

Sustainability practices and customer loyalty in the insurance industry: A PLS-SEM-approach

Prácticas de sostenibilidad y lealtad del cliente en la industria aseguradora: un enfoque PLS-SEM

Alli Noah Gbenga¹

Aina John²

Ganiyu Kamal³



Fecha de recepción: 14 de mayo de 2026
Fecha de aprobación: 20 de agosto de 2026

Abstract

This study examines the relationship between sustainability practices and customer loyalty in the Nigerian insurance industry, specifically investigating how perceptions of corporate social responsibility (CSR), environmental sustainability practices (ESP), and perceived ethical behavior (PEB) influence customer loyalty through the mediating role of customer trust. A quantitative cross-sectional survey design was employed with 700 insurance customers in Nigeria who had maintained active policies for at least three years. Data were analyzed using Partial Least Squares Structural Equation Modeling (PLS-SEM) with SmartPLS 4.0 software. The study tested a comprehensive theoretical model integrating stakeholder theory, social exchange theory, relationship marketing theory, and signaling theory. The results provide strong empirical support for all hypothesized relationships. Corporate social responsibility ($\beta = 0.307$, $p < 0.001$), environmental sustainability practices ($\beta = 0.238$, $p < 0.001$), and perceived ethical behavior ($\beta = 0.252$, $p < 0.001$) all showed significant positive effects on customer trust, which, in turn, exhibited a substantial positive effect on customer loyalty ($\beta = 0.618$, $p < 0.001$). Mediation analysis indicated that sustainability practices influence customer loyalty primarily through trust-building mechanisms, with indirect effects ranging from 0.147 to 0.190 and substantially exceeding the direct effects. The model explained 37.5 % of the variance in customer trust and 45.5 % of the

¹ Department of Insurance, School of Management Studies, Federal Polytechnic Offa, Nigeria. Corresponding Author. Email: noah.alli@fedpoffaonline.edu.ng.  <https://orcid.org/0000-0002-8311-9634>

² Department of Insurance, School of Management Studies, Federal Polytechnic Offa, Nigeria. Email: john.aina@fedpoffaonline.edu.ng.  <https://orcid.org/0009-0009-9325-2859>

³ Department of Insurance, School of Management Studies, Federal Polytechnic Offa, Nigeria. Email: kamal.ganiyu@fedpoffaonline.edu.ng.  <https://orcid.org/0009-0005-8420-2666>

variance in customer loyalty, indicating moderate explanatory power. Overall, the findings provide strong empirical evidence that sustainability practices are positively associated with customer loyalty in the Nigerian insurance industry through trust-building mechanisms. This study extends the literature on sustainability and relationship marketing by providing evidence from the Nigerian insurance sector using a comprehensive PLS-SEM mediation model.

Keywords:

sustainability practices, customer loyalty, customer trust, corporate social responsibility, insurance industry, PLS-SEM.

Resumen

Este estudio examina la relación entre las prácticas de sostenibilidad y la lealtad del cliente en la industria aseguradora de Nigeria, investigando específicamente cómo las percepciones sobre la responsabilidad social corporativa (RSC), las prácticas de sostenibilidad ambiental (PSA) y el comportamiento ético percibido (CEP) influyen en la lealtad del cliente a través del papel mediador de su confianza. Se empleó un diseño de encuesta cuantitativo y transversal con 700 clientes del sector asegurador en Nigeria que habían mantenido pólizas activas durante al menos tres años. Los datos se analizaron mediante modelado de ecuaciones estructurales por mínimos cuadrados parciales (PLS-SEM), utilizando el software SmartPLS 4.0. El estudio evaluó un modelo teórico integral que integra la teoría de los grupos de interés, la teoría del intercambio social, la teoría del marketing relacional y la teoría de la señalización. Los resultados proporcionan un sólido respaldo empírico a todas las relaciones planteadas en las hipótesis. La responsabilidad social corporativa ($\beta = 0.307$, $p < 0.001$), las prácticas de sostenibilidad ambiental ($\beta = 0.238$, $p < 0.001$) y el comportamiento ético percibido ($\beta = 0.252$, $p < 0.001$) mostraron efectos positivos significativos sobre la confianza del cliente, la cual, a su vez, presentó un efecto positivo considerable sobre la lealtad del cliente ($\beta = 0.618$, $p < 0.001$). El análisis de mediación indicó que las prácticas de sostenibilidad influyen en la lealtad del cliente principalmente a través de mecanismos de generación de confianza, con efectos indirectos que oscilaron entre 0.147 y 0.190 y que fueron considerablemente superiores a los efectos directos. El modelo explicó el 37.5 % de la varianza de la confianza del cliente y el 45.5 % de la varianza de la lealtad del cliente, lo que indica una capacidad explicativa moderada. En conjunto, los hallazgos proporcionan evidencia empírica sólida de que las prácticas de sostenibilidad se asocian positivamente con la lealtad del cliente en la industria aseguradora de Nigeria a través de mecanismos de generación de confianza. Este estudio amplía la literatura sobre sostenibilidad y marketing relacional al aportar evidencia del sector asegurador nigeriano mediante un modelo integral de mediación PLS-SEM.

Palabras clave:

prácticas de sostenibilidad, lealtad del cliente, confianza del cliente, responsabilidad social corporativa, industria aseguradora, PLS-SEM.

Código JEL:

G22, M14, M31

Introduction

The global insurance industry faces unprecedented pressure to integrate sustainability practices into its core business operations, driven by growing environmental concerns, regulatory demands, and evolving stakeholder expectations. As climate-related risks intensify and social awareness increases, insurance companies are increasingly recognized not merely as risk managers but as important actors in promoting sustainable development and corporate responsibility (Noah, 2026a; Biswas and Roy, 2015; Hoejmoose et al., 2013; Talan et al., 2024). This transformation reflects a broader shift in consumer behavior, in which purchasing decisions are increasingly influenced by companies' environmental and social commitments rather than by price and product features alone (Carrington et al., 2014; Khalufi et al., 2025).

Contemporary consumers, particularly millennials and Generation Z, demonstrate heightened awareness of corporate environmental and social practices and demand greater transparency and accountability from the organizations they support (Cone Communications, 2017; Pereira et al., 2025). This demographic shift has profound implications for the insurance sector, where customer loyalty, traditionally associated with financial stability, claims-processing efficiency, and customer service increasingly depends on perceptions of corporate ethics, environmental stewardship, and social responsibility (Lii and Lee, 2012). Research indicates that customers are more likely to maintain long-term relationships with companies whose values align with their own, particularly with regard to sustainability and ethical conduct (Du et al., 2007; Bhattacharya and Sen, 2004; Adebessin and Fatokun, 2024; Echezona, 2024).

The insurance industry's unique position as both a major institutional investor and a risk bearer makes its sustainability practices particularly consequential. Insurance companies manage trillions of dollars in assets globally, providing them substantial leverage to influence corporate behavior through investment decisions and underwriting practices (Noah, 2026b; Mills, 2009). Moreover, as climate change increases the frequency and severity of natural disasters, insurers face mounting claims-related costs, making environmental sustainability not merely a reputational concern but also an important business consideration (Alli, 2025b; Kunreuther and Michel-Kerjan, 2009; Mandy, 2025; Dagunduro et al., 2024). Despite this critical context, the relationship between sustainability practices and customer loyalty in the insurance sector remains insufficiently explored, as much of the existing research has focused on other industries or examining individual dimensions of sustainability without considering their combined effects on customer attitudes and behaviors.

Trust emerges as a central mediating mechanism in the relationship between corporate sustainability practices and customer loyalty. The service-intensive nature of insurance, characterized by information asymmetry and the delayed realization of benefits, makes trust particularly important for maintaining customer relationships (Eisingerich and Bell, 2008). Customers must trust that insurers will honor their commitments when claims arise, often years after a policy is purchased. This inherent uncertainty increases the importance of perceived corporate integrity, ethical behavior, and social responsibility in shaping customer trust and, consequently, loyalty (Eisingerich and Bell, 2008; Monfort et al., 2025). However, the specific

pathways through which different dimensions of sustainability, including corporate social responsibility, environmental practices, and ethical behavior, influence customer trust and loyalty remain theoretically underdeveloped and empirically underexamined.

This study makes three distinct contributions to the existing literature. First, it provides empirical evidence from the Nigerian insurance industry, an emerging-market context characterized by distinctive regulatory dynamics, low insurance penetration rates, and evolving sustainability expectations, regarding sustainability practices and customer loyalty. While prior studies have examined relationships between corporate social responsibility (CSR) and customer loyalty in manufacturing and retail sectors in developed economies (Luo and Bhattacharya, 2006; Sen and Bhattacharya, 2001), the insurance industry presents different dynamics because of service intangibility, information asymmetry, and the delayed and uncertain nature of insurance benefits. Second, this study introduces an integrated multidimensional model that simultaneously examines three sustainability dimensions, corporate social responsibility, environmental sustainability practices, and perceived ethical behavior, and their differential relationships with customer trust and loyalty. Previous research has often examined these dimensions separately, limiting understanding of their relative and combined contributions. Third, the study empirically examines customer trust as the primary mediating mechanism through which sustainability perceptions translate into loyalty outcomes, providing a theoretically grounded and empirically tested pathway that contributes to relationship marketing theory in financial services contexts.

Statement of the problem

Despite growing recognition of the importance of sustainability in business strategy, significant gaps remain in understanding how sustainability practices relate to customer loyalty within the insurance industry. First, while numerous studies have examined corporate social responsibility and environmental practices across manufacturing and retail sectors (Luo and Bhattacharya, 2006; Sen and Bhattacharya, 2001; Chi and Phan, 2025; Cruz et al., 2026), the distinctive characteristics of insurance services, intangibility, heterogeneity, inseparability, and perishability, warrant industry-specific investigation (Zeithaml et al., 1985). The delayed and uncertain nature of insurance benefits creates particular dynamics in how customers perceive and respond to corporate sustainability initiatives, yet understanding of these context-specific relationships remains limited. Existing research has tended to examine sustainability dimensions separately, limiting understanding of the multidimensional nature of corporate sustainability and its complex effects on customer attitudes. Corporate social responsibility, environmental sustainability practices, and ethical behavior represent interconnected yet distinct constructs that may have different effects on customer trust and loyalty (Carroll, 1991). Understanding their relative contributions and combined effects requires integrated analytical frameworks that remain limited in the existing literature. Furthermore, although customer trust has been theoretically proposed as a mechanism linking sustainability perceptions to loyalty, its mediating role has received limited empirical attention in insurance contexts (Gbenga, 2025; Morgan and Hunt, 1994; Bachnik and Szopiński, 2026).

