, correlation analysis, etc.).



Source: Author's conceptualisation (2025)

Figure 1. Conceptual framework

3.1. Model specification

The investigation was anchored on the previous work of Dagunduro et al. (2024) to evaluate the relationships of the variables. The purpose was to investigate the possibility of employing ESG disclosure and firm performance together to assess outcomes related to the integration of these principles into business operations. The empirical model is provided to investigate the impact of ESG disclosure on EVA of listed insurance companies in Nigeria. The specification is guided by the theoretical perspectives of stakeholder theory, agency theory, signaling theory and legitimacy theory, which together suggest that ESG disclosure has the potential to affect firm economic value through changes in cost of capital, agency costs, risk perception and stakeholder confidence. Instead of the traditional accounting-based performance models, the present study uses EVA as the dependent variable, as it incorporates the residual economic profit after considering the cost of capital and is, thus, a more robust measure of actual economic value generation. Based on this, the functional relationship is represented as:

EVA =f(ESGD)

$EVA = \beta_0 + \beta_1 EDI_{it} + \beta_2 SDI_{it} + \beta_3 GDI_{it} + \beta_4 FA_{it} + \beta_5 FS_{it} + \beta_6 PROF_{it} + \beta_7 LEV_{it} + \varepsilon it$

Where:

EVA = Economic Value Added

ESGD = ESG Disclosure

EDI = Environmental Disclosure
SDI = Social Disclosure
GDI = Governance Disclosure
FA = Firm Age
FS = Firm Size
PROF = Profitability
LEV = Leverage
β = Intercept
e = stochastic error term β_1, β_2, β_3, β_4, β_5, β_6 and β_7 represent the coefficients of the unknown variables.

The *a priori* expectation is that $\beta_1, \beta_2, \beta_3, \beta_4, \beta_5, \beta_6, \beta_7 > 0$, which implies that a positive relationship is anticipated between the explanatory variables and the explained variable.

3.2. Measurement and description of variables

Table 1 presents the descriptions, measurements, data sources, and supporting literature for the study variables.

Table 1. Operationalization and measurement of variables

SN	Variables	Description	Measurement	Data Source	Source
1	Dependent Variable:				
1a	Economic Value Added (EVA)	Economic Value Added (EVA) is a financial performance measure that aims to capture the value a company generates above the cost of capital.	It is calculated by subtracting the cost of capital from the net operating profit after tax (NOPAT).	Financial Statements.	Hamdouni (2025); Makhija et al. (2025)
2	Independent Variables:				
2a	Environmental Disclosure (EDI)	It consists of information that relates to the environmental activities in the disclosure index.	The environmental disclosure index was built and scored using the Global Reporting Initiative (GRI) Standards. The environmental component was mapped to the respective GRI disclosures: GRI 302 (Energy), GRI 303 (Water and Effluents), GRI 304 (Biodiversity), GRI 305 (Emissions), GRI 306 (Waste) and GRI 307 (Environmental Compliance). Therefore, the environmental disclosure index was made up of substantial environmental reporting items such as energy consumption, water management, impact on biodiversity, emissions, effluents and waste disposal, environmental impacts of products and services and compliance with environmental laws and regulations.	Sustainability Reporting.	Dagunduro et al. (2024); Igbekoyi et al. (2021); Habbash (2016)

2b	Social Disclosure (SDI)	It consists of information that relates to the social activities in the disclosure index.	Similarly, the social disclosure index was mapped to GRI social standards, including GRI 401 (Employment), GRI 403 (Occupational Health and Safety), GRI 404 (Training and Education), GRI 405 (Diversity and Equal Opportunity), GRI 406 (Non-discrimination), and GRI 413 (Local Communities). Based on this mapping, the social disclosure index included labour practices, human rights, diversity and inclusion, employee well-being and development, community engagement, employees' health and safety, and philanthropic activities.	Sustainability Reporting.	Dagunduro et al. (2024); Igbekoyi et al. (2021); Habbash (2016)
23c	Governance Disclosure (GDI)	It consists of information that relates to the governance activities in the disclosure index.	The governance disclosure index was also developed in alignment with GRI 2 (General Disclosures – Governance Structure) and relevant governance-related provisions under GRI 205 (Anti-corruption) and related corporate governance principles. It therefore included board composition, executive compensation, ethical standards, board members' financial expertise, and risk management practices.	Sustainability Reporting.	Dagunduro et al. (2024); Igbekoyi et al. (2021); Habbash (2016)
3	Control Variables:				
3a	Firm Age (FA)	Firm age is defined as the years of operation of a firm since the year of formation.	It is computed as the number of years a firm has been operating from the year of incorporation to the year of observation.	Sustainability Reporting.	Almulhim and Metwally (2025); Rastogi et al. (2024); Pramesti et al. (2024).
3b	Firm Size (FS)	Firm size measures the scale or extent of a firm's activities and resources. It is proxied by the natural logarithm of total assets, which indicates the firm's overall capacity and market presence.	This is calculated as the natural logarithm of total assets.	Sustainability Reporting.	Almulhim and Metwally (2025); Rastogi et al. (2024); Pramesti et al. (2024).
3c	Profitability (PROF)	Profitability refers to the ability of a firm to generate earnings relative to its total asset base.	Return on assets (ROA) was used to assess profitability and this was determined as net profit after tax divided by total assets. This shows how efficient management is at managing its assets to generate earnings.	Sustainability Reporting.	Almulhim and Metwally (2025); Rastogi et al. (2024); Pramesti et al. (2024).
3d	Leverage (LEV)	The proportion of debt financing to total assets	Leverage is measured using total liabilities divided by total assets	Sustainability Reporting	Almulhim and Metwally (2025);

4. Data analysis and discussion of findings

This section describes the study variables, data analysis, and findings.

