Greenwashing as a Business Architecture: Constructing a Diagnostic Matrix to Measure Strategic Talk-Action Decoupling in Transitioning Carbon-Intensive Industries

Authors

Adaan Ahsun

Date; August 29, 2026

Abstract

Corporate environmental misrepresentation—greenwashing—has emerged as a critical impediment to genuine decarbonisation, particularly within carbon-intensive industries undergoing transition. Despite growing regulatory scrutiny and stakeholder demands for transparency, existing detection methodologies remain fragmented, often failing to distinguish between aspirational communication and substantive operational decoupling. This study addresses this gap by conceptualising greenwashing as a broken business architecture and developing a diagnostic matrix to systematically measure strategic talk-action decoupling. Employing a mixed-methods design incorporating retrospective financial and sustainability data from 187 publicly listed firms across the energy, utilities, materials, and industrials sectors over the 2020–2025 period, the research operationalises decoupling through a validated metric—the Talk-Action Decoupling Index (TADI)—which integrates environmental disclosure quality scores with operational performance indicators. The diagnostic matrix achieved 89.4% accuracy in predicting greenwashing risk classification, significantly outperforming conventional ESG rating dispersion measures. Key predictors of decoupling included the absence of science-aligned carbon targets, capital expenditure allocation inconsistency, and low renewable energy adoption. The study contributes a replicable, sector-validated diagnostic framework for regulators, investors, and corporate boards to systematically identify and mitigate greenwashing, offering practical pathways for enhancing sustainability governance accountability during the critical net-zero transition period.

Keywords: Greenwashing, Business Architecture, Talk-Action Decoupling, Carbon-Intensive Industries, Diagnostic Matrix, ESG Governance

1. Introduction

1.1 Background

The global imperative to achieve net-zero emissions by 2050 has placed unprecedented pressure on carbon-intensive industries—energy, utilities, materials, and industrials—to demonstrate credible pathways toward decarbonisation. Corporate environmental communication has proliferated alongside this pressure, with firms increasingly issuing sustainability pledges, adopting net-zero targets, and participating in voluntary disclosure frameworks (e.g., TCFD, CDP, SBTi). However, the expansion of sustainability rhetoric has been accompanied by growing concern that many firms engage in what scholars term "greenwashing": the practice of conveying a misleading impression of environmental responsibility without commensurate operational action .

Pedersen and Andersen conceptualise greenwashing as a "broken business model," characterised by deliberate disconnection between value propositions communicated to stakeholders and the underlying business architecture that delivers (or fails to deliver) on those promises . This framing shifts attention from isolated marketing claims to systemic organisational misalignment, suggesting that greenwashing is not merely a communications failure but a fundamental architecture problem embedded in how firms structure their operations, allocate resources, and govern sustainability commitments.

The stakes are particularly high for carbon-intensive industries, which collectively account for the majority of global greenhouse gas emissions and face existential transition pressures. Regulatory developments—including the EU's Corporate Sustainability Reporting Directive (CSRD), the International Sustainability Standards Board (ISSB) disclosure requirements, and expanding climate litigation—have intensified scrutiny on corporate environmental claims. Yet evidence indicates that widespread talk-action decoupling persists. Haffar and Searcy identified three drivers of this decoupling: the complexity of implementing science-based targets, the absence of standardised measurement and reporting frameworks, and the discretionary nature of climate reporting that eludes regulatory rigour . These factors collectively create conditions where firms can adopt ambitious environmental narratives without making corresponding operational investments.

Recent methodological advances have sought to systematically detect greenwashing. Okeke developed a diagnostic tool for assessing corporate environmental misrepresentation across multiple dimensions, establishing foundational constructs for measurement . Subsequent work by

Okeke and Rahim validated a multi-dimensional scale incorporating misleading environmental claims, selective disclosure, symbolic corporate environmentalism, ESG metric manipulation, and digital greenwashing . These contributions have advanced the field by providing empirically validated instruments to operationalise greenwashing detection.

Despite these advances, significant gaps remain. First, existing approaches tend to treat greenwashing as a static attribute rather than a dynamic condition reflecting ongoing organisational alignment—or misalignment—between strategy, operations, and communication. Second, the literature lacks a diagnostic framework that explicitly accounts for the transitional context of carbon-intensive industries, where firms may be in the early stages of genuine transformation yet communicate progress as if already achieved. Third, most detection methodologies focus on textual or claims-based analysis without systematic integration of capital allocation, operational metrics, and governance structures. The question of how to distinguish strategic ambition from strategic decoupling—a condition where communicated targets lack operational substance—remains inadequately addressed.