Methodological limitations also constrain current understanding. Some previous studies have relied on traditional regression techniques that inadequately address the complex, multi-layered relationships between sustainability practices, trust, and loyalty. Structural Equation Modeling, particularly Partial Least Squares (PLS-SEM), offers a useful approach for examining such relationships by enabling the simultaneous assessment of measurement models and structural paths while accommodating non-normal data distributions common in social science research (Hair et al., 2011; Hair et al., 2022). However, the application of PLS-SEM to relationships between sustainability practices and customer loyalty in the insurance sector remains scarce. Finally, the insurance industry faces practical challenges in translating sustainability strategies into initiatives that strengthen customer relationships. Without clear empirical evidence linking specific sustainability practices to customer trust and loyalty, insurance companies may face difficulties in evaluating sustainability investments beyond regulatory compliance and risk-management considerations. This evidence gap may constrain strategic decision-making and resource allocation for sustainability initiatives, potentially undermining both environmental objectives and competitive positioning.

This study addresses these gaps by developing and testing a comprehensive model examining how perceptions of corporate social responsibility, environmental sustainability practices, and perceived ethical behavior influence customer loyalty through the mediating role of customer trust in the insurance industry. Employing PLS-SEM, this research examines the direct and indirect relationships between sustainability dimensions and customer loyalty, contributing to the literature on sustainability and relationship marketing while providing practical insights for insurance practitioners seeking to leverage sustainability for competitive advantage.

Theoretical framework and hypothesis development

The theoretical framework of this study integrates multiple theoretical perspectives to explain how sustainability practices relate to customer loyalty in the insurance industry. It draws primarily on stakeholder theory, social exchange theory, and relationship marketing theory, synthesizing these perspectives to develop a comprehensive model that explains the mechanisms through which corporate social responsibility, environmental sustainability practices, and perceived ethical behavior may influence customer loyalty through the mediating role of trust.

Stakeholder theory and corporate sustainability

Stakeholder theory, articulated by Freeman (1984), posits that organizations should consider the interests of multiple stakeholders, including customers, employees, communities, and the environment, rather than focusing exclusively on maximizing shareholder value. This perspective has become foundational to the understanding of corporate sustainability practices, as it recognizes that long-term organizational success depends on maintaining positive relationships with diverse stakeholder groups (Donaldson and Preston, 1995). In the insurance context, stakeholder theory suggests that companies engaging in corporate social responsibility and environmental sustainability practices signal a commitment to broader societal welfare beyond profit generation,

potentially strengthening relationships with customers who value such commitments (Maignan et al., 2005). Contemporary extensions of stakeholder theory emphasize that stakeholder engagement is not merely a moral consideration but may also serve as a strategic mechanism for creating competitive advantage (Harrison et al., 2010; Talan et al., 2024). When insurance companies invest in community development programs, environmental protection initiatives, and ethical business practices, they may create value for multiple stakeholder groups simultaneously. Customers, as key stakeholders, observe these investments and may develop more favorable attitudes toward the company, perceiving it as a responsible corporate actor worthy of continued support (Bhattacharya and Sen, 2004).

This theoretical logic underpins the hypothesized relationships between perceptions of corporate social responsibility, environmental sustainability practices, and customer trust in the proposed model (supporting H1 and H2). However, stakeholder theory alone does not fully explain the psychological mechanisms through which sustainability practices translate into customer loyalty. It helps explain why organizations should consider stakeholder interests but provides limited insight into how such engagement shapes individual customer attitudes and behaviors. Therefore, complementary theoretical perspectives are necessary to explain these micro-level processes.

Social exchange theory and trust development

Social exchange theory (Blau, 1964; Homans, 1961) provides crucial insights into the relational dynamics between insurance companies and their customers. This theory posits that social relationships involve reciprocal exchanges of tangible and intangible resources and that individuals tend to maintain relationships when perceived benefits outweigh the associated costs (Cropanzano and Mitchell, 2005). Unlike economic exchanges which are generally characterized by explicit contracts and more immediate reciprocity, social exchanges involve less specified obligations, longer time horizons, and trust-based commitments (Blau, 1964). In the insurance industry, service relationships are inherently characterized by information asymmetry, delayed gratification, and uncertainty regarding future outcomes. Customers purchase intangible promises of future protection, creating a degree of vulnerability and making trust in the insurer's competence and integrity particularly important (Ennew and Sekhon, 2007). Social exchange theory suggests that, when insurance companies engage in sustainability practices, such as supporting community programs, implementing environmentally responsible operations, and demonstrating ethical behavior, they provide non-contractual benefits that customers may value beyond the core insurance product. These additional benefits can generate expectations of positive reciprocity, whereby customers may respond to the company's socially responsible behavior through continued loyalty and positive word-of-mouth (Gouldner, 1960).

Trust emerges as an important mediating variable within the social exchange framework. According to Blau (1964), trust develops gradually through repeated exchanges in which one party demonstrates reliability and benevolence. In insurance contexts, sustainability practices may function as trust-building signals that communicate the company's long-term orientation, ethical

standards, and commitment to stakeholder welfare (Pivato et al., 2008). When customers perceive that an insurer values social responsibility and environmental stewardship over short-term profit maximization, they may infer greater trustworthiness and expect the company to act fairly in future interactions, including claim settlements (Preuss, 2008). This trust, developed partly through perceptions of sustainability practices, may subsequently influence loyalty decisions. The norm of reciprocity, which is central to social exchange theory, further helps explain why customers may respond positively to corporate sustainability initiatives. When companies invest in social and environmental welfare beyond their direct contractual obligations to customers, these actions may be perceived as discretionary contributions that encourage reciprocal responses (Eisenberger et al., 2001). Such reciprocity may be reflected in stronger trust and loyalty, even when sustainability practices do not directly benefit individual customers.

Relationship marketing theory and customer loyalty

Relationship marketing theory emphasizes the importance of establishing, developing, and maintaining long-term customer relationships rather than focusing exclusively on discrete transactions (Grönroos, 1994; Morgan and Hunt, 1994; Hidayat and Idrus, 2023; Pereira et al., 2025). This perspective is particularly relevant to insurance services, where customer lifetime value depends on policy renewals, cross-selling opportunities, and referrals rather than on single purchases. The commitment-trust theory of relationship marketing, proposed by Morgan and Hunt (1994), identifies trust and commitment as central mediating variables in relationship success and customer loyalty. According to this framework, trust exists when one party has confidence in an exchange partner's reliability and integrity (Morgan and Hunt, 1994). Trust can reduce perceived risk and uncertainty, encouraging customers to maintain relationships even when attractive alternatives are available (Garbarino and Johnson, 1999; Moon et al., 2025; Alli, 2026). In insurance markets characterized by multiple competing providers and low switching costs, trust may serve as an important factor influencing customer retention (Ennew and Sekhon, 2007). Relationship marketing theory suggests that companies can cultivate trust through consistent and reliable service delivery and by demonstrating values that align with those of their customers (Ball et al., 2004).

Sustainability practices may provide an additional avenue for building trust within the relationship marketing framework. When insurance companies engage in corporate social responsibility, environmental sustainability practices, and ethical behavior, they communicate values that may resonate with contemporary consumers (Sen and Bhattacharya, 2001). This value congruence, the alignment between customer values and perceived corporate values, can strengthen relational bonds and enhance customer identification with the company (Bhattacharya and Sen, 2004). Customers who perceive such alignment may develop stronger emotional attachments to the company, viewing it not merely as a service provider but as an organization whose values are consistent with their own (Lii and Lee, 2012). Furthermore, relationship marketing theory recognizes that loyalty encompasses both behavioral and attitudinal components (Dick and Basu, 1994). Behavioral loyalty is reflected in repeated purchases and continued patronage, whereas

attitudinal loyalty involves psychological attachment and positive word-of-mouth intentions. Trust may influence both dimensions by reducing switching intentions and encouraging customers to advocate for the company (Sirdeshmukh et al., 2002).

Signaling theory and perceived ethical behavior

Signaling theory (Spence, 1973) provides additional theoretical grounding for understanding how sustainability practices shape customer perceptions and trust. This theory addresses problems of information asymmetry in markets where buyers cannot fully evaluate product quality or seller intentions before purchase. In such contexts, sellers can use credible signals to communicate otherwise unobservable characteristics to potential buyers (Connelly et al., 2011; Asa and Nautwima, 2026; Shu et al., 2024). In services such as insurance, where quality may remain difficult to assess even after purchase experience and credence attributes, signaling becomes particularly important (Zeithaml et al., 1985).

Sustainability practices can function as signals of quality and integrity in the insurance marketplace. Corporate social responsibility initiatives, environmental sustainability programs, and ethical business conduct are observable actions that may signal a company's values, long-term orientation, and commitment to stakeholder welfare (Janney and Gove, 2011). Such signals may be particularly credible when they involve substantial and difficult-to-reverse investments that would be costly for low-quality or unethical companies to mimic (Alli, 2025a; Connelly et al., 2011). For instance, comprehensive environmental sustainability programs requiring significant operational changes or long-term community development partnerships may signal a more substantive commitment than superficial forms of "greenwashing" (Lyon and Maxwell, 2011). From a signaling perspective, perceived ethical behavior may serve as an important trust-building signal. Ethical conduct expressed through transparent communication, fair claim settlements, and respectful treatment of customers demonstrates integrity in observable interactions, allowing customers to infer how the company may behave in future situations that are less directly observable (Brunk, 2010). When ethical behavior is consistent across multiple customer touchpoints and reinforced by broader sustainability commitments, it can create a coherent signal of trustworthiness that reduces uncertainty and strengthens the customer-company relationship (Ellen et al., 2006).

The mediating role of customer trust

The theoretical perspectives reviewed above converge on trust as a central psychological mechanism linking sustainability practices to customer loyalty. Stakeholder theory provides a strategic rationale for corporate engagement in sustainability practices, while social exchange theory explains how these practices can generate expectations of reciprocity, and relationship marketing theory identifies trust as the foundational mechanism through which relationship quality is developed and loyalty is sustained (Chaudhuri and Holbrook, 2001). The mediating role of trust can be understood through the sequence by which customers respond to sustainability practices. Customers first observe and interpret corporate sustainability practices, forming perceptions of the

company's social responsibility, environmental commitment, and ethical standards. These perceptions inform judgments about the company's reliability, integrity, and benevolence (Alli and Ganiyu, 2025; Preuss, 2008). Trust may subsequently influence loyalty decisions, as customers are more likely to maintain relationships with companies they trust and avoid those they perceive as untrustworthy (Morgan and Hunt, 1994).

The four theoretical perspectives therefore converge on customer trust as the central mechanism through which sustainability perceptions translate into loyalty behaviors. Stakeholder theory provides the strategic rationale for sustainability engagement, while social exchange theory, relationship marketing theory, and signaling theory explain how sustainability perceptions are translated into trust judgments and, subsequently, loyalty behaviors. This integration supports testable hypotheses concerning both direct relationships, between sustainability dimensions and trust, and between trust and loyalty, and indirect relationships between sustainability dimensions and loyalty through the mediating role of trust. Trust may influence loyalty through both cognitive pathways, such as reduced perceived risk, and affective pathways, such as emotional attachment (Mayer et al., 1995; Chaudhuri and Holbrook, 2001). The mediation is justified by the temporal sequence: customers first observe sustainability practices, form trust judgments (Preuss, 2008), and subsequently make decisions on loyalty (Morgan and Hunt, 1994).