4.1. Descriptive statistics

Table 2 provides the descriptive statistics of the variables. The results show that the average value of the EVA for the sample firms over the study period was 2.4565 with a standard deviation of 2.6567. This implies a substantial variation in the EVA. The minimum value is -3.2742 and the maximum value is 8.9936. That means some enterprises created economic value and some did not. The coefficient of skewness, 0.6182, indicates moderate positive skewness. The kurtosis value is 2.2891, which is less than the required value of 3. This seems to be a somewhat flat distribution.

The mean value of 0.5185 in terms of the environmental disclosure index (EDI) signifies that, on average, the studied insurance companies declared around 51.85% of the environmental disclosure items in the disclosure checklist. The standard deviation of 0.1404 suggests a moderate variation in firms' reporting on the environment. The minimum value of 0.000 and the greatest value of 0.888 indicate that some companies did not disclose anything on the environmental elements, while some disclosed up to 88.89% of the expected aspects. The value of skewness is positive (0.4052) and the value of kurtosis is moderately high (3.8610).

Similarly, the mean value for the Social Disclosure Index (SDI) is 0.6710. This suggests that, on average, 67.10% of the social disclosure items were disclosed by the firms. Social disclosure showed relatively great variability, with a standard deviation of 0.1973. The disclosure ranges from 0.0000 to 1.4286, indicating that there is a significant variation in disclosure levels between firms. The skewness coefficient of 0.6751 and the kurtosis of 5.0507 indicate moderate positive skewness and a leptokurtic distribution.

Similarly, the mean value of the Governance Disclosure Index (GDI) is 0.9264. This shows a relatively high level of governance disclosure among the sampled firms. This shows that the majority of the firms revealed more than 92% of the governance-related items. The standard deviation of 0.1667 is quite low, showing relatively little variation in the procedures of governance disclosure. The coefficient of skewness is negative (-2.3723). This means that most firms have more governance disclosure scores than less governance disclosure ratings. The value of kurtosis is 9.3600, which shows that the distribution of observations is quite leptokurtic.

The average value of firm age is 1.5286 (Standard Deviation = 0.2375), which implies that the enterprises in the sample are overall pretty old businesses with similar age distributions. The skewness coefficient is close to 0. This is an indication of a roughly symmetric distribution. The kurtosis is near 2, which suggests that the distribution is slightly platykurtic.

The mean value of Firm Size (FS) is 7.2511 with a standard deviation of 0.6355. The variation is moderate in the asset base of the sampled companies, as revealed by the statistics. The variable, however, shows considerable negative skewness (-6.2556) and extremely high kurtosis (74.5581). This suggests the presence of some very large firms and a distribution that is unlikely to be normal.

Moreover, the mean value of Profitability (PROF) is 0.0484, which means that the mean return on assets for the enterprises is approximately 4.84% during the time under review. The standard deviation is relatively low at 0.0364, indicating that the enterprises being analyzed do not vary greatly in their profitability. The value ranges from -0.0627 to 0.1739, which illustrates that some organizations have suffered losses, but a few have registered very high profits. The skewness coefficient is 0.4267 and is positive, indicating a moderately right-skewed distribution. It is mildly leptokurtic with a kurtosis of 3.7907.

Leverage (LEV) has a mean of 0.4867. Thus, for the sample enterprises, debt financing accounts

for an average of 48.67% of assets. The standard deviation of the leverage ratio is 0.4209. This suggests that there is a large variety in the leverage ratio of a firm. The minimum value was 0.0000, and the maximum value was 2.5622. This means some corporations had no obligations and some had liabilities greater than their assets. The coefficient of skewness is positive (1.7886), while the value of kurtosis is more than three (8.6089). It implies that the distribution is substantially skewed to the right and leptokurtic, with a few enterprises having a large leverage.

Table 2. Descriptive statistics

Variable	Obs	Mean	Std. Dev.	Min	Max	Skewness	Kurtosis
EVA	253	2.456	2.656	-3.274	8.993	0.618	2.289
EDI	253	0.518	0.140	0.000	0.888	0.405	3.861
SDI	253	0.671	0.197	0.000	1.428	0.675	5.050
GDI	253	0.926	0.166	0.000	1.000	-2.372	9.360
FA	253	1.528	0.237	0.954	2.021	0.105	2.262
FS	253	7.251	0.635	0.000	8.417	-6.255	74.558
PROF	253	0.048	0.036	-0.062	0.173	0.426	3.790
LEV	253	0.486	0.420	0.000	2.562	1.788	8.608

4.2. Test of variables

To support a robust regression analysis, all variables were assessed against the underlying assumptions. This includes pre- and post-estimation tests, as they are critical for accurate estimation.

4.2.1. Pre-estimation test

The following tests assessed whether the assumptions of the selected model were met and that the data chosen were appropriate for analysis. They also help to prevent misspecification errors and ensure the model's outcomes are valid.

4.2.1.1. Unit Root Test

Panel variables may be non-stationary at levels, potentially affecting parameter stability and consistency of the model. However, to identify the stationary conditions of the variables, the study uses the Harris-Tzavalis unit-root test. The null hypothesis of the unit-root test is that all panels contain unit roots, whereas the alternative hypothesis implies that some panels are stationary. The unit-root test results are presented in Table 3. They show that all variables are integrated of order zero, that is 1(0), at the 5 percent significance level. The null hypothesis is therefore rejected, and the series is considered stationary. A cointegration test is therefore unnecessary to determine the long-run relationship among the variables. Panel least squares can therefore be used to estimate a more efficient and less spurious model.