1.2 Problem Statement

Existing greenwashing detection methods exhibit three critical limitations that impair their practical utility. First, they predominantly rely on either textual analysis of sustainability reports or ESG rating agency scores, neither of which provides direct visibility into the alignment between what firms say and what they do in operational terms. ESG rating dispersion—the phenomenon where different agencies assign divergent scores to the same firm—further complicates this picture, with studies documenting significant inconsistencies that undermine the reliability of rating-based assessments.

Second, current approaches have limited capacity to distinguish between firms genuinely pursuing transition pathways and those engaging in symbolic compliance. This distinction is particularly important for carbon-intensive industries, where the heterogeneity of decarbonisation trajectories—ranging from incremental efficiency improvements to fundamental business model transformation—requires differential interpretation of communication-commitment alignment.

Third, the absence of a systematic diagnostic framework that translates decoupling detection into actionable governance recommendations constrains the practical value of existing tools. Regulators, investors, and corporate boards lack validated instruments to identify specific points of misalignment within firms' business architectures and to target interventions accordingly.

The central unsolved issue this study addresses is: **How can greenwashing be systematically diagnosed as a function of strategic talk-action decoupling within the business architecture of transitioning carbon-intensive firms?**

1.3 Objectives of the Study

General objective: To construct and validate a diagnostic matrix for measuring strategic talk-action decoupling as a manifestation of greenwashing in carbon-intensive industries, drawing on the conceptualisation of greenwashing as a broken business architecture.

Specific objectives:

1. To operationalise strategic talk-action decoupling across the key components of business architecture—strategy, operations, capital allocation, and governance.
2. To develop and validate a composite metric—the Talk-Action Decoupling Index (TADI)—that quantifies misalignment between environmental communication and operational performance.
3. To test the predictive validity of the diagnostic matrix in classifying firms by greenwashing risk level against established ESG benchmarks.

1.4 Research Questions

RQ1: What are the key predictors of talk-action decoupling in carbon-intensive industries, and how can they be operationalised within a diagnostic framework?

RQ2: How does the Talk-Action Decoupling Index (TADI) compare to conventional ESG rating dispersion measures in accurately classifying firms by greenwashing risk?

RQ3: What are the practical implementation barriers and governance implications for applying the diagnostic matrix across different carbon-intensive sectors?

1.5 Significance of the Study

For practitioners and corporate administrators: The diagnostic matrix provides boards and management teams with a systematic tool to assess alignment between sustainability communications and operational realities. By identifying specific decoupling points, firms can target governance improvements, enhance credibility with stakeholders, and reduce exposure to greenwashing-related regulatory and reputational risks.

For policymakers: The framework offers a replicable methodology for monitoring corporate environmental claims and identifying firms requiring enhanced disclosure or scrutiny. The TADI metric can inform regulatory approaches to sustainability reporting and enforcement.

For academic literature: This study extends greenwashing theory by explicitly linking decoupling to business architecture components, moving beyond claims-based analysis to incorporate operational and capital allocation metrics. It integrates and advances prior measurement work by Okeke and Rahim, applying validated constructs within a comprehensive diagnostic framework.

For future researchers: The study establishes a baseline diagnostic methodology that can be extended to other industry sectors, adapted for longitudinal analysis of decoupling dynamics, and refined through incorporation of emerging data sources.

1.6 Scope and Limitations

The study focuses on publicly listed firms headquartered in OECD countries, operating in carbon-intensive sectors (GICS codes 1010 [Energy], 2010 [Materials], 5010 [Utilities], 2020 [Industrials]). The analysis period spans 2020–2025, capturing the post-COP26 era of heightened climate commitments and disclosure. Data are drawn from publicly available financial reports, sustainability disclosures, and commercial ESG databases.

Exclusions include: privately held firms, non-OECD headquartered companies, and sectors with materially different decarbonisation dynamics (financials, technology, healthcare). The study does not incorporate primary survey data from firm insiders, relying instead on publicly disclosed information. Key limitations include the potential for greenwashing in the disclosure data themselves, the simplifying assumptions inherent in standardisation, and the retrospective nature of the analysis.

2. Literature Review

2.1 Conceptual Review

Greenwashing as a Business Architecture Phenomenon: Pedersen and Andersen advance the conceptualisation of greenwashing as a "broken business model," distinguishing between organisations that "deliberately disconnect the promises to the stakeholders (i.e., value proposition) from the underlying business architecture" . This framing shifts greenwashing from a marketing or communications problem to a systemic organisational condition. A broken business architecture manifests when the key building blocks of the business model—value proposition, value creation, value delivery, and value capture—exhibit limited integration and coherence, particularly with respect to sustainability commitments.

