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Research Paper

Corporate Environmental Image and Corporate Reputation in Nigeria's Oil and Gas Sector: The Parallel Mediating Roles of Perceived Green Innovation and Perceived Greenwashing

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ABSTRACT

Purpose: This study examines the influence of corporate environmental image on corporate reputation in Nigeria's oil and gas sector. It tests perceived green innovation and perceived greenwashing as parallel, rather than sequential, mediating mechanisms.

Design/methodology/approach: A descriptive, cross-sectional survey used questionnaires administered via convenience sampling to 303 petroleum-product consumers at six filling stations in Lagos, Nigeria. The instrument measured corporate environmental image, perceived green innovation, perceived greenwashing, and corporate reputation on a 5-point Likert scale. Four regression models were estimated, supplemented by bootstrapped indirect-effect tests and VIF diagnostics for a stricter test of mediation.

Findings: Corporate environmental image is positively associated with corporate reputation ($B = 0.434$, $p < .001$), and perceived green innovation fully mediates this relationship. Perceived greenwashing does not mediate the relationship alone, though it retains a small, counterintuitive positive partial association with reputation alongside innovation. Perceived green innovation does not predict perceived greenwashing once environmental image is controlled, so the data support parallel rather than sequential mediation.

Research limitations/implications: The cross-sectional design and convenience sampling within a single Lagos locality limit generalisability to the sector as a whole. The high CEI-PGI correlation warranted a multicollinearity check, and the resulting VIF values fall below conventional concern thresholds.

Practical implications: Firms should prioritise verifiable, communicable green innovation, the dominant pathway through which environmental image translates into reputation. Regulators should strengthen independent verification of environmental claims to address greenwashing's persistent, if modest, influence.

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Originality/value: This is the first study to empirically test, rather than assume, the ordering of green innovation and greenwashing perceptions as mediators in this sector. It shows the two operate as parallel, theoretically distinct pathways, competence and integrity signals, rather than a sequential chain.

Keywords: *Corporate Environmental Image; Corporate Reputation; Perceived Green Innovation; Perceived Greenwashing; Parallel Mediation; Oil and Gas Sector.*

1. Introduction

Corporate environmental concerns have become central to modern business operations as global attention intensifies on sustainability, climate change, and ecological responsibility. Increasing pressure from stakeholders, including governments, investors, and host communities, has driven organisations to integrate environmental considerations into their strategic priorities. Corporate environmental image has emerged as a critical intangible asset that reflects how organisations are perceived regarding their environmental practices and commitments (Ebisi, Guo & Soomro, 2025). Firms that demonstrate visible commitment to environmental stewardship often gain legitimacy and stakeholder trust, which supports long-term survival and competitiveness (Akhter, Hossain, Elrehail, Rehman & Almansour, 2023).

Corporate reputation represents a broader evaluative judgment that stakeholders form over time based on organisational actions, performance, and perceptions. It functions as a valuable organisational resource that influences customer loyalty, investor confidence, and competitive positioning (Nagiah & Mohd Suki, 2024). Positive environmental image contributes to a favourable reputation by signalling ethical responsibility and forward-thinking management practices (Baumgartner, Ernst & Fischer, 2022). Green innovation has gained prominence as organisations adopt environmentally friendly technologies, processes, and products to meet regulatory demands and societal expectations. Perceived green innovation reflects stakeholders' recognition of a firm's efforts toward sustainable development, extending beyond generic environmental claims (Bendig, Schäper, Strehlow & Foege, 2026). Conversely, greenwashing, the exaggeration or misrepresentation of environmental efforts, has emerged as a critical concern in sustainability discourse. Perceived greenwashing can damage both environmental image and

corporate reputation by eroding stakeholder trust once such gaps are recognised (Santos, Coelho & Marques, 2024).

Nigeria's oil and gas sector operates within a complex environment characterised by high environmental sensitivity, regulatory scrutiny, and intense stakeholder expectations. This sensitivity owes partly to a long history of environmental degradation associated with oil exploration activities across the region. Firms in the sector routinely project sustainability commitments, yet inconsistent implementation and selective reporting leave stakeholders uncertain about their authenticity. Consumers who purchase petroleum products are repeatedly exposed to this environmental messaging through station branding, corporate social responsibility communications, and media coverage. This exposure makes them a stakeholder group directly positioned to form perceptions of corporate environmental image, green innovation, and greenwashing. They remain, nonetheless, only one of several stakeholder groups, alongside host communities, regulators, employees, and investors, whose evaluations together constitute the sector's reputation.

Existing literature has examined corporate environmental image, green innovation, and greenwashing largely in isolation from one another. Where their joint influence on reputation has been considered, studies have often assumed, rather than tested, a specific causal sequence. This assumed sequence holds that stakeholders first form perceptions of green innovation, before evaluating firms further. They then judge whether those innovations amount to genuine progress or to greenwashing (Ali, Khan, Azeem & Inam, 2023; Aliano, Cestari & Madonna, 2024). This ordering has intuitive appeal, but it is not self-evidently correct, since scepticism about greenwashing could equally shape how innovation claims are received. It is equally plausible that the two perceptions form largely independently of one another, drawing on different evidence and different observable cues. Whether perceived green innovation and perceived greenwashing actually operate sequentially or in parallel has not, to date, been empirically tested. This gap matters in practice, because a mediation model built on the wrong causal ordering can produce misleading conclusions about which pathway managers should prioritise.