Table 3. Unit-Root test result

Variable	Harris-Travailes unit-root test z-statistics	Variable p-value
EVA	0.277	0.000
EDI	0.436	0.000
SDI	0.463	0.000
GDI	0.356	0.000
FA	0.051	0.000
FS	0.061	0.000
PROF	0.370	0.000
LEV	0.621	0.000

4.2.1.2. Correlation analysis

Table 4 offers pairwise correlation coefficients used to measure the linear correlations between EVA and non-financial disclosures. The data suggest a negative and significant relationship between EVA and EDI ($r = -0.1952$, $p < 0.05$) and EVA and SDI ($r = -0.1328$, $p < 0.05$). This implies that increased environmental and social disclosure is connected with lower EVA in insurance companies. In contrast, EVA and PROF show a positive and substantial connection ($r = 0.1845$, $p < 0.05$). This implies that more profitable enterprises generate more EVA. EVA has a negative and substantial connection with LEV ($r = -0.1294$, $p<0.05$). This implies that highly leveraged enterprises are expected to have lower EVA. However, the associations are not statistically significant for EVA and GDI, Firm Age (FA) and Firm Size (FS). This implies that at the bivariate level, there is no obvious linear relationship between these variables.

Also, EDI is strongly connected with SDI ($r = 0.5472$, $p < 0.01$) and GDI ($r = 0.4197$, $p < 0.01$), while SDI is positively correlated with GDI ($r = 0.5260$, $p < 0.01$). The data imply that there is a favorable relationship between environmental disclosure and social and governance transparency. The Firm Age (FA) has a negative correlation with EDI (-0.1905, $p < 0.05$) and SDI (-0.3133, $p < 0.01$). Both correlations are negative and statistically significant. This implies that older organizations are less likely to provide environmental and social information. There is a positive and substantial relationship between PROF and EDI ($r = 0.2416$, $p < 0.01$), SDI ($r = 0.2355$, $p < 0.01$) and Firm Size ($r = 0.1937$, $p < 0.01$). This implies that more profitable and larger organizations are more likely to participate in ESG disclosure efforts. However, PROF is adversely connected to the age of the firm ($r = -0.3050$, $p<0.01$). This implies that younger enterprises may have larger PROFITS.

Moreover, LEV has a positive and significant relationship with SDI ($r = 0.3074$, $p < 0.01$), GDI ($r = 0.1749$, $p < 0.01$) and Firm age ($r = 0.2724$, $p < 0.01$). This indicates that firms with higher leverage and greater maturity disclose more social and governance information. However, there is a substantial negative correlation between leverage and EVA ($r = -0.1294$, $p < 0.05$). This suggests that higher leverage may be associated with lower economic value creation. The results suggest no serious multicollinearity problems among the explanatory variables, as all pairwise correlation coefficients are less than 0.80.

Table 4. Correlation analysis of study variables

Variable	EVA	EDI	SDI	GDI	FIA	FS	ROA	LEV
EVA	1.000							
EDI	-0.195	1.000						
	0.000							
SDI	-0.132	0.547	1.000					
	0.000	0.000						
GDI	-0.007	0.419	0.526	1.000				
	0.000	0.000	0.000					
FA	0.122	-0.190	-0.313	-0.107	1.000			
	0.000	0.000	0.000	0.000				
FS	-0.031	0.029	0.028	-0.034	-0.049	1.000		
	0.000	0.000	0.000	0.000	0.000			
PROF	0.184	0.241	0.235	0.062	-0.305	0.189	1.000	
	0.000	0.000	0.000	0.000	0.000	0.000		
LEV	-0.129	0.081	0.307	0.174	0.272	0.095	-0.072	1.000
	0.000	0.000	0.000	0.000	0.000	0.000	0.271	

4.3. Post-estimation tests

Model specification error was assessed using the Ramsey RESET test. The results show a

probability of 0.6979, which is interpreted as indicating no omitted-variable bias and no additional disclosure variable that would improve the model's predictive performance. The heteroscedasticity test assessed the homoscedasticity assumption that residual variance is constant. The test was conducted using the Breusch-Pagan/Cook-Weisberg test and the result is presented in Table 4. The results indicated heteroscedasticity, with a probability value of 0.0021, which is lower than 0.05. Autocorrelation was also assessed using the Wooldridge test for panel data. Autocorrelation describes the correlation between variable values over time. The result is presented in Table 5, and it reports a statistically significant probability of 0.0024. This indicates an autocorrelation problem; accordingly, the null hypothesis of no first-order correlation is rejected.

A cross-sectional dependence test was also conducted, and the result is presented in Table 4. The results indicate that the null hypothesis of no cross-sectional dependence is rejected with a test statistic of 3.813 and a probability value of 0.0001. Hence, there is sufficient evidence to conclude that sustainability disclosure under fixed- effect conditions exhibits cross-sectional dependence. The identified estimation problem is addressed using panel-corrected standard errors (PSCE) with the option that the standard error is independent-corrected. The Hausman test was also conducted to specify the appropriate model between the fixed-effect model and random-effects model and favoured the random-effects model, with a probability of 0.4219 indicating that the differences in coefficients were not systematic. The choice between random-effects and pooled OLS regression was examined using the Breusch and Pagan Lagrangian multiplier test for random effects and the result shows that the random effect is most appropriate, as the probability is significant, showing a p-value of 0.0000 supporting the null hypothesis.