Corporate social responsibility and trust (H1)

Corporate social responsibility (CSR) encompasses corporate activities that demonstrate concern for society and stakeholder welfare beyond legal requirements (Carroll, 1991). The theoretical relationship between CSR perceptions and customer trust can also be understood through the attribution theory (Heider, 1958) and the competence-warmth framework of social cognition (Fiske et al., 2007). When customers observe CSR activities, such as community support programs, educational initiatives, and health campaigns, they may form judgments about the company's motives and character. CSR activities perceived as genuine and socially motivated, rather than purely instrumental, may signal warmth and benevolence, which are important dimensions of trustworthiness (Vlachos et al., 2009). Furthermore, CSR may signal a long-term orientation and consideration for stakeholder interests, suggesting that the company values enduring relationships over short-term financial gains (Luo and Bhattacharya, 2006). In insurance contexts, where future service performance is uncertain and customers may be vulnerable to opportunistic behavior, such signals can reduce perceived risk and enhance trust. Previous research has reported that CSR positively influences customer trust across different industries (Pivato et al., 2008; Preuss, 2008; Chi and Phan, 2025; Bachnik and Szopiński, 2026), suggesting that this relationship may be particularly relevant in service contexts characterized by high levels of uncertainty.

Hypothesis 1: Perceptions of corporate social responsibility (CSR) positively influence customer trust (CT)

Environmental sustainability practices and trust (H2)

Environmental sustainability practices (ESP) reflect a company's commitment to minimizing its ecological impact through operational decisions and product innovations. The theoretical relationships between ESP and trust can be explained through several mechanisms. First, environmental practices may signal a long-term orientation and responsible resource management, attributes that customers may generalize to other areas of corporate behavior (Chen, 2010). A company that demonstrates environmental stewardship may also be perceived as exercising similar care in managing customer resources and interests. Second, environmental practices may communicate the alignment of values with environmentally conscious customers, fostering trust through perceived similarity and shared priorities (Martínez and Rodríguez del Bosque, 2013). Research on trust indicates that perceived similarity and value congruence can strengthen trust between exchange partners (Doney and Cannon, 1997). As environmental awareness increases, alignment with environmental values may become increasingly relevant to trust development, particularly among younger consumers.

Third, environmental practices may involve third-party certifications, regulatory compliance, and transparent reporting, providing credibility signals that can reduce information asymmetry (Delmas and Burbano, 2011; Monfort et al., 2025). Compared with some CSR claims that may be difficult for customers to verify, certain environmental practices can produce observable and measurable outcomes, such as reductions in carbon emissions or the adoption of paperless operations, which may enhance their credibility as trust signals. This greater degree of verifiability may distinguish environmental practices from less tangible CSR activities, which may produce distinct effects on customer trust.

Hypothesis 2: Environmental sustainability practices (ESP) positively influence customer trust (CT).

Perceived ethical behavior and trust (H3)

Perceived ethical behavior (PEB) refers to customers' perceptions of company's honesty, transparency, and fairness in its business conduct. The theoretical relationship between PEB and trust is arguably the most direct among the constructs examined because ethics and trust share conceptual foundations related to integrity and reliability (Mayer et al., 1995). Ethical behavior can demonstrate adherence to moral principles even when such conduct is not legally required or externally monitored, potentially signaling intrinsic rather than extrinsic motivation for appropriate conduct (Brunk, 2010).

In insurance contexts, where contractual complexity can create risks associated with misleading terms, unfair claim denials, or aggressive sales practices, perceived ethical behavior becomes particularly important for trust development (Eisingerich and Bell, 2008). Expectancy violations theory (Burgoon, 1993) suggests that when companies exceed customers' ethical expectations, for example, by communicating transparently or handling claims fairly, they may generate positive expectancy that substantially enhance trust. Conversely, perceived ethical violations may have

disproportionately negative effects on trust due to the fundamental breach of relationship prerequisites they represent.

Previous research has reported strong relationships between perceived ethical behavior and trust across consumer contexts (Roman, 2003; Singh et al., 2012; Peña-García and ter Horst, 2025), with effects likely amplified in high-uncertainty services such as insurance. Moreover, ethical behavior in customer-facing interactions provides customers with direct experience of company values, whereas CSR and environmental practices may remain more psychologically distant when customers are not directly involved in them. This experiential proximity may make PEB a particularly salient factor in the development of customer trust.

Hypothesis 3: Perceived ethical behavior (PEB) positively influences customer trust (CT).

Customer trust and loyalty (H4)

The theoretical relationship between trust and loyalty is well established in the relationship marketing literature (Morgan and Hunt, 1994; Garbarino and Johnson, 1999). Trust may influence loyalty through several mechanisms. First, it reduces perceived risk and switching costs by increasing confidence in the continuity of the relationship (Gefen et al., 2003). When customers trust their insurance provider, they may perceive less risk in renewing their policies and less need to invest effort in searching for alternatives. Second, trust can foster commitment, understood as the desire to maintain a relationship based on its perceived importance and value (Morgan and Hunt, 1994). Commitment, together with trust, directly determines intentions to continue the relationship and loyalty behaviors (Fullerton, 2005). Customers may also be more willing to maintain relationships with trusted companies during service failures or other challenging situations.

Third, trust may foster emotional attachment and customer identification with the company (Chaudhuri and Holbrook, 2001). Customers can develop affective bonds with companies they trust, viewing them as relationship partners rather than merely as service providers. This emotional dimension may contribute to loyalty even when competitors offer more favorable economic terms, as the emotional costs of switching exceed rational financial considerations (Evanschitzky et al., 2006). Finally, trust can encourage advocacy and recommendation behaviors (Brown et al., 2005; Pereira et al., 2025). Customers may be more willing to recommend companies they trust to friends and family because they genuinely believe the company deserves advocacy. Word-of-mouth and referrals, which are important indicators of loyalty, may therefore be strengthened by higher levels of trust.

Hypothesis 4: Customer trust (CT) positively influences customer loyalty (CL).

Mediation hypotheses: Integrating direct and indirect effects

Integrating the four theoretical perspectives outlined above, the proposed model posits that CSR perceptions, environmental sustainability practices, and perceived ethical behavior are indirectly related to customer loyalty through customer trust. CSR may signal benevolence and

stakeholder orientation (stakeholder theory and signaling theory), while also generating expectations of reciprocity (social exchange theory) that can contribute to trust and, subsequently, relational commitment (relationship marketing theory). Environmental sustainability practices may signal future orientation and value alignment, whereas perceived ethical behavior may signal integrity and reliability. In each case, the temporal and causal sequence runs from sustainability perception → trust judgment → loyalty decision, implying mediation rather than moderation (Baron and Kenny, 1986).

Hypothesis 5: Perceptions of corporate social responsibility (CSR) positively influence customer loyalty (CL), mediated by customer trust (CT).

Hypothesis 6: Environmental sustainability practices (ESP) positively influence customer loyalty (CL), mediated by customer trust (CT).

Hypothesis 7: Perceived ethical behavior (PEB) positively influences customer loyalty (CL), mediated by customer trust (CT).

Methodology

Research design

This study employed a quantitative, cross-sectional survey design to examine the relationships between sustainability practices and customer loyalty in the insurance industry.

Population, sampling technique, and sample size

The target population for this study comprised customers of insurance companies operating in Nigeria who had maintained active insurance policies for at least three years. This minimum relationship duration was established to ensure respondents had sufficient experience with their insurance providers to form informed perceptions of sustainability practices and trust. The three-year threshold also increased the likelihood that respondents had experienced at least two policy renewal cycle, providing exposure to multiple customer touchpoints relevant to the development of trust and loyalty.

A convenience sampling technique was employed because of practical constraints in accessing comprehensive customer databases across multiple insurance companies and the challenges associated with obtaining random samples in the Nigerian insurance industry. Although convenience sampling introduces potential selection bias and limits the generalizability of the findings to the broader population of insurance customers in Nigeria, several measures were adopted to mitigate these limitations. First, data were collected from two major urban centers, Lagos and Abuja, representing the largest insurance markets in Nigeria, providing some geographic variation within the convenience sampling framework. Second, the sample included customers from multiple insurance companies rather than a single provider, thereby reducing the potential influence of company-specific factors. Third, the minimum three-year policy duration criterion ensured that all respondents had substantial experience with their insurers, reducing the likelihood

that responses reflected only brief or superficial customer interactions. Finally, the large sample size ($N = 700$) contributed to greater precision and stability in parameter estimation despite the non-probability sampling approach. Nevertheless, the external validity of the findings should be interpreted with caution, and future research using probability-based sampling techniques across more diverse geographic and demographic groups could improve generalizability.

Sample size was determined using several complementary criteria. First, the widely cited 10-times rule for partial least squares structural equation modeling (PLS-SEM; Hair et al., 2011; Hair et al., 2022) calls for at least 10 observations per predictor variable in the most complex regression equation of the model, that is, for the construct receiving the largest number of structural paths. Because customer loyalty received four predictor paths (direct effects from CSR, ESP, PEB, and CT), this rule indicated a minimum of 40 observations. Second, and more rigorously, an a priori power analysis was conducted in GPower (Version 3.1; Faul et al., 2007) to establish the minimum sample needed to detect a medium effect size ($f^2 = 0.15$) with a significance level of $\alpha = 0.05$ and a statistical power of 0.95. Based on a linear multiple regression with four predictors (fixed model, R^2 increase), the analysis yielded a minimum of 129 respondents. Beyond these minimums, the target sample was set at 700 respondents to ensure adequate statistical power and to account for potential data quality issues. This sample far exceeds both the 10-times rule (40) and the GPower requirement (129), providing sufficient power to detect even small effects and ensuring stable parameter estimates.

Data collection procedure

Data were collected through structured questionnaires administered to insurance customers in two major urban centers in Nigeria (Lagos and Abuja). A multistage data collection approach was implemented to enhance sample diversity and representativeness. The questionnaire was administered in both paper-based and electronic formats to maximize accessibility and response rates. Paper-based questionnaires were distributed at insurance company offices and through insurance agents, whereas electronic versions were distributed via email invitations and social media platforms. Respondents were assured of confidentiality and anonymity to encourage candid responses and minimize social desirability bias. The questionnaire required approximately 15-20 minutes to complete, and no incentives were provided for participation to avoid potential bias.

Data collection took place over an eight-month period, allowing sufficient time to reach the target sample size while maintaining consistency in measurement timing. Of the 850 questionnaires distributed, 738 were returned, for a response rate of 86.8 %. After data screening to identify incomplete responses, outliers, and careless response patterns, 700 usable questionnaires were retained for the final analysis, yielding an effective response rate of 82.4 %.