This uncertainty is compounded on the ground, where stakeholders often struggle to distinguish between genuine green initiatives and superficial ones. Incidents of exaggerated environmental messaging have further widened the gap between what firms claim and what stakeholders are

willing to believe. This study closes these gaps by testing, rather than assuming, whether the two perceptions mediate the link between environmental image and reputation sequentially or side by side. The analysis draws specifically on petroleum-product consumers surveyed at six filling stations across Lagos, Nigeria. The general objective of this study is to examine the influence of corporate environmental image on corporate reputation among petroleum-product consumers in Nigeria's oil and gas sector. It also tests the parallel mediating roles of perceived green innovation and perceived greenwashing within this relationship. The specific relationships tested are developed as formal hypotheses in Section 2, immediately following the theoretical and empirical literature that justifies each one.

2. Literature Review

This section develops the study's hypotheses directly from theory and prior literature, following the order in which the argument builds. Each hypothesis follows immediately from the discussion that justifies it, rather than being presented in advance. The conceptual model in Figure 1 is presented at the end of the section, once every path it depicts has been theoretically motivated.

2.1 Reputational Capital Theory

The study is anchored in Reputational Capital Theory, advanced primarily by Fombrun and later refined by Van Riel (Fombrun & Van Riel, 2004). The theory conceptualises corporate reputation as a strategic intangible asset, built and sustained through consistent organisational actions, stakeholder interactions, and credible communication. Reputational capital accumulates from stakeholders' collective judgments about a firm's past actions, present performance, and expected future conduct (Zeb & Chen, 2026). The theory assumes that stakeholders are broadly rational evaluators who update their perceptions based on organisational signals and observable behaviour.

A distinction embedded in the theory is directly relevant to how this study models its two mediators. Stakeholders evaluate firms along at least two related but separable dimensions, namely competence and integrity. Competence concerns whether the firm has the capability and consistently follows through on its stated commitments. Integrity, by contrast, concerns whether the firm's communications about its actions and intentions can be trusted. Perceived green

innovation is primarily a competence signal, reflecting whether stakeholders believe the firm has actually developed and deployed beneficial capabilities. Perceived greenwashing is primarily an integrity signal, reflecting whether stakeholders believe the firm's environmental communications are honest. Since competence and integrity judgments draw on different evidence, they can be formed independently of one another. Reputational Capital Theory provides grounds to treat perceived green innovation and perceived greenwashing as parallel mediating mechanisms, rather than a causal chain. In the context of Nigeria's oil and gas sector, the theory helps explain how environmental perceptions translate into reputational outcomes over time despite competing signals of innovation and greenwashing.

2.2 Corporate Reputation

Corporate reputation refers to the collective perception stakeholders form about an organisation based on its past actions and future expectations. It encompasses product and service quality, social responsibility, and ethical conduct, all of which shape the firm's standing in society (Başar, 2025). It is considered an intangible asset that influences stakeholder trust, investor confidence, and competitive advantage (Başar, 2025). Reputation is shaped not only by corporate performance but also by perceptions of environmental and social behaviour (Baumgartner, Ernst & Fischer, 2022). A strong reputation reduces risk, enhances organisational resilience, and acts as a buffer against crises (Baumgartner, Ernst & Fischer, 2022; Nagiah & Mohd Suki, 2024).

2.3 Corporate Environmental Image and Corporate Reputation

Corporate environmental image refers to the perception held by stakeholders regarding a company's environmental performance, including its sustainability and pollution-reduction efforts (Ebisi, Guo & Soomro, 2025). It captures the environmental dimension of corporate identity, reflecting both communicated commitments and observed practices (Ali, Khan, Azeem & Inam, 2023). Reputation is built cumulatively from stakeholder judgments of organisational conduct, and environmental conduct is an increasingly salient input to those judgments. This salience is especially pronounced in high-impact sectors such as oil and gas, where environmental harm is highly visible. A positive environmental image should therefore strengthen legitimacy and trust, translating into a more favourable corporate reputation (Ebisi, Guo & Soomro, 2025). Conversely,

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discrepancies between what firms claim environmentally and what they actually deliver tend to damage credibility (Pattanaik, 2024). This reasoning supports a direct, positive relationship between corporate environmental image and corporate reputation, formalised in the hypothesis below.

H_{01}: Corporate environmental image has no significant effect on corporate reputation among petroleum-product consumers in Nigeria's oil and gas sector.