Table 5. Summary of post-estimation test results

Ramsey RESET test		
Null Hypothesis	**F-Statistics**	**Probability**
H0: The model has no omitted variables (P>0.05)	0.480	0.697
Tolerance and VIF Value		
Null Hypothesis	VIF	Mean VIF
There is no multicollinearity among the variables (1/VIF >0.10)	-	1.450
Breusch-Pagan / Cook-Weisberg test for Heteroscedasticity		
Null Hypothesis	Chi2 Statistics	Probability
Constant variance across the variable's residuals (P>0.05)	9.480	0.002
Wooldridge test for autocorrelation		
Null Hypothesis	F-Statistics	Probability
No first-order autocorrelation (P>0.05)	12.040	0.002
Pesaran's test of cross-sectional independence		
Null Hypothesis	Statistics	Probability
There is no cross-sectional dependence (P>0.05)	3.813	0.000
Hausman Test		
Null Hypothesis	Statistics	Probability
Difference in coefficients not systematic (P>0.05)	7.070	0.421
Breusch and Pagan Lagrangian multiplier test for random effects		
Null Hypothesis	Statistics	Probability
Difference in coefficients is not systematic (P<0.05)	221.360	0.000

4.3.1. Fixed- effect model test, random-effect and pooled ordinary least squares

The results are from the Fixed Effects (FE), Random Effects (RE), and Pooled Ordinary Least Squares (POLS) regression models in Model 6. The results show that the explanatory variables have a significant effect on EVA in all estimation methods, with highly significant F-statistics and Wald Chi-square statistics ($p < 0.01$). The results show that EDI consistently has a negative and statistically significant relationship with EVA in all three estimation methods. Specifically, EDI records

coefficients of -3.601 (p = 0.005), -3.626 (p = 0.003), and -4.996 (p = 0.001) under the FE, RE, and POLS models, respectively. This implies that EDI has a negative association with EVA. The findings could suggest that the costs of complying with environmental legislation, adopting sustainability initiatives and reporting on environmental consequences outweigh the immediate economic benefits.

Similarly, the results demonstrate that SDI is not significant in all models in influencing EVA. In the FE (β = 0.809) and RE (β = 0.612) models, the coefficient is positive, while in the POLS model it is negative (β = -0.242). The coefficients on SDI are not statistically significant in any of the models. Therefore, the study concludes that there is no empirical evidence that social transparency has a major effect on EVA. Also, in the models, GDI does not have a statistically significant effect on EVA. More precisely, the coefficients of GDI are 0.418 (p = 0.685), 0.628 (p = 0.0264) and 2.276 (p = 0.055) for FE, RE and POLS models, respectively. Although coefficients for GDI are positive in all model configurations, they are statistically insignificant. Therefore, a reliable conclusion cannot be made on the influence of governance disclosure on EVA. However, this means that the evidence on the effect of governance disclosure is still weak.

Regarding the control variables, the effect of the FE and RE models is insignificant, while the POLS model shows a positive effect that is statistically significant with β = 2.416 and p = 0.003. This indicates that older companies have more experience and market reputation and are more stable than start-ups. The results of the estimation processes reveal that the total assets size (FS) is not statistically significant for all the estimation processes. Therefore, differences in the total assets size of the sampled insurance firms do not substantially explain the differences in EVA.

The coefficient of PROF is the only one which is positive and very significant in the FE (β = 39.821, p < 0.001), RE (β = 33.450, p < 0.001) and POLS (β = 22.459, p < 0.001) models. The findings for Leverage (LEV) are ambiguous. The effect of leverage on EVA is insignificant for FE and RE models but substantial for the POLS model (β = -1.002, p = 0.028). This means that an increased reliance on liabilities might reduce economic value creation since it can increase financial commitments and the cost of financing. The lack of significance of the FE and RE estimates suggests, however, that the leverage impact may not be particularly powerful.

The models have relatively low explanatory power, with R-squared values of 13.87%, 13.12% and 15.83% respectively for the FE, RE, and POLS models. This does not mean that all the variation in EVA is due to the variables included in the model, but that other firm-specific, industry-specific and macroeconomic variables not measured in the model contribute to economic value creation (Table 6).

Table 6. Regression results

	Fixed-Effect Model			Random-Effect Model			Pooled OLS Model		
EVA	**Coeff.**	**T**	**P>|t|**	**Coeff.**	**Z**	**P>z**	**Coeff.**	**t**	**P>|t|**
EDI	-3.601	-2.84	0.005	-3.626	-2.93	0.003	-4.996	-3.47	0.001
SDI	0.809	0.77	0.444	0.612	0.59	0.553	-0.242	-0.20	0.843
GDI	0.418	0.41	0.685	0.628	-1.12	0.264	2.276	1.93	0.055
FA	-0.705	-0.29	0.773	1.252	0.79	0.427	2.416	2.97	0.003
FS	0.284	1.19	0.237	0.154	0.67	0.501	-0.218	-0.83	0.410
PROF	39.821	4.71	0.000	33.45	4.60	0.000	22.459	4.56	0.000
LEV	0.136	0.18	0.861	-0.141	-0.22	0.827	-1.002	-2.21	0.028
Con	0.412	0.10	0.920	-1.24	-0.40	0.686	0.390	0.15	0.881
R-squared	=	0.1387		R-squared	=	0.1312	R-squared	=	0.1583
F(3,203)	=	4.67		Wald chi2(3)	=	30.80	F(7,223)	=	5.99
Prob > F	=	0.0001		Prob > chi2	=	0.0001	Prob > F	=	0.0000