Measurement instruments

All constructs in the theoretical model were measured using multi-item scales adapted from established instruments in the sustainability and relationship marketing literature. All items were

rated on 7-point Likert scales ranging from 1 (strongly disagree) to 7 (strongly agree), which provided sufficient variance for statistical analysis while maintaining respondent comprehension.

Table 1. *Research instrument description*

No.	Dimension	Items	Source
1	Perception of corporate social responsibility (CSR)	4	Martínez and Rodríguez del Bosque (2013)
2	Environmental sustainability practices (ESP)	4	Chen (2010); Raditya (2015)
3	Perceived ethical behavior (PEB)	4	Roman (2003); Singh et al. (2012)
4	Customer trust (CT)	4	Morgan and Hunt (1994); Sirdeshmukh et al. (2002)
5	Customer loyalty (CL)	4	Zeithaml et al. (1985); Chaudhuri and Holbrook (2001)

Source: Compiled by the authors.

Data analysis procedures

Data were analyzed using PLS-SEM in SmartPLS software (Version 4.0). The analysis followed a two-stage approach consistent with established PLS-SEM procedures (Hair et al., 2022; Hair et al., 2024; Gudergan et al., 2025): assessment of the measurement model (outer model), followed by evaluation of the structural model (inner model).

Results and discussion

Table 2 presents the descriptive statistics for study variables. All variables were standardized, with means of 0.000 and standard deviations of 1.000. Observed values ranged from approximately -3 to +4 across all constructs, indicating no extreme outliers. Customer Loyalty (CL) showed a median of -0.043, slight positive skewness (0.102), and minimal excess kurtosis (0.093). Corporate Social Responsibility (CSR) displayed slight negative skewness (-0.098) and negative excess kurtosis (-0.091). Customer Trust (CT) exhibited the most symmetric distribution, with skewness close to zero (0.022) and negative excess kurtosis (-0.195). Environmental Sustainability Practices (ESP) showed slight positive skewness (0.066) and positive excess kurtosis (0.206). Perceived Ethical Behavior (PEB) showed negative skewness (-0.135) and negative excess kurtosis (-0.223). The *p* values of the Cramér-von Mises normality test ranged from 0.084 to 0.685, all above 0.05, indicating that deviations from normality were not statistically significant. This supports the suitability of the data for PLS-SEM analysis.

Table 2. *Descriptive statistics of the study variables*

	Mean	Median	Obs min	Obs max	SD	Excess kurtosis	Skewness	No. of obs	Cramér-von Mises statistic	Cramér-von Mises <i>p</i> value
CL	0.000	-0.043	-2.864	3.285	1.000	0.093	0.102	700.000	0.083	0.191
CSR	0.000	-0.008	-3.136	2.867	1.000	-0.091	-0.098	700.000	0.061	0.363
CT	0.000	-0.007	-2.689	3.064	1.000	-0.195	0.022	700.000	0.040	0.685
ESP	0.000	-0.050	-3.184	3.925	1.000	0.206	0.066	700.000	0.048	0.542
PEB	0.000	0.049	-3.024	2.510	1.000	-0.223	-0.135	700.000	0.109	0.084

Note: CL: Customer Loyalty, CSR: Corporate Social Responsibility, CT: Customer Trust, ESP: Environmental Sustainability Practices, PEB: Perceived Ethical Behavior.

Source: Compiled by the authors.

Table 3 displays the outer loadings of all measurement indicators on their respective constructs. Customer Loyalty Indicators showed strong loadings ranging from 0.829 to 0.898, with CL1 and CL2 having the highest values (0.898 and 0.897). Corporate Social Responsibility indicators exhibited robust loadings: CSR1 and CSR2 both loaded at 0.889, whereas CSR3 and CSR4 loaded at 0.835 and 0.812, respectively. Customer Trust indicators displayed consistently high loadings: CT1 (0.897), CT2 (0.895), CT3 (0.845), and CT4 (0.850). Environmental Sustainability Practices indicators ranged from 0.805 to 0.896, with ESP2 showing the highest loading. Perceived Ethical Behavior had loadings from 0.841 to 0.890, with PEB2 exhibiting the strongest loading (0.890). All outer loadings exceeded the 0.70 threshold recommended by Hair et al. (2011), indicating that each indicator adequately represents its respective construct. As expected for single-indicator constructs, the interaction terms had loadings of 1.000.

Table 3. Indicator loadings of the measurement model

	CL	CSR	CT	ESP	PEB	CT x ESP	CT x CSR	CT x PEB
CL1	0.898							
CL2	0.897							
CL3	0.829							
CL4	0.850							
CSR1		0.889						
CSR2		0.889						
CSR3		0.835						
CSR4		0.812						
CT1			0.897					
CT2			0.895					
CT3			0.845					
CT4			0.850					
ESP1				0.877				
ESP2				0.896				
ESP3				0.818				
ESP4				0.805				
PEB1					0.864			
PEB2					0.890			
PEB3					0.841			
PEB4					0.849			
CT x ESP						1.000		
CT x CSR							1.000	
CT x PEB								1.000

Note: CL: Customer Loyalty, CSR: Corporate Social Responsibility, CT: Customer Trust, ESP: Environmental Sustainability Practices, PEB: Perceived Ethical Behavior.

Source: Compiled by the authors.

Table 4 presents three indices for assessing internal consistency reliability. Cronbach's alpha values ranged from 0.871 (ESP) to 0.895 (CT), all exceeding the 0.70 threshold and approaching

0.90 level associated with excellent reliability. Customer Trust showed the highest Cronbach's alpha (0.895), followed by Customer Loyalty (0.892) and Perceived Ethical Behavior (0.884). Composite reliability (ρ_a) values ranged from 0.883 (ESP) to 0.901 (CT), consistently exceeding the corresponding Cronbach's alpha values. Composite reliability (ρ_c) values ranged from 0.912 (ESP) to 0.927 (CT), all well above the 0.70 minimum threshold. Customer Trust had the highest ρ_c (0.927), followed by Customer Loyalty (0.925) and Perceived Ethical Behavior (0.920). The consistency across the three indices indicates that all measurement scales have excellent internal consistency.

Table 4. *Internal consistency reliability of the constructs*

	Cronbach's alpha	Composite reliability (ρ_a)	Composite reliability (ρ_c)
CL	0.892	0.895	0.925
CSR	0.879	0.887	0.917
CT	0.895	0.901	0.927
ESP	0.871	0.883	0.912
PEB	0.884	0.885	0.920

Note: CL: Customer Loyalty, CSR: Corporate Social Responsibility, CT: Customer Trust, ESP: Environmental Sustainability Practices, PEB: Perceived Ethical Behavior.

Source: Compiled by the authors.

Table 5 reports the average variance extracted (AVE) for each construct. AVE values ranged from 0.722 (ESP) to 0.761 (CT), well above the 0.50 threshold. Customer Trust had the highest AVE (0.761), indicating that, on average, 76.1 % of the variance in its indicators is explained by the underlying construct. Customer Loyalty showed an AVE of 0.755, Perceived Ethical Behavior 0.741, Corporate Social Responsibility 0.734, and Environmental Sustainability Practices 0.722. Since all constructs explain more than half of the variance in their indicators, convergent validity is established.

Table 5. *Convergent validity assessment*

	Average variance extracted (AVE)
CL	0.755
CSR	0.734
CT	0.761
ESP	0.722
PEB	0.741

Note: CL: Customer Loyalty, CSR: Corporate Social Responsibility, CT: Customer Trust, ESP: Environmental Sustainability Practices, PEB: Perceived Ethical Behavior.

Source: Compiled by the authors.

Table 6 presents the Fornell-Larcker criterion, in which the diagonal elements represent the square root of AVE for each construct and the off-diagonal elements show the correlations between

interconstructs. Customer Loyalty ($\sqrt{\text{AVE}} = 0.869$) showed its highest correlation with Customer Trust (0.670), which was below the diagonal value. Customer Trust ($\sqrt{\text{AVE}} = 0.872$) correlated 0.670 with Customer Loyalty, 0.494 with CSR, 0.452 with ESP, and 0.460 with PEB, all below its diagonal value. Similarly, Corporate Social Responsibility ($\sqrt{\text{AVE}} = 0.857$), Environmental Sustainability Practices ($\sqrt{\text{AVE}} = 0.850$), and Perceived Ethical Behavior ($\sqrt{\text{AVE}} = 0.861$) showed correlations below their respective diagonal values. This pattern supports discriminant validity according to the Fornell-Larcker criterion.

Table 6. *Discriminant validity: Fornell and Larcker Criterion*

	CL	CSR	CT	ESP	PEB
CL	0.869				
CSR	0.388	0.857			
CT	0.670	0.494	0.872		
ESP	0.334	0.383	0.452	0.850	
PEB	0.333	0.382	0.460	0.381	0.861

Note: CL: Customer Loyalty, CSR: Corporate Social Responsibility, CT: Customer Trust, ESP: Environmental Sustainability Practices, PEB: Perceived Ethical Behavior.

Source: Compiled by the authors.

Table 7 presents the HTMT ratios, which should be below 0.85 for conceptually distinct constructs. All HTMT ratios were well below this threshold, the highest being 0.746, between Customer Trust and Customer Loyalty. The second-highest ratio (0.553) was observed between Corporate Social Responsibility and Customer Trust, and all other HTMT ratios remained below 0.52. The interaction terms showed uniformly low HTMT ratios with substantive constructs (all below 0.10). These results provide strong evidence of discriminant validity.

Table 7. *Discriminant validity: Heterotrait–Monotrait Ratio (HTMT)*

	CL	CSR	CT	ESP	PEB	CT x ESP	CT x CSR	CT x PEB
CL								
CSR	0.433							
CT	0.746	0.553						
ESP	0.375	0.433	0.506					
PEB	0.374	0.433	0.515	0.430				
CT x ESP	0.033	0.022	0.013	0.031	0.028			
CT x CSR	0.021	0.024	0.013	0.024	0.024	0.492		
CT x PEB	0.081	0.018	0.099	0.027	0.059	0.504	0.482	

Note: CL: Customer Loyalty, CSR: Corporate Social Responsibility, CT: Customer Trust, ESP: Environmental Sustainability Practices, PEB: Perceived Ethical Behavior.

Source: Compiled by the authors.

Structural model (inner model)

Table 8 presents the variance inflation factor (VIF) values for all indicators and constructs. Indicator-level VIF values ranged from 1.869 (ESP4) to 2.908 (CL2), well below the threshold of 5.0 and even below the more conservative threshold of 3.3. VIF values ranged from 2.013 to 2.908 for Customer Loyalty indicators, from 1.924 to 2.637 for Corporate Social Responsibility, from 2.184 to 2.810 for Customer Trust, from 1.869 to 2.609 for Environmental Sustainability Practices, and from 2.054 to 2.771 for Perceived Ethical Behavior. The interaction terms had VIF values of 1.000. These consistently low values indicate that multicollinearity is not a concern for the structural model estimates.