2.4 The Mediating Role of Perceived Green Innovation

Perceived green innovation refers to stakeholders' recognition of environmentally friendly products, processes, or technologies that firms implement to reduce negative impacts (Jayaraman, Jayashree & Dorasamy, 2023). Under Reputational Capital Theory's competence dimension, green innovation functions as a concrete, observable signal that substantiates a firm's broader environmental image. It is the evidence stakeholders point to when asked whether an environmental image is genuinely backed by real capability. Where an environmental image is not reinforced by visible innovation, stakeholders have little basis to translate that image into reputational credit. Where it is reinforced, the image's reputational effect should be transmitted largely through the innovation that stakeholders can point to. This logic implies that perceived green innovation carries much of the environmental image's effect on reputation, rather than image acting independently. In other words, image is unlikely to affect reputation regardless of how its associated innovation is perceived. This leads to the following hypothesis (Le, Tran, Lam, Tra & Uyen, 2024; Fosu, Fosu, Akyina & Asiedu, 2024).

H_{02}: Perceived green innovation does not significantly mediate the relationship between corporate environmental image and corporate reputation.

2.5 The Mediating Role of Perceived Greenwashing

Perceived greenwashing refers to stakeholders' perception that an organisation exaggerates or misrepresents its environmental commitments without corresponding actions (Cinceoglu, Johann, Strauß & Tuominen, 2026). Such perceptions emerge when environmental claims are considered inconsistent with observable corporate practices, thereby undermining organisational credibility (Bhagat, 2024). Reputational Capital Theory suggests that stakeholder evaluations depend not only

on organisational capability but also on the integrity of corporate communication. Environmental image alone may therefore be insufficient to strengthen corporate reputation if stakeholders question the authenticity of sustainability claims. Organisations perceived to engage in greenwashing are more likely to experience diminished trust and weaker reputational outcomes because stakeholders discount the credibility of their environmental messages (Montgomery, Lyon & Barg, 2024). Previous studies have similarly indicated that perceived greenwashing weakens favourable stakeholder evaluations and reduces the reputational benefits associated with environmental initiatives (Santos, Coelho & Marques, 2024). This implies that perceived greenwashing may transmit the influence of corporate environmental image on corporate reputation by shaping stakeholders' judgments of organisational authenticity. Based on this reasoning, the following hypothesis is proposed:

H_{03}: Perceived greenwashing does not significantly mediate the relationship between corporate environmental image and corporate reputation.

2.6 The Parallel Mediating Roles of Perceived Green Innovation and Perceived Greenwashing

Corporate environmental image may influence corporate reputation through multiple stakeholder evaluation processes rather than a single pathway. Perceived green innovation reflects stakeholders' assessment of an organisation's environmental capability, whereas perceived greenwashing represents judgments about the credibility of its environmental communication (Ali et al., 2023; Aliano, Cestari & Madonna, 2024). Although some studies imply that these perceptions develop sequentially, both constructs are conceptually distinct and may operate independently in shaping reputation. Reputational Capital Theory supports this distinction by recognising competence and integrity as separate dimensions underlying stakeholder evaluations. Stakeholders may acknowledge genuine environmental innovations while simultaneously questioning the authenticity of corporate environmental claims, indicating that both perceptions can coexist (Montgomery, Lyon & Barg, 2024). Modelling perceived green innovation and perceived greenwashing as parallel mediators therefore provides a more comprehensive explanation of how corporate environmental image translates into corporate reputation. Examining

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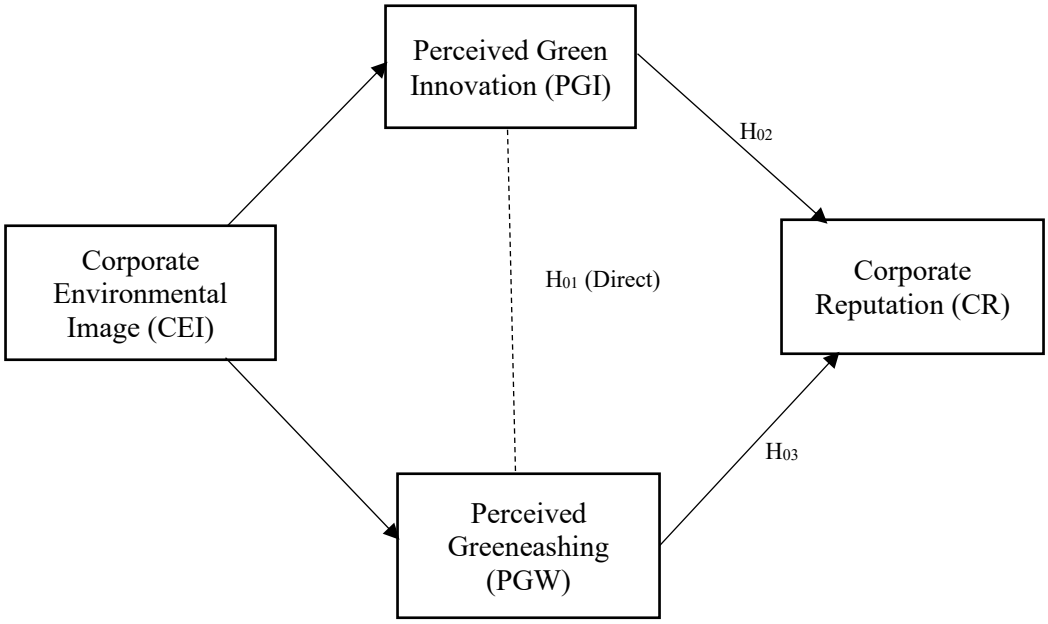
both mediators simultaneously also enables the relative contribution of each pathway to be evaluated within a single framework. Accordingly, the following hypothesis is formulated:

H_{04}: Perceived green innovation and perceived greenwashing do not significantly mediate the relationship between corporate environmental image and corporate reputation.