4.4. ESG disclosure and economic value of listed insurance companies in Nigeria

Following the diagnostic tests, the Panel-Corrected Standard Errors (PCSE) model is adopted as

the preferred specification for interpretation. The results of the estimation of the effect of environmental disclosure index (EDI), social disclosure index (SDI), governance disclosure index (GDI), Firm Age (FA), Firm Size (FS), Profitability (PROF), and Leverage (LEV) on Economic Value Added (EVA) of the listed insurance companies on the Nigerian Stock Exchange are presented in Table 7. Overall, the model is statistically significant, with a Wald Chi-square of 27.30 ($p = 0.0003$). The environmental disclosure index (EDI) is the only ESG variable that is statistically significant, and its effect is negative. The social disclosure index (SDI) and governance disclosure index (GDI) are both statistically insignificant; their coefficients are therefore not interpreted directionally, since drawing inferences from the sign of a non-significant estimate is not statistically defensible. The model explains only a modest proportion of the variation in EVA, with an R^2 of 13.91%. This indicates that the economic significance of the ESG variables is extremely marginal; 86.09% of the variation in EVA is attributable to other firm-specific, industry-specific, and macroeconomic factors not captured in the model. Therefore, the statistical relationships shown are significant, but their practical or economic implications for business value generation should not be unduly emphasized.

EDI has a negative and statistically significant effect on EVA with a coefficient of -3.360 at the p-value of 0.011, and this direction holds throughout the fixed-effects, random-effects and Pooled OLS specifications presented in Table 6. It implies that the higher the environmental disclosure, the lower the EVA for the sampled insurance companies. This could be because the cost incurred by firms to meet their environmental compliance and reporting requirements is not immediately compensated by measurable increases in EVA, at least within the period under study. However, the coefficient on SDI is not statistically significant ($\beta = 0.297$, $p = 0.804$), indicating that social disclosure does not affect EVA. Moreover, the sign of the coefficient for SDI also changes across specifications in Table 6, further undercutting any interpretation of the coefficient as indicative of directionality. Moreover, the GDI is statistically small ($\beta = 1.071$, $p=0.293$) and the study does not discover empirical evidence that governance disclosure influences the EVA. Neither SDI nor GDI is theoretically assumed to be related to EVA in any specific direction, since this would not be supported by the facts.

Thus, while the statistical relationships reported are significant, their practical or economic implications for business value creation should not be overemphasized.

Table 7. Panel-corrected standard errors regression

EVA	Coef.	Panel-corrected Std. Err	Z	P>|z|
EDI	-3.360	1.314	-2.560	0.011
SDI	0.297	1.201	0.250	0.804
GDI	1.071	1.019	1.050	0.293
FA	2.990	1.076	2.780	0.005
FS	0.171	0.234	0.73	0.464
PROF	27.814	7.521	3.700	0.000
LEV	-1.094	0.756	-1.450	0.148
_cons	-3.759	2.814	-1.340	0.182
OBS	= 253	Number of groups	= 21	
R-squared	= 0.1391			
Wald chi2(3)	= 27.30	Prob > chi2	= 0.0003	

The effect of EDI on EVA is negative and statistically significant, with a coefficient of -3.360 at the p-value of 0.011. This trend is similar throughout the fixed-effect, random-effect and Pooled OLS specifications presented in Table 6. It implies that the higher the environmental disclosure, the lower the EVA for the sampled insurance companies. This could be because the cost incurred by firms to

meet their environmental compliance and reporting requirements is not immediately compensated by measurable increases in EVA, at least within the period under study. Conversely, the coefficient on SDI is statistically negligible (β = 0.297, p = 0.804) and so does not indicate that social disclosure has any impact on EVA. It is also worth noting that the sign of the SDI coefficient is inconsistent across specifications in Table 6, further undercutting any directional interpretation. Likewise, GDI is statistically insignificant (β = 1.071, p = 0.293) and the study finds no empirical evidence that governance disclosure affects EVA. Neither SDI nor GDI is theoretically assumed to be related to EVA in any specific direction, since this would not be supported by the facts.

4.5. Robustness check and endogeneity test

To address concerns about possible reverse causality, and to test whether prior-year ESG disclosures predict current EVA, we estimated the lagged ESG-PCSE model in Table 8. The results indicate that there is no substantial delayed influence of ESG disclosure on economic value creation. The lagged environmental disclosure (L_EDI), lagged social disclosure (L_SDI) and lagged governance disclosure (L_GDI) are all statistically negligible predictors of current EVA. However, firm age and profitability are still positive and statistically significant drivers of EVA in this formulation. In addition, an Instrumental Variable Two-Stage Least Squares (IV-2SLS) model was estimated, using lagged environmental disclosure (L_EDI) as an instrument for contemporaneous environmental disclosure (EDI), as a diagnostic test for endogeneity rather than as an alternative substantive estimate of the EDI–EVA relationship. Under this specification, the instrumented EDI coefficient is positive (β = 6.613605, p = 0.077), but the diagnostic tests indicate that this coefficient should not be used for interpreting the direction of the EDI–EVA relationship.

Specifically, the Durbin score test and the Wu–Hausman test both fail to reject the null hypothesis of exogeneity (p > 0.05), indicating that EDI is not statistically endogenous in this model. Because exogeneity is not rejected, the IV-2SLS estimate does not represent a superior or corrected estimate of the EDI–EVA relationship; rather, it confirms that instrumenting for EDI is unnecessary. The first-stage F-statistic of 117.81 substantially exceeds the Stock–Yogo critical value of 16.38, and the partial R^2 and Shea's partial R^2 values confirm that the instrument is strong and relevant, supporting the validity of the exogeneity test itself. Taken together, the lagged ESG and IV-2SLS results provide no evidence of reverse causality or endogeneity between environmental disclosure and EVA. This validates the Fixed Effects, Random Effects, and PCSE estimates as the appropriate basis for interpretation. Consistent with these baseline models, environmental disclosure remains negatively and significantly associated with EVA; the positive coefficient observed under the IV-2SLS specification is a byproduct of an instrumentation procedure that the exogeneity tests show to be unnecessary and does not alter this conclusion.