Table 8. *Collinearity assessment: Variance inflation factor (VIF)*

	VIF
CL1	2.842
CL2	2.908
CL3	2.013
CL4	2.243
CSR1	2.637
CSR2	2.556
CSR3	2.038
CSR4	1.924
CT1	2.745
CT2	2.810
CT3	2.184
CT4	2.249
ESP1	2.448
ESP2	2.609
ESP3	1.911
ESP4	1.869
PEB1	2.440
PEB2	2.771
PEB3	2.084
PEB4	2.054
CT x ESP	1.000
CT x CSR	1.000
CT x PEB	1.000

Note: CL: Customer Loyalty, CSR: Corporate Social Responsibility, CT: Customer Trust, ESP: Environmental Sustainability Practices, PEB: Perceived Ethical Behavior.

Source: Compiled by the authors.

Table 9 reports the R^2 values for the endogenous constructs. Customer Loyalty had an R^2 of 0.455 (adjusted $R^2 = 0.449$), indicating that the model explains 45.5 % of the variance in customer loyalty. Customer Trust had an R^2 of 0.375 (adjusted $R^2 = 0.373$), showing that Corporate Social Responsibility, Environmental Sustainability Practices, and Perceived Ethical Behavior jointly explain 37.5 % of the variance in trust. Both values fall within the moderate range by conventional

standards, reflecting meaningful explanatory power. The small difference between the unadjusted and adjusted R^2 values suggests little overfitting.

Table 9. Coefficient of determination (R^2) of the endogenous constructs

	R-square	R-square adjusted
CL	0.455	0.449
CT	0.375	0.373

Note: CL: Customer Loyalty, CT: Customer Trust.

Source: Compiled by the authors.

Table 10 presents Cohen's f^2 effect sizes. Customer Trust had a large effect on Customer Loyalty ($f^2 = 0.431$). Corporate Social Responsibility had a medium effect ($f^2 = 0.119$) on Customer Trust. Environmental Sustainability Practices showed a small-to-medium effect on Customer Trust ($f^2 = 0.072$), whereas Perceived Ethical Behavior had a medium effect ($f^2 = 0.080$). The direct effects of the sustainability dimensions on Customer Loyalty were substantially smaller: CSR ($f^2 = 0.006$), ESP ($f^2 = 0.001$), and PEB ($f^2 = 0.000$). The interaction terms had negligible effect sizes, ranging from 0.000 to 0.001. This pattern is consistent with the mediation hypothesis, suggesting that sustainability practices influence loyalty primarily through trust-building mechanisms.

Table 10. Effect size (f^2) of the exogenous constructs

	f-square
CSR → CL	0.006
CSR → CT	0.119
CT → CL	0.431
ESP → CL	0.001
ESP → CT	0.072
PEB → CL	0.000
PEB → CT	0.080
CT x ESP → CL	0.000
CT x CSR → CL	0.000
CT x PEB → CL	0.001

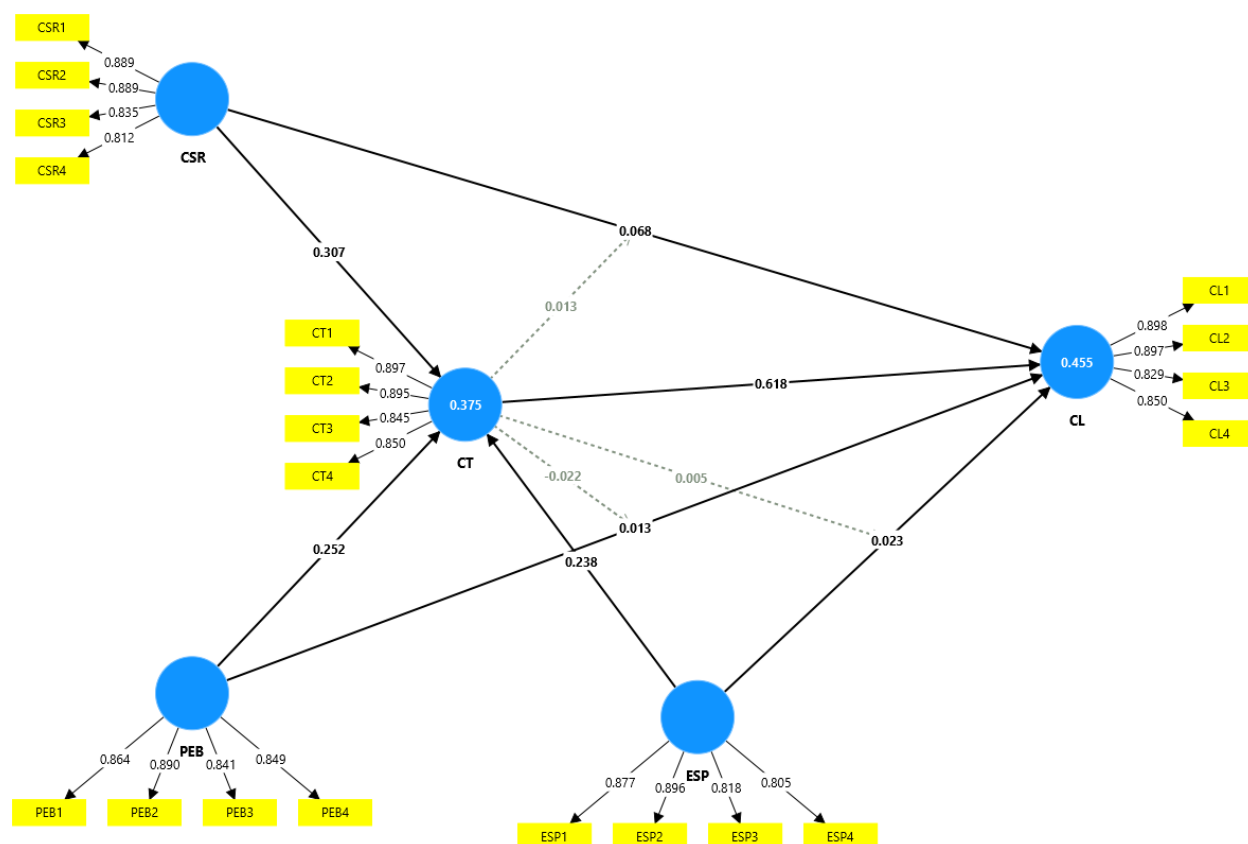
Note: CL: Customer Loyalty, CSR: Corporate Social Responsibility, CT: Customer Trust, ESP: Environmental Sustainability Practices, PEB: Perceived Ethical Behavior.

Source: Compiled by the authors.

Figure 1 presents the standardized path coefficients. Corporate Social Responsibility had a significant positive effect on Customer Trust ($\beta = 0.307$, $t = 7.783$, $p < 0.001$), supporting Hypothesis 1. Environmental Sustainability Practices also had a significant positive effect on Customer Trust ($\beta = 0.238$, $t = 5.907$, $p < 0.001$), supporting Hypothesis 2. The direct effects of sustainability dimensions on Customer Loyalty were notably small: CSR ($\beta = 0.068$, $t = 2.062$, $p < 0.05$), ESP ($\beta = 0.023$, $t = 0.684$, $p > 0.05$), and PEB ($\beta = 0.013$, $t = 0.391$, $p > 0.05$). Only the

direct effect of CSR was statistically significant, albeit small, whereas the direct effects of ESP and PEB on loyalty were not. These negligible direct effects, when contrasted with the substantial indirect effects through trust (0.147 to 0.190), underscore the critical mediating role of customer trust. The effect size analysis further supports this interpretation: trust had a large effect on loyalty ($f^2 = 0.431$), whereas the direct effects of the sustainability dimensions on loyalty were negligible ($f^2 = 0.000$ to 0.006). From a managerial perspective, these results suggest that sustainability investments are unlikely to generate meaningful loyalty gains unless they succeed in building customer trust. The interaction effects were negligible and nonsignificant (ranging from -0.022 to 0.013 , all $p > 0.05$), indicating that the sustainability-trust-loyalty pathway operates consistently regardless of interaction effects. These findings are consistent with those of Vlachos et al. (2009) and Martínez and Rodríguez del Bosque (2013), who also found that CSR influences loyalty primarily through trust-based mechanisms rather than directly.

Figure 1. Structural path coefficients.



Source: Compiled by the authors.

Table 11 presents the total effects, which combine direct and indirect pathways. Corporate Social Responsibility had a total effect of 0.068 on Customer Loyalty, Environmental

Sustainability Practices 0.023, and Perceived Ethical Behavior 0.013. These modest total effects reflect the combination of small direct effects and indirect effects operating through Customer Trust. The interaction terms showed negligible total effects (0.005 to -0.022).

Table 11. *Total effects of the structural model*

	Path coefficients
CSR → CL	0.068
CSR → CT	0.307
CT → CL	0.618
ESP → CL	0.023
ESP → CT	0.238
PEB → CL	0.013
PEB → CT	0.252
CT x ESP → CL	0.005
CT x CSR → CL	0.013
CT x PEB → CL	-0.022

Note: CL: Customer Loyalty, CSR: Corporate Social Responsibility, CT: Customer Trust, ESP: Environmental Sustainability Practices, PEB: Perceived Ethical Behavior.

Source: Compiled by the authors.

Table 12 presents the specific indirect effects, which quantify the mediating role of Customer Trust. Corporate Social Responsibility had an indirect effect of 0.190 on Customer Loyalty through Customer Trust (0.307×0.618), supporting Hypothesis 5. Perceived Ethical Behavior had an indirect effect of 0.156 (0.252×0.618), confirming Hypothesis 7. Environmental Sustainability Practices showed an indirect effect of 0.147 (0.238×0.618), supporting Hypothesis 6. The indirect effects substantially exceeded the direct effects, providing strong evidence that sustainability practices influence loyalty primarily through trust-building mechanisms.

Table 12. *Mediation analysis results (indirect effects)*

	Specific indirect effects
ESP → CT → CL	0.147
PEB → CT → CL	0.156
CSR → CT → CL	0.190

Note: CL: Customer Loyalty, CSR: Corporate Social Responsibility, CT: Customer Trust, ESP: Environmental Sustainability Practices, PEB: Perceived Ethical Behavior.

Source: Compiled by the authors.

Several aspects of these findings warrant critical discussion. First, the stronger effect of CSR on customer trust ($\beta = 0.307$) compared with that of environmental sustainability practices ($\beta = 0.238$) may be explained by the greater visibility and personal relevance of CSR activities in the Nigerian insurance context. In Nigeria, where community development needs are acute and corporate contributions to education, health, and community infrastructure are highly visible and

socially valued, CSR initiatives may resonate more directly with customers' immediate social concerns than environmental practices, which may be perceived as more distant or less immediately relevant. This finding aligns with the broader argument of Lii and Lee (2012) that the type of CSR activity moderates its impact on consumer evaluations, with socially oriented initiatives often generating stronger responses than environmentally oriented ones in developing-country contexts.