2.7 Conceptual Model

Fig. 1 depicts the parallel mediation model implied by the four hypotheses developed above, H_{01} through H_{04}. Corporate environmental image (CEI) is hypothesised to affect corporate reputation (CR) both directly and indirectly, through the two mediators. These mediators, perceived green innovation (PGI) and perceived greenwashing (PGW), operate as separate, non-sequential pathways in the model. The dashed line between PGI and PGW represents the possible serial link assumed in prior literature. This study tests, rather than assumes, whether that link is statistically supported.

Fig. 1. Conceptual model (parallel mediation)



H_{04}: PGI and PGW jointly (in parallel mediate the CEI-CR relationship

Source: The Researchers (2026)

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3. Research Methods

A descriptive, cross-sectional research design was adopted, capturing the relationships among corporate environmental image, perceived green innovation, perceived greenwashing, and corporate reputation. Data were captured at a single point in time, consistent with a descriptive rather than longitudinal design. The population comprised users of petroleum products at Alapere Estate Bus Stop, Kosofe Local Government Area, Lagos State, an area with an estimated population of 836,890 (City-Facts, 2026).

The study employed Cochran's (1977) formula to determine the minimum sample size required for adequate representation of the population.

$$n_0 = \frac{Z^2 \mathrm{pq}}{e^2}$$

Where: e = 5% (at 95% confidence level), n_o = sample size, Z = 1.96, p = 0.5,

and q = 1-p = 1-0.5 = 0.5.

Therefore, $n_0 = \frac{(1.96)^2\,(0.5)(0.5)}{0.05^2} = \frac{0.9604}{0.0025} = 384$ end-users.

Here, e equals 5% at the 95% confidence level, Z equals 1.96, p equals 0.5, and q, defined as 1 minus p, also equals 0.5.

Convenience sampling was adopted due to ease of access to respondents at points of petroleum sale. Data were collected at six filling stations, namely Conoil, Heyden, AP, TotalEnergies, MRS, and NNPC, within the study area. Respondents were eligible if they were 18 years or older, were purchasing or using petroleum products at the point of contact, and consented voluntarily. Petroleum-product consumers were selected as the respondent group for a specific reason, rooted in their repeated exposure to the sector. They interact directly and repeatedly with oil and gas retail brands, and are routinely exposed to corporate environmental messaging. This messaging includes station signage, promotional material, and media coverage of sector-wide sustainability claims, giving them a basis for forming perceptions. This remains, nonetheless, a single stakeholder perspective, and it does not extend to technical or regulatory judgments.

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Data were collected using a structured questionnaire comprising 23 items across four constructs, all measured on a 5-point Likert scale. This scale ranged from 1, representing Strongly Disagree, to 5, representing Strongly Agree, across every item. Corporate environmental image was measured with 8 items spanning two sub-dimensions, environmental responsibility and environmental commitment. Environmental responsibility comprised 4 items, such as "I recognise actions taken by these firms to manage pollution and waste." Environmental commitment also comprised 4 items, exemplified by "I consider these companies to be consistent in their environmental efforts." This two-part structure follows Ebisi, Guo and Soomro's (2025) conceptualisation of environmental image as encompassing both observed action and perceived consistency of commitment. Perceived green innovation, comprising 5 items, was operationalised following Jayaraman, Jayashree and Dorasamy's (2023) established scale. Perceived greenwashing, also comprising 5 items, followed the scales developed by Cinceoglu, Johann, Strauß and Tuominen (2026) and Bhagat (2024). Corporate reputation, comprising 5 items, followed the scales developed by Başar (2025) and Baumgartner, Ernst and Fischer (2022). All items were adapted to the Nigerian oil-and-gas retail context and refined through expert review for face and content validity. Data were collected over two months from May to June 2026. Internal consistency was assessed using Cronbach's alpha (α) across all four constructs measured in the study.

Data were collected through direct administration of the questionnaire to customers at the selected filling stations. Respondents were guided throughout by the research team to ensure clarity and completeness of their responses. All responses were subsequently coded and analysed using SPSS version 26.0 for the statistical procedures reported below. The study followed standard ethical safeguards for low-risk survey research involving anonymous adult consumers, including voluntary participation, informed consent, no collection of identifying information, and no deception. The data were used strictly for academic purposes.