5. Discussion of findings

The study examined the effect of ESG disclosure on EVA among listed insurance companies in Nigeria. The PCSE regression results revealed that the overall model was statistically significant, with a Wald Chi-square value of 27.30 and a probability value of 0.0003. EDI is the only ESG variable that is statistically significant, and its effect is negative. SDI and GDI are both statistically insignificant, and their coefficients are therefore not interpreted directionally, as doing so would not be statistically defensible. The coefficient of determination (R^2 = 0.1391) shows that only approximately 13.91% of the variation in EVA is explained by the ESG disclosure components and firm-specific characteristics included in the model, indicating that the economic significance of the ESG variables is extremely marginal. The remaining 86.09% of the variation in EVA is attributable

to other firm-specific, industry-specific, and macroeconomic factors not captured in the model. Consequently, while environmental disclosure shows a statistically significant negative association with EVA, the overall contribution of ESG reporting to economic value creation in this sector should not be overstated.

Table 8. Lagged ESG PCSE Model and endogeneity and instrument validity diagnostics

Variables	Lagged ESG-PCSE Model	IV-2SLS Model	Decision
L_EDI	-0.146 (0.100)		
L_SDI	0.386 (0.290)		
L_GDI	0.870 (0.760)		
EDI		6.613	
Firm Age (FA)	2.707*** (2.750)	2.251*** (2.810)	
Firm Size (FS)	-0.463 (-0.710)	1.430	
Profitability (ROA)	22.4150*** (2.890)	22.1646*** (4.090)	
Leverage (LEV)	-0.9890 (-1.160)	1.303956	
Constant	-0.0352 (-0.010)	6.1380 (1.610)	
R^2	0.089	0.1408	
Wald χ^2	18	26.080	
Prob > χ^2	0.012	0.000	
Autocorrelation (ρ)	0.630		
Durbin Score Test	$\chi^2(1) = 0.145$	0.702	Fail to reject H_0
Wu–Hausman Test	$F(1,203) = 0.1411$	0.707	Fail to reject H_0
First-Stage F-statistic	$F(1,204) = 117.810$	0.000	Strong Instrument
Partial R^2	0.366		Instrument Relevant
Shea's Partial R^2	0.366		Instrument Relevant
Adjusted Shea's Partial R^2	0.353		Instrument Relevant
Minimum Eigenvalue Statistic	117.810		No Weak Instrument Problem
Stock–Yogo Critical Value (10%)	16.380		Benchmark

The findings showed that environmental disclosure had a negative and statistically significant effect on EVA (β = -3.360, p = 0.011). The result suggests that the financial resources committed to environmental reporting, sustainability initiatives, environmental compliance programmes, and related disclosure activities may impose additional costs that outweigh their short-term economic benefits. In the context of the Nigerian insurance industry, environmental disclosure practices may still be viewed as compliance-oriented activities rather than strategic investments capable of generating immediate economic returns. The significant negative effect observed in this study may therefore reflect the relatively early stage of sustainability integration within the Nigerian insurance sector, where environmental investments have not yet translated into measurable economic value. This data supports the claim of Hassani and Bahini (2022) that ESG disclosure could not lead to a reduction of information asymmetry or economic benefits in contexts with inadequate disclosure rules and inconsistent use of sustainable principles. Additionally, Suharto et al. (1925) found that environmental ESG practices among Indonesian enterprises did not have a significant value-enhancing effect, indicating that environmental activities are not always translated into economic gains in emerging economies. In addition, Rastogi et al. (2024) found a nonlinear relationship between ESG and business value, suggesting that environmental disclosure can initially be costly but later be beneficial. However, this finding does not conform to the findings of Gallucci et al. (2025) and Khanchel and Lassoued (2025). According to Su et al. (2025), environmental disclosure improves access to finance, reduces capital costs, increases investor confidence, and improves business value. This difference can be explained by differences in institutional quality, investors' sophistication and the development of sustainability reporting frameworks in developed economies, as opposed to Nigeria, where environmental disclosure is still largely driven by compliance rather than being

embedded in value creation processes.

The study also found that social disclosure had a positive, although not statistically significant, impact on EVA (β = 0.297, p = 0.804). The positive coefficient suggests that the greater the economic value generation in general, the more disclosure of employee welfare, community development initiatives, customer connections and other social responsibility activities. But the effect was not powerful enough to reach statistical significance. This means that social disclosure did not have a substantial influence on EVA of listed insurance enterprises in the period of investigation. The result suggests that stakeholders may not immediately reward social reporting practices with additional financial rewards or that the economic advantages of social investments may take longer to realize than the time period of the study. This is in line with the findings of Yeye and Egbunike (2023), which indicated a positive but insignificant relationship between ESG disclosure and firm value for Nigerian firms. Rohendi et al. (2024) found similar results that ESG disclosure does not directly enhance corporate value but it is mediated by competitive advantage, demonstrating that social initiatives alone are not enough to generate meaningful economic advantages. The outcome is additional evidence supporting the premise that limited investor understanding and underdeveloped ESG valuation procedures in emerging markets restrain the effectiveness of social disclosure in influencing business valuation. However, the finding contrasts with the studies of Finger and Rosenboim (2022), where it was identified that social commitments are significant drivers of stakeholder willingness to invest in firms and provide economic value. Furthermore, it contradicts the findings of Useche et al. (2025), who said that social elements of ESG lead to better financial soundness, decrease bankruptcy risk and increase EVA. High-quality ESG disclosures have a considerable impact on corporate value, according to Eng et al. (2022). The gap suggests that the Nigerian insurance business has not been able to convert social responsibility activities into demonstrable financial gains.