Second, the substantial effect of customer trust on loyalty ($\beta = 0.618$, $f^2 = 0.431$) indicates that trust is the dominant driver of customer retention in the insurance industry. This is consistent with the commitment-trust theory of relationship marketing (Morgan and Hunt, 1994) and is particularly relevant in the insurance sector, where the inherent uncertainty of future claim outcomes makes trust the single most important determinant of whether customers maintain their policies. The finding that trust explains a substantially larger proportion of the variance in loyalty than all three sustainability dimensions combined reinforces the argument that sustainability practices are valuable primarily insofar as they build trust.

Third, the non-significant direct effects of ESP ($\beta = 0.023$, $p > 0.05$) and PEB ($\beta = 0.013$, $p > 0.05$) on customer loyalty, contrasted with their significant indirect effects through trust (0.147 and 0.156, respectively), provide strong evidence of full mediation. This suggests that environmental and ethical practices do not, in isolation, directly drive loyalty; rather, customers must first internalize them as trust-enhancing signals. This finding extends the work of Chen (2010) and Roman (2003) by showing that, in the insurance sector, the sustainability-to-loyalty pathway is not direct but is fully channeled through the formation of trust. The practical implication is that insurance companies should not expect sustainability investments to yield immediate loyalty gains; instead, these investments function as trust-building inputs whose loyalty benefits materialize over time as trust develops through repeated positive signals.

Table 13 presents the model fit indices. The standardized root means square residual (SRMR) of 0.041 falls well below the 0.08 threshold, indicating excellent fit. The d_ULS values (0.354 saturated, 0.352 estimated) and d_G values (0.162 saturated, 0.161 estimated) show minimal differences between the two models. The normed fit index (NFI) values of 0.924 (saturated) and 0.925 (estimated) exceed the 0.90 threshold. These consistently favorable fit indices indicate that the theoretical model adequately represents the structure of the observed data.

Table 13. *Model fit indices*

	Saturated model	Estimated model
SRMR	0.041	0.041
d_ULS	0.354	0.352
d_G	0.162	0.161
Chi-square	672.463	667.921
NFI	0.924	0.925

Note: NFI: Normed fit index.

Source: Compiled by the authors.

In addition to the explanatory fit indices, predictive relevance was assessed using the Stone-Geisser Q^2 criterion (Geisser, 1975; Stone, 1974) obtained through blindfolding procedure in SmartPLS 4.0. The Q^2 values were 0.261 for Customer Trust and 0.322 for Customer Loyalty, both above zero, indicating that the model has predictive relevance for both endogenous constructs. According to Hair et al. (2022), Q^2 values of 0.02, 0.15, and 0.35 indicate small, medium, and large predictive relevance, respectively. Thus, the Q^2 value for Customer Trust (0.261) represents medium-to-large predictive relevance, whereas for Customer Loyalty (0.322), it approaches large predictive relevance. These results indicate that the model not only explains the observed data but also has adequate out-of-sample predictive capability, an important consideration for the practical applicability of the findings. Furthermore, PLSpredict (Shmueli et al., 2019) was conducted with 10-fold cross-validation to evaluate the model's out-of-sample predictive performance. The results showed that the PLS-SEM model outperformed the linear regression benchmark (root mean squared error [RMSE] for Customer Loyalty: PLS-SEM: 0.841 vs. OLS: 0.867), indicating higher predictive accuracy and supporting the usefulness of the PLS-SEM approach in this research context.

To assess the potential influence of common method bias (CMB), two complementary statistical procedures were employed. First, Harman's single-factor test was conducted by loading all measurement indicators onto a single unrotated factor in an exploratory factor analysis. The first factor accounted for 31.2 % of the total variance, well below the 50 % threshold recommended by Podsakoff et al. (2003), suggesting that no single factor dominated the variance and that CMB was not a serious concern. Second, a full collinearity assessment was performed following Kock (2015) to examine whether the VIF values derived from regressing each endogenous construct on all exogenous constructs exceeded the threshold of 3.3. VIF values ranged from 1.42 to 2.91, well below the 3.3 threshold, further indicating that CMB did not pose a pervasive threat to the validity of the estimated relationships. Additionally, the procedural remedies recommended by Podsakoff et al. (2003) were implemented during data collection, including assuring respondents of anonymity, using different scale endpoints for different construct blocks, and counterbalancing question order to reduce method variance. Although these results do not entirely rule out CMB, the combination of statistical tests and procedural safeguards provides reasonable confidence that the findings are not substantially an artifact of common method variance.

Given that all variables were measured using self-reported data collected from the same respondents at a single point in time, the potential for endogeneity warrants discussion. Endogeneity may arise from omitted variable bias, reverse causality, or measurement error (Antonakis et al., 2010). In the present study, several factors mitigate the risk. First, the hypothesized causal directions are strongly grounded in established theoretical frameworks: stakeholder theory, social exchange theory, relationship marketing theory, and signaling theory collectively provide a robust theoretical basis for the posited directional relationships, making reverse causality theoretically implausible. For instance, it is more plausible that sustainability practices build trust, which in turn fosters loyalty, which leads companies to adopt the sustainability practices perceived by individual customers.

Second, the model includes the most relevant predictors of trust and loyalty identified in the theory, reducing the likelihood of substantial omitted variable bias. Third, the mediation structure of the model, in which trust is positioned as an intermediate variable between sustainability practices and loyalty, is consistent with the temporal sequencing advocated by Baron and Kenny (1986) and is further reinforced by the substantially larger indirect effects compared with the direct effects observed in the results. Fourth, the rigorous measurement validation procedures (high indicator loadings, strong reliability indices, and robust validity evidence) minimize measurement error as a source of endogeneity. Nevertheless, future research using longitudinal designs or instrumental variable approaches would provide additional assurance regarding the causal interpretation of the findings.

Conclusion

This study provides compelling evidence that sustainability practices significantly influence customer loyalty in the Nigerian insurance industry through trust-building mechanisms. Perceptions of corporate social responsibility, environmental sustainability practices, and perceived ethical behavior contribute to the formation of customer trust, which in turn drives loyalty, including repurchase intentions, resistance to switching, likelihood of recommendation, and emotional commitment. The contributions of this study can be organized into three categories.

Theoretical contributions. This study advances the sustainability and relationship marketing literature in three ways. First, it provides the first empirical evidence from the Nigerian insurance industry on the sustainability-trust-loyalty chain, extending prior findings from the manufacturing and retail sectors in developed economies to financial services in an emerging market. Second, the study demonstrates that customer trust fully mediates the relationship between sustainability practices and customer loyalty, providing empirical support for the theoretical proposition that sustainability perceptions must be internalized as trust judgments before they translate into loyalty. Third, the integrated multitheoretical framework, which synthesizes stakeholder theory, social exchange theory, relationship marketing theory, and signaling theory, offers a more comprehensive explanation of the sustainability-loyalty nexus than the single-theory approaches prevalent in prior research.

Methodological contributions. The study contributes methodologically by using a comprehensive PLS-SEM approach that goes beyond conventional assessment criteria. The inclusion of both explanatory (R^2 , f^2 , SRMR) and predictive (Q^2 , PLSpredict) assessment measures, complemented by an a priori statistical power analysis (G*Power) and rigorous diagnostics for common method bias and endogeneity, offers a methodological reference for future PLS-SEM studies in sustainability and relationship marketing research. The superior out-of-sample predictive performance of PLS-SEM relative to the OLS regression further supports the methodological appropriateness of the analytical approach.

Practical implications. The findings have important implications for insurance practitioners. The results demonstrate that sustainability practices should not be viewed merely as compliance

obligations or reputational tools but rather as strategic relationship-building mechanisms with demonstrable effects on customer trust and loyalty. The dominance of trust as the mediating mechanism suggests that insurance companies should prioritize authenticity and credibility in their sustainability communications, as trust is the pathway through which sustainability investments generate loyalty returns. In increasingly competitive insurance markets characterized by commoditized products and low switching costs, sustainability-based differentiation offers pathways to sustainable competitive advantage through enhanced customer relationships. The study underscores that sustainability initiatives must be authentic, consistent, and credible to generate trust-building effects that translate into loyalty outcomes.

Limitations

Several limitations warrant acknowledgment. The cross-sectional design, while appropriate for testing the proposed relationships, limits causal inference. Although the theoretical framework and temporal logic support the hypothesized causal directions, longitudinal designs would provide stronger evidence of causality by showing that changes in sustainability perceptions precede changes in trust and loyalty over time. The convenience sampling approach, while necessary given practical constraints, may limit generalizability of the findings to the broader population of Nigerian insurance customers and to international contexts. Future research using probability sampling techniques across diverse geographic and demographic segments would enhance generalizability.

Additionally, the reliance on self-reported perceptual measures rather than objective sustainability metrics introduces potential common method bias and perception-reality gaps. While statistical tests (Harman's single-factor test, full collinearity assessment) indicated that common method bias did not severely contaminate the findings, future research incorporating objective sustainability performance indicators alongside perceptual measures would strengthen conclusions about the actual versus perceived effects of sustainability. The exclusive focus on customer perceptions also overlooks potential moderating factors, such as customer involvement with sustainability issues, prior experience with the company, and demographic characteristics, that may influence the strength of these relationship.

Despite these limitations, the study makes important contributions to understanding sustainability-loyalty relationships in insurance, particularly in emerging markets. The findings indicate that sustainability practices are strategically important investments with measurable impacts on customer trust and loyalty rather than peripheral corporate activities disconnected from core business objectives. For insurance companies operating in competitive, trust-intensive service environments, sustainability offers pathways to relationship differentiation and loyalty enhancement that go beyond traditional competition on service quality and price.

Recommendations

1. Insurance companies should develop comprehensive corporate social responsibility programs that visibly demonstrate a commitment to societal welfare beyond legal requirements and profit generation.
2. Insurance companies should implement comprehensive environmental sustainability practices spanning operational processes, investment portfolios, and product offerings.
3. Given the significant positive effect of environmental sustainability practices on customer trust ($\beta = 0.238$, $p < 0.001$), insurance companies should implement visible environmental sustainability initiatives that can be readily communicated. The findings suggest that customers respond positively to environmental commitments; therefore, insurers should ensure that such practices are effectively communicated to maximize their trust-building potential.
4. Insurance companies should ensure that their corporate sustainability initiatives include practices that are visible and credible to customers, as the study shows that perceived sustainability practices, rather than internal operational changes alone, drive customer trust and loyalty.
5. Although the study shows that sustainability practices build trust and loyalty, the findings do not extend to specific product development strategies. Therefore, any product innovation should be guided by additional market research that specifically examines customer demand for sustainability-linked insurance products in the Nigerian market.
6. Given that perceived ethical behavior had a significant positive effect on trust ($\beta = 0.252$, $p < 0.001$), insurance companies should prioritize transparency, fairness, and ethical conduct in all customer interactions. The findings indicate that ethical behavior is a particularly potent trust-building signal, suggesting that investments in ethical business practices yield measurable returns through enhanced customer trust and, consequently, loyalty.
7. The finding that all three sustainability dimensions significantly influence trust suggests that insurance companies should adopt a holistic approach to sustainability communication, ensuring that customers are aware of their CSR initiatives, environmental commitments, and ethical standards. Effective communication of sustainability efforts is essential because the study measured customer perceptions rather than objective sustainability performance, which implies that visibility and awareness are prerequisites for trust-building effects.