Mediation was tested using multiple regression rather than Structural Equation Modelling (SEM), reflecting the parsimonious four-construct model and the study's descriptive, cross-sectional design. The paths from corporate environmental image to perceived green innovation and perceived greenwashing were estimated alongside the regression models to provide a complete assessment of mediation. Indirect effects were evaluated using percentile bootstrapping with 5,000

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resamples following the procedure of Preacher and Hayes (2008), which provides a more robust test of mediation than relying solely on changes in regression coefficients after introducing a mediator. Given the cross-sectional nature of the data, the indirect effects are interpreted as statistical mediation consistent with the hypothesised model rather than evidence of causal or temporal relationships among the constructs.

Four separate regression models were estimated to build systematically toward the full parallel mediation test reported below. Model 1 tests the direct effect of corporate environmental image on corporate reputation, without any mediators present. Model 2 tests mediation via perceived green innovation, entered alongside corporate environmental image as a predictor. Model 3 tests mediation via perceived greenwashing, again entered alongside corporate environmental image as a predictor. Model 4 enters corporate environmental image and both mediators simultaneously, to test the parallel mediation hypothesis directly. A supplementary analysis estimates three further paths, from CEI to PGI, from CEI to PGW, and from PGI to PGW, controlling for CEI. These additional paths are needed to test indirect effects properly and to evaluate whether a sequential ordering between the mediators is empirically supported.

Model 1: Direct Effect Model

Corporate Environmental Image to Corporate Reputation: $CR = \beta_0 + \beta_1(CEI) + error$

Model 2: Mediation Model (Perceived Green Innovation)

Corporate Environmental Image to Perceived Green Innovation to Corporate Reputation: $CR = \beta_0 + \beta_1(CEI) + \beta_2(PGI) + error$

Model 3: Mediation Model (Perceived Greenwashing)

Corporate Environmental Image to Perceived Greenwashing to Corporate Reputation: $CR = \beta_0 + \beta_1(CEI) + \beta_2(PGW) + error$

Model 4: Parallel Mediation Model

Corporate Environmental Image to both mediators, simultaneously, to Corporate Reputation: $CR = \beta_0 + \beta_1(CEI) + \beta_2(PGI) + \beta_3(PGW) + error$

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Where CR is Corporate Reputation, CEI is Corporate Environmental Image, PGI is Perceived Green Innovation, and PGW is Perceived Greenwashing. β_0 is the intercept, β_1 through β_3 are coefficients, and error is the error term.

4. Results

This section presents the empirical findings, beginning with respondent demographics and descriptive statistics, followed by the regression models and the additional mediation diagnostics.

Table 1. Demographic Characteristics of Respondents (N = 303)

Variable	Category	Frequency	Percent (%)
Gender	Male	184	60.7
	Female	119	39.3
Age	18–25 years	63	20.8
	26–35 years	64	21.1
	36–45 years	141	46.5
	46–55 years	35	11.6
Educational Qualification	Diploma/Certificate	77	25.4
	Bachelor's Degree	169	55.8
	Master's Degree	57	18.8
Occupation	Student	56	18.5
	Self-employed	99	32.7
	Private Sector Employee	70	23.1
	Public Sector Employee	78	25.7
Frequency of Purchase	Daily	42	13.9
	Weekly	134	44.2
	Occasionally	106	35.0
	Rarely	21	6.9
User Category	Regular customer	141	46.5
	Occasional user	155	51.2
	Not a user	7	2.3

Source: Survey (2026)

Table 1 shows that most respondents are male (60.7%), and the sample is concentrated in the economically active 36 to 45 age group (46.5%). Over half of respondents (55.8%) hold a

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bachelor's degree, and occupational distribution shows a plurality who are self-employed (32.7%). Most respondents purchase petroleum products weekly (44.2%) or occasionally (35.0%), and the large majority classify themselves as regular or occasional users, at 46.5% and 51.2% respectively. This confirms that the sample is composed of active petroleum consumers, and, as noted in Section 3.1, the sample's relatively high educational attainment is reported only descriptively. It is not treated as evidence that responses are more "informed" or accurate than those of less-educated respondents, since educational attainment does not necessarily improve response quality.

Table 2. Descriptive Statistics, Reliability Analysis and Correlation Matrix (N = 303)

Variable	Mean	SD	α	(1)	(2)	(3)	(4)
(1) CEI	3.49	0.84	0.936	1			
(2) PGI	3.59	0.79	0.907	.835**	1		
(3) PGW	3.83	0.57	0.762	.208**	.187**	1	
(4) CR	3.80	0.59	0.840	.616**	.768**	.212**	1

*Note: CEI = Corporate Environmental Image, PGI = Perceived Green Innovation, PGW = Perceived Greenwashing, CR = Corporate Reputation. **p < .01.*

Table 2 shows that construct means range from 3.49 (CEI) to 3.83 (PGW), which suggests that respondents generally perceive a moderate to high level of corporate environmental image, green innovation, corporate reputation, and greenwashing among oil and gas firms, while the relatively low standard deviations imply consistency in responses. All reported values exceed the conventional 0.70 threshold recommended for acceptable reliability (Izah, Sylva & Hait, 2023). This indicates that each construct's items consistently measure the same concept. Perceived green innovation correlates strongly with both corporate environmental image ($r = .835$, $p < .01$) and corporate reputation ($r = .768$, $p < .01$). Perceived greenwashing correlates only weakly with the other constructs ($r = .187$ to $.212$), foreshadowing its limited independent mediating role. The strong CEI-PGI correlation ($r = .835$) is addressed directly as a discriminant-validity and multicollinearity concern.