Transparency in governance was also favorably connected to EVA but not statistically significant (β = 1.071, p = 0.293). Thus, better governance reporting was associated with higher EVA, albeit the effect was not statistically significant. The results imply that the differences in governance disclosure of the examined insurance businesses were not adequate to explain large variances in economic value creation. The Nigerian insurance business is often identical in terms of governance standards, which may limit the ability of governance disclosure to separate well-performing firms from others due to regulatory limits. This finding is consistent with the arguments of Mahmood et al. (2026) and Sekimoto and Amran (2025) that the performance of governance-related ESG activities is largely dependent on institutional maturity, regulatory quality and disclosure credibility. Their findings imply that governance disclosures are associated with greater value gains in nations with better-developed regulatory institutions and more effective enforcement systems. The study also supports the notion that governance practices in regulated industries such as insurance may already be quite homogeneous, therefore limiting the extent to which governance disclosures distinguish businesses in terms of value creation. However, this study contradicts the results of Almulhim and Metwally (2025), who suggested that ESG disclosure supported by governance significantly improves business performance, especially through sustainability committees and effective oversight systems. This is also contrasted with the findings of Makhija et al. (2025), who found that governance characteristics such as board diversity enhance the ESG–EVA association and Alomair and Metwally (2025), who found that information on governance helps to resolve agency problems and improve firm value. The mismatch may indicate that the governance disclosures of Nigerian insurance companies are perceived as regulatory requirements, rather than as strategic signs of high managerial competence.

Among control parameters, firm age was positively and statistically significantly related to EVA (β = 2.990, p = 0.005). The analysis finds that older insurance firms created far more economic value than younger ones. This result indicates that firms with longer track records in the business have

accumulated valuable information about the industry, better customer relationships, a well-established reputation in the market and better managerial skills and hence are more capable of creating value. The conclusion supports organizational learning and resource-based views, which imply that experience and learned competencies increase company competitiveness and performance. This result is consistent with empirical research that has shown company age to be an important determinant of corporate success and value generation. The data show that firm size has a positive but insignificant effect on EVA ($\beta = 0.171$, $p = 0.464$). Larger firms seemed to provide more economic value, but the relationship was not statistically significant. Thus, the growth in overall assets did not necessarily translate into significant improvements in wealth creation for the insurance businesses analyzed. "Simply growing assets does not create economic value unless those assets are being used efficiently," the study says. In turn, corporate scale may be less relevant to value creation than operational efficiency and managerial effectiveness. This finding is consistent with research that failed to find a substantial relationship between business size and performance, but inconsistent with studies that indicated that larger companies have economies of scale, market power and resource advantages that favorably affect firm value.

Profitability was the most effective predictor of EVA in the model with a positive and highly significant coefficient ($\beta = 27.814$, $p < 0.001$). The analysis reveals that profitable insurance companies provide much more economic value for their shareholders than less profitable enterprises. The conclusion is in line with the basic premise of EVA that it is important to earn returns above the cost of capital. Higher profitability means efficient use of resources, efficient management approaches and successful business operations which add toward the maximisation of shareholder wealth. This finding is in line with other empirical studies that revealed profitability to be one of the most important predictors of firm value and economic growth. Finally, the impact of leverage on EVA was negative but statistically insignificant ($\beta = -1.094$, $p = 0.148$). The negative coefficient indicates that the higher the quantity of debt, the more likely it is to limit economic value creation; however, the effect was not statistically significant. This means that larger financial liabilities can put pressure on businesses in the form of additional interest expenses and financial risk, reducing their ability to generate economic value. However, the correlation was not substantial and so leverage cannot be considered a key determinant of EVA for the insurance businesses examined. This outcome is consistent with research that shows debt financing can harm firm value because of increased financial risk. But it is not compatible with research that suggests leverage can enhance performance through tax advantages and more efficient capital structures.

The results provide insight into the theoretical understanding of ESG disclosure in stakeholder theory, agency theory, signaling theory and legitimacy theory in an emerging market context. ESG practices among listed insurance companies in Nigeria do not yet consistently translate into economic value creation, as evidenced by the significant negative effect of environmental disclosure and the positive but statistically insignificant effects of social and governance disclosures. This demonstrates that ESG disclosure is still mostly compliance-driven and legitimacy-focused rather than completely incorporated as a strategic, value-enhancing approach. From the agency theory perspective, the ESG-related expenditure, especially the environmental initiatives, may increase the operating costs without providing short-term financial benefits and may increase the short-term agency costs. Signaling theory is also somewhat weakened because ESG disclosures do not seem to be strong enough signals to affect investor valuation in a market in which non-financial information is not priced effectively to any substantial degree. At the same time, legitimacy theory is validated, suggesting that the corporations seem to execute ESG reporting mainly to sustain regulatory permission and stakeholder support, not to achieve immediate gains in economic performance. The findings highlight the contextual nature of the ESG–value link and the importance of institutional quality, regulatory

enforcement and market sophistication.