References

- Adebesin, A. O., & Fatokun, B. (2024). The impact of CSR on customer loyalty in the FMCG industry. *Postgraduate Journal of Management Research*, 2(1).
<https://openjournals.ljmu.ac.uk/PJMR/article/view/2561>

- Alli, N. G. (2025a). Green marketing and product innovation in insurance: Case studies of Nigerian insurers. *Management & Marketing*, 23(2), 291-314. <https://doi.org/10.52846/mnmk.23.2.06>
- Alli, N. G. (2025b). Impact of climate change on agricultural insurance. *Revista Activos*, 23(1), 121-152. <https://doi.org/10.15332/25005278.10865>
- Alli, N. G. (2026). Marketing intensity and financial performance of listed insurance companies: An ex post facto analysis. *Management & Marketing*, 24(1), 103-129. <https://doi.org/10.52846/mnmk.24.1.07>
- Alli, N. G., & Ganiyu, K. (2025). Empowering insurance consumers in Nigeria: Exploring the interplay between financial literacy, trust, and decision-making. *The Journal of Risk Management and Insurance*, 29(1), 17-46. <https://jrmi.au.edu/index.php/jrmi/article/view/294>
- Antonakis, J., Bendahan, S., Jacquart, P., & Lalive, R. (2010). On making causal claims: A review and recommendations. *The Leadership Quarterly*, 21(6), 1086-1120. <https://doi.org/10.1016/j.leaqua.2010.10.010>
- Asa, A. R., & Nautwima, J. P. (2026). Corporate digital responsibility and consumer trust: A signaling theory perspective. *Cogent Business & Management*, 13(1), 2607753. <https://doi.org/10.1080/23311975.2025.2607753>
- Bachnik, K., & Szopiński, T. (2026). CSR, knowledge, and customer loyalty: a cross-country comparison from the banking industry. *Journal of Innovation & Knowledge*, 16, 101013. <https://doi.org/10.1016/j.jik.2026.101013>
- Ball, D., Coelho, P. S., & Machás, A. (2004). The role of communication and trust in explaining customer loyalty: An extension to the ECSI model. *European Journal of Marketing*, 38(9/10), 1272-1293. <https://doi.org/10.1108/03090590410548979>
- Baron, R. M., & Kenny, D. A. (1986). The moderator-mediator variable distinction in social psychological research: Conceptual, strategic, and statistical considerations. *Journal of Personality and Social Psychology*, 51(6), 1173-1182. <https://doi.org/10.1037//0022-3514.51.6.1173>
- Bhattacharya, C. B., & Sen, S. (2004). Doing better at doing good: When, why, and how consumers respond to corporate social initiatives. *California Management Review*, 47(1), 9-24. <https://doi.org/10.2307/41166284>

- Biswas, A., & Roy, M. (2015). Green products: An exploratory study on the consumer behaviour in emerging economies of the East. *Journal of Cleaner Production*, 87, 463-468.
<https://doi.org/10.1016/j.jclepro.2014.09.075>
- Blau, P. M. (1964). *Exchange and power in social life*. John Wiley & Sons.
- Brunk, K. H. (2010). Exploring the origins of ethical company/brand perceptions—A consumer perspective of corporate ethics. *Journal of Business Research*, 63(3), 255-262.
<https://doi.org/10.1016/j.jbusres.2009.03.009>
- Burgoon, J. K. (1993). Interpersonal expectations, expectancy violations, and emotional communication. *Journal of Language and Social Psychology*, 12(1-2), 30-48.
<https://doi.org/10.1177/0261927X93121003>
- Carrington, M. J., Neville, B. A., & Whitwell, G. J. (2014). Lost in translation: Exploring the ethical consumer intention-behavior gap. *Journal of Business Research*, 67(1), 2759-2767.
<https://doi.org/10.1016/j.jbusres.2012.09.022>
- Carroll, A. B. (1991). The pyramid of corporate social responsibility: Toward the moral management of organizational stakeholders. *Business Horizons*, 34(4), 39-48. [https://doi.org/10.1016/0007-6813\(91\)90005-g](https://doi.org/10.1016/0007-6813(91)90005-g)
- Chaudhuri, A., & Holbrook, M. B. (2001). The chain of effects from brand trust and brand affect to brand performance: The role of brand loyalty. *Journal of Marketing*, 65(2), 81-93.
<https://doi.org/10.1509/jmkg.65.2.81.18255>
- Chen, Y. S. (2010). The drivers of green brand equity: Green brand image, green satisfaction, and green trust. *Journal of Business Ethics*, 93, 307-319. <https://doi.org/10.1007/s10551-009-0223-9>
- Chi, H. K., & Phan, H. T. (2025). Revealing the role of corporate social responsibility, service quality, and perceived value in determining customer loyalty: A meta-analysis study. *Sustainability*, 17(10), 4304. <https://doi.org/10.3390/su17104304>
- Cohen, J. (1988). *Statistical power analysis for the behavioral sciences* (2nd ed.). Lawrence Erlbaum Associates.
- Cone Communications. (2017). *2017 Cone Communications CSR Study*. Cone Communications.
- Connelly, B. L., Certo, S. T., Ireland, R. D., & Reutzel, C. R. (2011). Signaling theory: A review and assessment. *Journal of Management*, 37(1), 39-67. <https://doi.org/10.1177/0149206310388412>

- Cropanzano, R., & Mitchell, M. (2005). Social exchange theory: An interdisciplinary review. *Journal of Management*, 31(6), 874–900. <https://doi.org/10.1177/0149206305279602>
- Cruz, G., Fernández, Y., Villar-Guevara, M., Perez-Salluca, M., & Fernández-Mallma, I. (2026). Assessing the contribution of corporate social responsibility to the dynamics of sustainable markets: The role of corporate image, satisfaction, and customer loyalty. *Frontiers in Sustainability*, 7, 1694085. <https://doi.org/10.3389/frsus.2026.1694085>
- Dagunduro, M. E., Falana, G. A., Ajayi, J. O., Adewara, Y. M., & Bello, S. M. (2024). Sustainability reporting and market performance of listed insurance firms in Nigeria. *Journal of Multiperspectives on Accounting Literature*, 2(2), 78–95. <https://doi.org/10.22219/jameela.v2i2.33768>
- Delmas, M. A., & Burbano, V. C. (2011). The drivers of greenwashing. *California Management Review*, 54(1), 64–87. <https://doi.org/10.1525/cmr.2011.54.1.64>
- Dick, A. S., & Basu, K. (1994). Customer loyalty: Toward an integrated conceptual framework. *Journal of the Academy of Marketing Science*, 22(2), 99–113. <https://doi.org/10.1177/0092070394222001>
- Donaldson, T., & Preston, L. E. (1995). The stakeholder theory of the corporation: Concepts, evidence, and implications. *Academy of Management Review*, 20(1), 65–91. <https://doi.org/10.5465/amr.1995.9503271992>
- Doney, P. M., & Cannon, J. P. (1997). An examination of the nature of trust in buyer-seller relationships. *Journal of Marketing*, 61(2), 35–51. <https://doi.org/10.1177/002224299706100203>
- Du, S., Bhattacharya, C. B., & Sen, S. (2007). Reaping relational rewards from corporate social responsibility: The role of competitive positioning. *International Journal of Research in Marketing*, 24(3), 224–241. <https://doi.org/10.1016/j.ijresmar.2007.01.001>
- Echezona, O. (2024). Relationship between corporate social responsibility (CSR) initiatives and brand loyalty in emerging markets. *International Journal of Business Strategies*, 10(1), 13–25. <https://doi.org/10.47672/ijbs.1821>
- Eisenberger, R., Armeli, S., Rexwinkel, B., Lynch, P. D., & Rhoades, L. (2001). Reciprocation of perceived organizational support. *Journal of Applied Psychology*, 86(1), 42–51. <https://doi.org/10.1037/0021-9010.86.1.42>

- Eisingerich, A. B., & Bell, S. J. (2008). Perceived service quality and customer trust: Does enhancing customers' service knowledge matter? *Journal of Service Research*, 10(3), 256-268.
<https://doi.org/10.1177/1094670507310769>
- Ellen, P. S., Webb, D. J., & Mohr, L. A. (2006). Building corporate associations: Consumer attributions for corporate socially responsible programs. *Journal of the Academy of Marketing Science*, 34(2), 147–157. <https://doi.org/10.1177/0092070305284976>
- Faul, F., Erdfelder, E., Lang, A. G., & Buchner, A. (2007). G*Power 3: A flexible statistical power analysis program for the social, behavioral, and biomedical sciences. *Behavior Research Methods*, 39, 175–191. <https://doi.org/10.3758/bf03193146>
- Fiske, S. T., Cuddy, A. J. C., & Glick, P. (2007). Universal dimensions of social cognition: Warmth and competence. *Trends in Cognitive Sciences*, 11(2), 77–83. <https://doi.org/10.1016/j.tics.2006.11.007>
- Freeman, R. E. (1984). Strategic management: A stakeholder approach. Pitman.
- Garbarino, E., & Johnson, M. S. (1999). The different roles of satisfaction, trust, and commitment in customer relationships. *Journal of Marketing*, 63(2), 70–87.
<https://doi.org/10.1177/002224299906300206>
- Gbenga, A. N. (2025). Risk perception among commercial drivers and compliance with third party motor insurance policy. *International Journal of Social Science and Business*, 9(3), 624-643.
<https://doi.org/10.23887/ijssb.v9i3.94797>
- Geisser, S. (1975). The predictive sample reuse method with applications. *Journal of the American Statistical Association*, 70(350), 320–328. <https://doi.org/10.1080/01621459.1975.10479865>
- Gouldner, A. W. (1960). The norm of reciprocity: A preliminary statement. *American Sociological Review*, 25(2), 161–178. <https://doi.org/10.2307/2092623>
- Grönroos, C. (1994). From marketing mix to relationship marketing: Towards a paradigm shift in marketing. *Management Decision*, 32(2), 4–20. <https://doi.org/10.1108/00251749410054774>
- Hair, J. F., Hult, G. T. M., Ringle, C. M., & Sarstedt, M. (2022). *A primer on partial least squares structural equation modeling (PLS-SEM)* (3rd ed.). Sage Publishing.
- Hair, J. F., Ringle, C. M., & Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice*, 19(2), 139–152. <https://doi.org/10.2753/mtp1069-6679190202>