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Table 3. Regression Results (Dependent Variable: Corporate Reputation)

Predictor	Model 1	Model 2	Model 3	Model 4
(Constant)	B = 2.282 SE = .115 t = 19.86, p < .001	B = 1.745 SE = .103 t = 17.00, p < .001	B = 1.979 SE = .196 t = 10.12, p < .001	B = 1.484 SE = .163 t = 9.08, p < .001
CEI	B = .434 SE = .032, β = .616 t = 13.57, p < .001	B = -.060 SE = .047, β = -.085 t = -1.27, p = .205	B = .422 SE = .033, β = .598 t = 12.94, p < .001	B = -.069 SE = .047, β = -.098 t = -1.47, p = .143
PGI	n/a	B = .630 SE = .050, β = .840 t = 12.52, p < .001	n/a	B = .628 SE = .050, β = .836 t = 12.53, p < .001
PGW	n/a	n/a	B = .091 SE = .048, β = .088 t = 1.91, p = .057	B = .079 SE = .039, β = .076 t = 2.04, p = .042
F	184.20***	218.19***	94.73***	148.38***
R^2 / Adj. R^2	.380 / .378	.593 / .590	.387 / .384	.598 / .594

*Note: CEI = Corporate Environmental Image, PGI = Perceived Green Innovation, PGW = Perceived Greenwashing. B = unstandardised coefficient; β = standardised coefficient; SE = standard error; ***p < .001.*

On the multicollinearity diagnostics, the correlation between corporate environmental image and perceived green innovation is strong (r = .835; Table 2). Given this, variance inflation factors (VIF) and tolerance values were computed for Model 4 to check for multicollinearity. CEI and PGI show VIF values of 3.34 and 3.31 respectively, with tolerance near .30, while PGW shows a low VIF of 1.05. These values fall below the conventional concern thresholds of 5, or the more conservative threshold of 10, indicating that multicollinearity does not statistically invalidate the regression estimates. The conceptual overlap between CEI and PGI nonetheless remains a substantive discriminant-validity question. A high correlation below the VIF threshold does not, on its own, prove that two constructs measure fully distinct perceptions.

Table 4 shows the mediation structure – the missing paths and bootstrap indirect effects, alongside percentile-bootstrap tests, using 5,000 resamples, of the corresponding indirect effects, which are reported in Table 5.

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Table 4. Mediator-Side Regression Paths

Path	B	SE	t	p
a1: CEI to PGI	.785	.030	26.37	< .001
a2: CEI to PGW	.142	.039	3.68	< .001
d21: PGI to PGW (controlling for CEI)	.032	.075	0.43	.667 (n.s.)

Note: a1 and a2 are simple regressions of each mediator on CEI. d21 is the coefficient on PGI when PGW is regressed on both CEI and PGI simultaneously.

The critical result is d21: once corporate environmental image is controlled, perceived green innovation does not significantly predict perceived greenwashing (B = .032, p = .667). The simple, unconditional correlation between PGI and PGW reported in Table 2 (r = .187, p < .05) is attributable to both constructs' shared association with CEI. It is not attributable to any direct link between the two mediators themselves, since that link was tested directly and found non-significant.

Table 5. Bootstrapped Indirect Effects (5,000 resamples, 95% Percentile CI)

Indirect Effect	Point Estimate	95% CI	Significant?
CEI to PGI to CR	0.494	[0.409, 0.594]	Yes
CEI to PGW to CR	0.011	[-0.003, 0.028]	No
CEI to PGI to PGW to CR (serial)	0.002	[-0.006, 0.012]	No

Note: CR is Corporate Reputation. An indirect effect is considered significant when its 95% bootstrap confidence interval does not include zero.

These results allow the hypotheses to be evaluated on stronger grounds than the coefficient-pattern logic used in the original submission. H_{01} is rejected, since CEI has a significant positive direct effect on CR, as shown in Table 3, Model 1. H_{02} is rejected as well: the bootstrapped indirect effect of CEI on CR through PGI is significant, with a 95% CI that excludes zero. This confirms that perceived green innovation is a genuine mediator, consistent with the near-total attenuation of CEI's direct coefficient once PGI is included in Model 2. H_{03} is not rejected, since the indirect effect of CEI on CR through PGW alone is not significant, with a 95% CI that includes zero. This holds even though PGW retains a small positive partial coefficient in Model 3 (B = .091, p = .057, marginal). H_{04} is partially supported: PGI and PGW jointly explain additional variance in CR beyond CEI alone, as shown in Model 4. PGW's partial coefficient becomes statistically significant

once PGI is also in the model (B = .079, p = .042). But this reflects PGW operating as a weak, independent, direct predictor of reputation alongside PGI, not evidence of a serial pathway through PGI. The PGI to PGW path itself is not significant, as shown earlier in Table 4 above. The formal serial indirect effect is likewise not significant, as shown in Table 5 above.