Findings suggest the need for policymakers and management to enhance the effectiveness and relevance of ESG frameworks in Nigeria's insurance sector. Regulators, such as NAICOM, should move from a compliance strategy to a performance-based approach to ESG reporting, where sustainability disclosure is clearly tied to economic and operational outcomes. Enhancing the uniformity, comparability and reliability of ESG reporting is also key to making it more valuable to investors and other stakeholders. There is also a need to increase investor education and awareness to improve the interpretation and pricing of ESG information in capital markets. For insurers, ESG concepts need to be more substantially embedded in core company strategy, particularly in ways that improve operational efficiency, risk management and long-term profitability. Profitability is the most significant driver of EVA; thus, it is crucial to link ESG measures with cost-efficiency and revenue-enhancing tactics. The findings ultimately point to the need for better strategy alignment and stronger institutional frameworks in an effort to transform ESG disclosure from a tool for legitimacy to a real driver of economic value creation in Nigeria.

6. Conclusion and recommendations

The study investigated the impact of ESG disclosure on the EVA of listed insurance businesses in Nigeria. Using stakeholder theory, agency theory, signaling theory and legitimacy theory, the study investigated whether ESG disclosure leads to economic value creation in the Nigerian insurance business. The results demonstrated that environmental disclosure has a negative and significant effect on EVA, indicating that the growth of environmental disclosure is related to poorer economic value creation in the selected companies. However, social disclosure and governance disclosure had a positive but statistically negligible effect on EVA, implying that these dimensions of ESG disclosure did not have a significant impact on economic value creation during the period under consideration. The study also found that business age and profitability had a positive and significant effect on EVA. Thus, older and prosperous insurance companies created higher economic value for shareholders. In contrast, EVA was not significantly affected by firm size and leverage. The results of the robustness and endogeneity tests also corroborated the stability of the findings, demonstrating that reverse causality and endogeneity were not significant concerns in the estimated associations. The study found from the empirical evidence that ESG disclosure has not emerged as a significant driver of economic value creation among listed insurance businesses in Nigeria. But while social and governance disclosures showed favorable correlations with EVA, their influence was not significant enough to substantially boost shareholder value. The negative effect of environmental disclosure indicates that the expenses of environmental efforts, reporting and compliance may exceed their short-term economic gains. Consequently, the Nigerian insurance industry's ESG disclosure seems to be influenced by regulatory compliance, corporate legitimacy and stakeholder demands rather than direct economic value creation. The findings therefore show that shifting from disclosure-oriented sustainability practices to value-generating sustainability strategies remains a barrier for insurance firms in Nigeria.

6.1. Recommendations

Based on the findings of the study, the following recommendations are proposed:

1. Insurance businesses should strategically integrate their environmental sustainability programs with the goals of operational efficiency and cost reduction. Environmental programs should be planned such that there is a measurable economic gain from improved resource use, risk reduction and long-term savings in operations, thereby lowering the negative effect of environmental disclosure on EVA.

2. Insurance firm management should enhance the execution of social responsibility programs and governance processes in a manner that creates actual commercial benefit. It is not enough for companies to focus on disclosure only. They must ensure that social and governance programs lead to enhanced customer retention, stakeholder trust, staff productivity and organizational success.
3. Regulatory bodies like the National Insurance Commission (NAICOM) should create industry-specific ESG reporting standards that highlight performance outcomes along with disclosure obligations. These guidelines should inspire companies to show how ESG initiatives are contributing to value creation, risk management and long-term sustainability.

Insurance companies should utilize their accumulated experience and institutional knowledge to enhance value creation initiatives. Given the significant positive impact of business age on EVA, younger firms should learn from older firms' best practices to improve operational efficiency, market competitiveness, and shareholder value.

5. Management should focus on profitability-boosting measures such as asset management, investment decisions, product innovation and cost management. EVA was most strongly determined by profitability. Improving operational excellence is the way to maintain shareholder wealth and long-term corporate growth.

6.2. Limitations of the study

This study is subject to certain limitations that should be considered. Most importantly, the explanatory power of the model is low, with R^2 values ranging from approximately 13% to 16% across specifications. This indicates that ESG disclosure dimensions account for only a small fraction of the variation in EVA, with the majority of variation, over 84%, attributable to factors outside the model. The economic significance of the ESG–EVA relationships reported in this study is therefore extremely marginal, and the findings should not be interpreted as evidence that ESG disclosure is a major or substantive driver of firm value among Nigerian insurance companies. The statistical significance observed for environmental disclosure should accordingly be read as indicating a consistent directional association rather than an economically meaningful predictive relationship. Furthermore, the study focused exclusively on listed insurance companies in Nigeria. Although this technique guaranteed industry-specific analysis and comparability among enterprises, it constrains the generalizability of findings to other sectors of the Nigerian economy and other emerging markets with distinct institutional settings. The study also used secondary data collected from annual reports and business disclosures. Therefore, the quality of the ESG disclosure measures highly depended on the completeness, consistency, and accuracy of information voluntarily submitted by the sampled firms. Therefore, differences in reporting processes among firms may affect the measurement of ESG disclosure. Further, although several important firm-specific control variables such as firm age, firm size, profitability and leverage were included in the study, there may be other firm-level and macroeconomic factors impacting EVA that were not included in the model and which could explain the large proportion of unexplained variation noted above. Other factors, such as corporate culture, market competition, economic conditions, inflation and regulatory changes, can also affect value creation. Finally, the study period was from 2013 to 2023. Although the era offers strong data on ESG disclosure practices and economic value creation, it may not fully capture recent advancements in sustainability reporting, growing ESG rules and changing stakeholder expectations in the Nigerian corporate environment. Future studies might therefore prolong the study period, include more explanatory variables to improve the fit of the model, and explore further elements of ESG performance and corporate value creation.

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