- Hair, J. F., Sarstedt, M., Ringle, C. M., Sharma, P. N., & Liengaard, B. D. (2024). Going beyond the untold facts in PLS–SEM and moving forward. *European Journal of Marketing*, 58(13), 81-106.
<https://doi.org/10.1108/EJM-07-2023-0572>
- Harrison, J. S., Bosse, D. A., & Phillips, R. A. (2010). Managing for stakeholders, stakeholder utility functions, and competitive advantage. *Strategic Management Journal*, 31(1), 58–74.
<https://doi.org/10.1002/smj.801>
- He, H., & Li, Y. (2011). CSR and service brand: The mediating effect of brand identification and moderating effect of service quality. *Journal of Business Ethics*, 100, 673-688.
<https://doi.org/10.1007/s10551-010-0703-y>
- Heider, F. (1958). The psychology of interpersonal relations. Wiley. <https://doi.org/10.1037/10628-000>
- Hidayat, K., & Idrus, M. I. (2023). The effect of relationship marketing towards switching barrier, customer satisfaction, and customer trust on bank customers. *Journal of Innovation and Entrepreneurship*, 12(1), 29. <https://doi.org/10.1186/s13731-023-00270-7>
- Hoejmose, S., Brammer, S., & Millington, A. (2013). An empirical examination of the relationship between business strategy and socially responsible supply chain management. *International Journal of Operations & Production Management*, 33(5), 589-621.
<https://doi.org/10.1108/01443571311322733>
- Homans, G. C. (1961). Social behavior: Its elementary forms. Harcourt, Brace & World.
- Janney, J. J., & Gove, S. (2011). Signaling theory via Twitter and Facebook. *Journal of Management Studies*, 48(6), 1339–1362. <https://doi.org/10.1111/j.1467-6486.2011.01014.x>
- Khalufi, N. A. M., Sheikh, R. A., Khan, S. M. F. A., & Onn, C. W. (2025). Evaluating the impact of sustainability practices on customer relationship quality: An SEM-PLS approach to align with SDG. *Sustainability*, 17(2), 798. <https://doi.org/10.3390/su17020798>
- Kock, N. (2015). Common method bias in PLS-SEM: A full collinearity assessment approach. *International Journal of e-Collaboration*, 11(4), 1-10. <https://doi.org/10.4018/ijec.2015100101>
- Kunreuther, H. C., & Michel-Kerjan, E. O. (2009). *At war with the weather: Managing large-scale risks in a new era of catastrophes*. MIT Press.
<https://doi.org/10.7551/mitpress/9780262012829.003.0001>

- Lii, Y. S., & Lee, M. (2012). Doing right leads to doing well: When the type of CSR and reputation interact to affect consumer evaluations of the firm. *Journal of Business Ethics*, 105(1), 69-81.
<https://doi.org/10.1007/s10551-011-0948-0>
- Luo, X., & Bhattacharya, C. B. (2006). Corporate social responsibility, customer satisfaction, and market value. *Journal of Marketing*, 70(4), 1-18. <https://doi.org/10.1509/jmkg.70.4.001>
- Lyon, T. P., & Maxwell, J. W. (2011). Greenwash: Corporate environmental disclosure under threat of audit. *Journal of Economics & Management Strategy*, 20(1), 3-41. <https://doi.org/10.1111/j.1530-9134.2010.00282.x>
- Maignan, I., Ferrell, O. C., & Ferrell, L. (2005). A stakeholder model for implementing social responsibility in marketing. *European Journal of Marketing*, 39(9/10), 956-977.
<https://doi.org/10.1108/03090590510610662>
- Mandy, J. (2025). ESG governance and stakeholder trust in insurance: A review of emerging practices. *JBMI Insight*, 2(5), 24-41.
<https://jbmpublisher.org/system/index.php/home/article/view/68>
- Martínez, P., & Rodríguez del Bosque, I. (2013). CSR and customer loyalty: The roles of trust, customer identification with the company and satisfaction. *International Journal of Hospitality Management*, 35, 89-99. <https://doi.org/10.1016/j.ijhm.2013.05.009>
- Mayer, R. C., Davis, J. H., & Schoorman, F. D. (1995). An integrative model of organizational trust. *Academy of Management Review*, 20(3), 709-734.
<https://doi.org/10.5465/amr.1995.9508080335>
- Mills, E. (2009). A global review of insurance industry responses to climate change. *The Geneva Papers on Risk and Insurance - Issues and Practice*, 34(3), 323-359. <https://doi.org/10.1057/gpp.2009.14>
- Monfort, A., López-Vázquez, B., & Sebastián-Morillas, A. (2025). Building trust in sustainable brands: Revisiting perceived value, satisfaction, customer service, and brand image. *Sustainable Technology and Entrepreneurship*, 4(3), 100105. <https://doi.org/10.1016/j.stae.2025.100105>
- Moon, J. H., Lee, S. T., & Lee, Y. K. (2025). Impacts of general agents' customer relationship-building behaviors on trust, satisfaction, and renewal intention: A PLS-SEM and NCA approach. *Acta Psychologica*, 258, 105162. <https://doi.org/10.1016/j.actpsy.2025.105162>

- Morgan, R. M., & Hunt, S. D. (1994). The commitment-trust theory of relationship marketing. *Journal of Marketing*, 58(3), 20-38. <https://doi.org/10.1177/002224299405800302>
- Ng, P. F., Butt, M. M., Khong, K. W., & Ong, F. S. (2014). Antecedents of green brand equity: An integrated approach. *Journal of Business Ethics*, 121(2), 203-215. <https://doi.org/10.1007/s10551-013-1689-z>
- Noah, A. (2026a). Assessment of the financial impact of climate-induced extreme weather events on smallholder crop farmers and agricultural insurance companies. *Business Economics and Management Research Journal*, 9(1), 41-71. <https://doi.org/10.58308/bemarej.1859884>
- Noah, A. (2026b). Digital transformation and sustainable growth in the Nigerian insurance sector. *Turkish Business Journal*, 7(15), 115-140. <https://doi.org/10.51727/tbj.1970181>
- Peña-García, N., & ter Horst, E. (2025). Loyalty beyond transactions: The role of perceived brand ethics in e-commerce. *Frontiers in Communication*, 10, 1605171. <https://doi.org/10.3389/fcomm.2025.1605171>
- Pereira, M. d. S., de Castro, B. S., Cordeiro, B. A., de Castro, B. S., Peixoto, M. G. M., da Silva, E. C. M., & Gonçalves, M. C. (2025). Factors of customer loyalty and retention in the digital environment. *Journal of Theoretical and Applied Electronic Commerce Research*, 20(2), 71. <https://doi.org/10.3390/jtaer20020071>
- Pivato, S., Misani, N., & Tencati, A. (2008). The impact of corporate social responsibility on consumer trust: The case of organic food. *Business Ethics: A European Review*, 17(1), 3-15. <https://doi.org/10.1111/j.1467-8608.2008.00515.x>
- Podsakoff, P. M., MacKenzie, S. B., Lee, J.-Y., & Podsakoff, N. P. (2003). Common method biases in behavioral research: A critical review of the literature and recommended remedies. *Journal of Applied Psychology*, 88(5), 879-903. <https://doi.org/10.1037/0021-9010.88.5.879>
- Preuss, L. (2008). A reluctant stakeholder? On the perception of corporate social responsibility among European trade unions. *Business Ethics: A European Review*, 17(2), 149-160.
- Raditya, P. R. L. (2015). Pengaruh green product quality dan green perceived risk terhadap green customer satisfaction serta green customer loyalty pada konsumen pertamax/pertamax plus di kota mataram. *JMM Unram – Master of Management Journal*, 4(1). <https://doi.org/10.29303/jmm.v4i1.50>

- Román, S. (2003). The impact of ethical sales behaviour on customer satisfaction, trust and loyalty to the company: An empirical study in the financial services industry. *Journal of Marketing Management*, 19(9-10), 915-939. <https://doi.org/10.1080/0267257x.2003.9728245>
- Román, S., & Ruiz, S. (2005). Relationship outcomes of perceived ethical sales behavior: The customer's perspective. *Journal of Business Research*, 58(4), 439-445. <https://doi.org/10.1016/j.jbusres.2003.07.002>
- Sen, S., & Bhattacharya, C. B. (2001). Does doing good always lead to doing better? Consumer reactions to corporate social responsibility. *Journal of Marketing Research*, 38(2), 225-243. <https://doi.org/10.1509/jmkr.38.2.225.18838>
- Shmueli, G., Sarstedt, M., Hair, J. F., Cheah, J.-H., Ting, H., Vaithilingam, S., & Ringle, C. M. (2019). Predictive model assessment in PLS-SEM: Guidelines for using PLSpredict. *European Journal of Marketing*, 53(11), 2322-2347. <https://doi.org/10.1108/ejm-02-2019-0189>
- Shu, R., Xia, H., & Apuke, O. D. (2024). The mechanism through which corporate social responsibility (CSR) affects customer patronage of manufacturing companies: Modeling the mediating role of corporate reputation and the moderating role of customer awareness of CSR activities. *SAGE Open*, 14(4), 21582440241305320. <https://doi.org/10.1177/21582440241305320>
- Singh, J. J., Iglesias, O., & Batista-Foguet, J. M. (2012). Does having an ethical brand matter? The influence of consumer perceived ethicality on trust, affect and loyalty. *Journal of Business Ethics*, 111(4), 541-549. <https://doi.org/10.1007/s10551-012-1216-7>
- Sirdeshmukh, D., Singh, J., & Sabol, B. (2002). Consumer trust, value, and loyalty in relational exchanges. *Journal of Marketing*, 66(1), 15-37. <https://doi.org/10.1509/jmkg.66.1.15.18449>
- Spence, M. (1973). Job market signaling. *The Quarterly Journal of Economics*, 87(3), 355-374. <https://doi.org/10.2307/1882010>
- Stone, M. (1974). Cross-validatory choice and assessment of statistical predictions. *Journal of the Royal Statistical Society: Series B (Methodological)*, 36(2), 111-133. <https://doi.org/10.1111/j.2517-6161.1974.tb00994.x>
- Talan, G., Sharma, G. D., Pereira, V., & Muschert, G. W. (2024). From ESG to holistic value addition: Rethinking sustainable investment from the lens of stakeholder theory. *International Review of Economics & Finance*, 96, Part A, 103530. <https://doi.org/10.1016/j.iref.2024.103530>

- Vlachos, P. A., Tsamakos, A., Vrechopoulos, A. P., & Avramidis, P. K. (2009). Corporate social responsibility: Attributions, loyalty, and the mediating role of trust. *Journal of the Academy of Marketing Science*, 37(2), 170-180. <https://doi.org/10.1007/s11747-008-0117-x>
- Zeithaml, V. A., Parasuraman, A., & Berry, L. L. (1985). Problems and strategies in services marketing. *Journal of Marketing*, 49(2), 33-46. <https://doi.org/10.1177/002224298504900203>

Cómo citar este artículo

Alli, N. G., Aina, J., & Ganiyu, K. (2026). Sustainability practices and customer loyalty in the insurance industry: A PLS-SEM-approach. *Activos* 24(1), 81-115.

<https://doi.org/10.15332/25005278.12030>