The positive sign on PGW's coefficient in Models 3 and 4 warrants direct attention rather than being characterised simply as "weak" or "complex." The scale was coded such that higher scores represent stronger perceptions of greenwashing. The positive coefficient indicates that respondents who perceived higher levels of greenwashing also tended to report marginally higher corporate reputation, holding CEI constant, and in Model 4, holding both CEI and PGI constant. This result runs counter to the theoretical expectation that perceptions of greenwashing should diminish rather than enhance corporate reputation. It is treated as a genuine, unresolved empirical finding rather than being attributed to a coding artefact or measurement error of any kind.

Discussion of Findings

The findings demonstrate that corporate environmental image influences corporate reputation primarily through perceived green innovation rather than through a direct pathway. This suggests that stakeholders in Nigeria's oil and gas sector do not rely solely on environmental image when evaluating corporate reputation but instead seek observable evidence that environmental commitments are supported by meaningful environmental initiatives. From the perspective of Reputational Capital Theory, reputation develops when symbolic environmental claims are reinforced by competence signals that stakeholders perceive as credible. In this context, perceived green innovation represents the capability evidence that transforms environmental image into reputational capital. This finding extends the arguments of Baumgartner, Ernst and Fischer (2022) and Lin (2024), who maintained that corporate reputation is shaped by stakeholders' evaluations of organisational environmental conduct, while also supporting Le et al. (2024), who found that green innovation strengthens the credibility of sustainability initiatives. The study contributes to theory by demonstrating that, within Nigeria's oil and gas sector, environmental image alone is insufficient to sustain corporate reputation unless stakeholders associate it with visible environmental innovation.

The strong association between corporate environmental image and perceived green innovation further suggests that consumers evaluate environmental responsibility through tangible

organisational actions rather than abstract sustainability messages. Although environmental image and green innovation are theoretically distinct constructs, the findings indicate that respondents closely associate the two because visible innovations provide the most accessible evidence of environmental commitment. Reputational Capital Theory explains this relationship by proposing that stakeholders rely on observable competence cues when forming reputational judgments, particularly in industries characterised by environmental uncertainty. This interpretation supports Jayaraman, Jayashree and Dorasamy (2023), who argued that green innovation reflects stakeholders' recognition of environmentally responsible products and processes, and Bendig et al. (2026), who viewed green innovation as a strategic capability that strengthens stakeholder confidence. The findings also align with Ebisi, Guo and Soomro (2025), who observed that environmental responsibility in Nigeria's oil and gas industry becomes credible when stakeholders can identify practical environmental improvements rather than relying solely on corporate communication.

The findings further reveal that perceived greenwashing does not significantly mediate the relationship between corporate environmental image and corporate reputation. This outcome contrasts with the conclusions of Cinceoglu, Johann, Strauß and Tuominen (2026), who reported that greenwashing substantially damages stakeholder perceptions, and Bhagat (2024), who argued that misleading environmental communication undermines organisational credibility. The difference may reflect the institutional characteristics of Nigeria's oil and gas sector, where consumers often have limited opportunities to independently verify corporate environmental claims. Consequently, stakeholders may place greater emphasis on observable environmental performance than on assessing the authenticity of environmental communication. Reputational Capital Theory provides a useful explanation by distinguishing competence from integrity evaluations. While integrity remains relevant, competence signals appear to exert a stronger influence on reputation when information asymmetry exists. This finding refines existing knowledge by showing that the reputational consequences of perceived greenwashing depend on the context within which environmental information is interpreted rather than operating uniformly across industries.

The small positive association between perceived greenwashing and corporate reputation after controlling for corporate environmental image and perceived green innovation represents one of

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the most unexpected findings of the study. Rather than suggesting that greenwashing enhances reputation, the result indicates that stakeholder evaluations involve multiple simultaneous considerations. Consumers who are sufficiently attentive to recognise exaggerated environmental claims may also recognise positive organisational characteristics that continue to sustain favourable reputational evaluations. This interpretation is consistent with Reputational Capital Theory, which proposes that stakeholders simultaneously evaluate competence and integrity using different informational cues. Although this finding differs from the predominantly negative effects reported by Bhagat (2024) and Cinceoglu, Johann, Strauß and Tuominen (2026), it is consistent with Aliano, Cestari and Madonna (2024), who argued that greenwashing creates complex stakeholder interpretations because symbolic environmental communication often coexists with genuine sustainability initiatives. The findings suggest that stakeholder evaluations in Nigeria's oil and gas sector are more nuanced than the predominantly negative relationships reported in much of the existing literature.

Finally, the non-significant relationship between perceived green innovation and perceived greenwashing indicates that these constructs operate as parallel rather than sequential mechanisms in explaining corporate reputation. This finding challenges the implicit assumption in earlier studies that stakeholders first evaluate green innovation before deciding whether environmental claims represent greenwashing. Instead, the results suggest that competence and integrity are assessed independently, supporting the competence-integrity distinction embedded within Reputational Capital Theory. Stakeholders appear to judge whether firms possess genuine environmental capabilities separately from whether they trust environmental communications. While this finding differs from the sequential interpretation implied by Ali et al. (2023) and Aliano, Cestari and Madonna (2024), it is consistent with Ebisi, Guo and Soomro (2025), who argued that environmental evaluations depend on stakeholders' interpretation of multiple organisational signals. The study contributes to environmental reputation literature by providing empirical evidence that corporate reputation in Nigeria's oil and gas sector is better explained through parallel evaluative processes than through a sequential pathway linking green innovation and greenwashing.

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5. Conclusion

This study concludes that corporate environmental image contributes to corporate reputation in Nigeria's oil and gas sector primarily through stakeholders' perceptions of green innovation rather than through a direct reputational effect. Perceived green innovation emerged as the principal mechanism through which environmental image translates into favourable reputational outcomes, whereas perceived greenwashing did not independently mediate this relationship. The absence of a significant relationship between perceived green innovation and perceived greenwashing after controlling for corporate environmental image further confirms that the two constructs operate as parallel rather than sequential mediating mechanisms. These findings extend the application of Reputational Capital Theory by demonstrating that competence-based and integrity-based stakeholder evaluations follow separate pathways in explaining how environmental image influences corporate reputation within this context.

The study also makes an important theoretical contribution by empirically testing the assumed ordering of perceived green innovation and perceived greenwashing instead of accepting the sequential relationship commonly proposed in prior literature. The findings provide evidence that stakeholder judgments regarding a firm's environmental capability and the credibility of its environmental claims are formed independently, thereby refining understanding of the mechanisms through which environmental image shapes corporate reputation. This contribution strengthens the conceptual distinction between competence and integrity signals within Reputational Capital Theory and provides empirical support for modelling perceived green innovation and perceived greenwashing as parallel mediators in environmentally sensitive industries.

From a managerial and practical perspective, the study demonstrates that favourable environmental image alone is insufficient to strengthen corporate reputation unless it is supported by visible and credible green innovation that stakeholders can readily recognise. The findings also show that perceptions of greenwashing exert a limited and inconsistent influence on reputation in this setting, indicating that consumers place greater weight on observable environmental initiatives than on broad environmental claims. Consequently, the reputational value of environmental positioning depends largely on stakeholders' ability to associate environmental commitments with

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tangible actions, highlighting the importance of credible environmental performance and transparent communication in sustaining corporate reputation within Nigeria's oil and gas sector.

Recommendations

Based on the findings, the following recommendations are made for practice and policy in this sector. Organisations in Nigeria's oil and gas sector should prioritise measurable, visible green innovation, such as cleaner production methods, publicised eco-friendly product or process changes, and consistent operational evidence. This is the dominant channel through which environmental positioning translates into reputational gain, since broad environmental messaging on its own is not sufficient. Regulatory bodies and policymakers should strengthen environmental disclosure standards and support independent, third-party verification of environmental claims. This could help greenwashing perceptions become a more differentiating and consequential signal for consumers than the present findings suggest they currently are. Firms should adopt transparent, evidence-based communication, supported by data, certifications, or third-party validation, to help stakeholders distinguish genuine innovation from promotional messaging. Finally, industry stakeholders, including investors and host communities, should intensify scrutiny of corporate environmental practices by demanding greater transparency and accountability. Collaborative platforms should be encouraged to facilitate dialogue between firms and stakeholders on environmental performance and expectations. Continuous monitoring and feedback mechanisms should be established to ensure that corporate environmental commitments translate into sustained reputational value.

Limitations and Suggestions for Future Research

This study has several limitations that should guide how its findings are interpreted and extended by future researchers. The cross-sectional design restricts causal inference, since the data are consistent with the hypothesised mediation structure but cannot establish temporal precedence among the three constructs. Longitudinal or experimental designs would allow a stronger causal test of this claim in future replications. The convenience sample was drawn from six filling stations in a single locality, Alapere, Kosofe LGA, Lagos. Reliance on self-reported survey data also introduces the possibility of social-desirability and common-method bias affecting the results. Confirmatory factor analysis in future work would help establish whether these are empirically, as well as theoretically, distinct constructs.

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Future studies should consider longitudinal or experimental designs that could establish temporal or causal order between perceived green innovation and perceived greenwashing. Broader geographical and stakeholder coverage, using probability sampling rather than convenience sampling, would also improve the representativeness of future findings. Structural equation modelling, whether PLS-SEM or CB-SEM, would allow the full measurement and structural model to be tested simultaneously while accounting for measurement error. Qualitative or mixed-methods follow-up would be particularly valuable for probing one specific finding from this study. Further studies may also incorporate additional variables such as corporate governance, stakeholder trust, or regulatory compliance to provide a more comprehensive understanding of corporate reputation dynamics in environmentally sensitive industries.

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