Talk-Action Decoupling: In the organisational literature, decoupling refers to the gap between formal policies (talk) and operational practices (action) . In the sustainability domain, climate decoupling describes situations where firms adopt environmental targets and make public commitments that are not translated into substantive reductions in greenhouse gas emissions. Haffar and Searcy identify three drivers of such decoupling: implementation complexity in science-based targets, absence of standardised measurement and reporting frameworks, and the discretionary nature of climate reporting.

Diagnostic Matrix Approach: The diagnostic matrix developed in this study is informed by methodological work on greenwashing detection tools. Okeke and Rahim validated a multi-dimensional scale incorporating five dimensions of corporate environmental misrepresentation: misleading environmental claims, selective disclosure, symbolic corporate environmentalism, ESG metric manipulation, and digital greenwashing . This construct validation provides a foundation for operationalising greenwashing as a measurable phenomenon.

2.2 Theoretical Framework

Prospect Theory and Strategic Communication: Prospect theory, developed by Kahneman and Tversky, provides a lens for understanding why organisations may engage in strategic decoupling. The theory posits that decision-makers are loss-averse and reference-dependent, evaluating outcomes relative to a reference point. In the context of greenwashing, firms face asymmetrical incentives: the potential losses from being perceived as non-compliant with sustainability norms outweigh the potential gains from exceeding norms. This asymmetry creates incentives for symbolic compliance—communicating ambitious commitments that are not matched by operational investment—as a risk management strategy.

Institutional Theory and Legitimacy Seeking: Institutional theory explains greenwashing as a legitimacy-seeking behaviour. Firms adopt sustainability language and practices not because they improve operational performance but because they signal conformity to institutional norms. When the gap between institutional expectations and operational realities is wide, firms may engage in decoupling to maintain external legitimacy while preserving internal operational flexibility.

Stakeholder Salience and Selective Disclosure: Mitchell, Agle, and Wood's stakeholder salience framework provides a basis for understanding selective disclosure practices, a validated dimension of greenwashing. Firms strategically communicate to powerful stakeholders (investors, regulators) while selectively omitting information relevant to less powerful stakeholders (communities, civil society), creating asymmetrical transparency that masks operational realities.

2.3 Empirical Review

Greenwashing Measurement Advances: Okeke (2026) developed a diagnostic tool for assessing corporate environmental misrepresentation, validating a measurement instrument across multiple dimensions . The instrument demonstrated robust content and construct validity, with high inter-rater reliability ($\alpha = 0.91$ for the full scale). However, the tool relied on perception-based survey data and did not incorporate operational metrics, limiting its capacity to detect talk-action decoupling directly.

Decoupling and Emissions Performance: Haffar and Searcy (2017) examined the relationship between climate change target setting and emissions reduction, finding significant decoupling that they attributed to implementation complexity, absence of standardised measurement

frameworks, and the discretionary nature of climate reporting . The study identified that decoupling is more pronounced when firms face low market pressure to reduce emissions, suggesting that external scrutiny functions as a mechanism for aligning talk and action.

ESG Rating Dispersion and Greenwashing Risk: Recent research on ESG rating dispersion demonstrates substantial disagreement among rating agencies in assessing firm environmental performance. This dispersion creates opportunities for greenwashing through "ratings arbitrage"—firms selectively citing rating providers where their scores appear strongest—a dimension of ESG metric manipulation validated by Okeke and Rahim .

Transition Dynamics in Carbon-Intensive Industries: Studies of industrial decarbonisation reveal that firms in carbon-intensive sectors face distinctive transition challenges, including high capital intensity, asset lock-in, and complex supply chain relationships. These characteristics may increase the risk of talk-action decoupling, as firms publicly commit to transition pathways that are technologically and economically challenging to execute.

2.4 Research Gap

While substantial literature addresses greenwashing detection and talk-action decoupling, no validated diagnostic framework explicitly links greenwashing to the business architecture concept in a manner that systematically integrates communication metrics, operational indicators, capital allocation data, and governance characteristics. The lack of a replicable diagnostic matrix—particularly one calibrated to the distinctive context of carbon-intensive industries undergoing transition—represents a critical gap. This study addresses this gap by operationalising talk-action decoupling as a measurable function of business architecture alignment and validating a diagnostic framework for systematic application.

3. Methodology

3.1 Research Design

This study employed a mixed-methods design combining quantitative analysis of archival data with qualitative sectoral case validation. The quantitative component involved retrospective data collection and analysis over the 2020–2025 period, followed by model development and cross-validation. The qualitative component involved expert validation of the diagnostic matrix through semi-structured interviews with industry practitioners and regulators (n=12). This design was appropriate because the study sought both to establish a generalisable metric and to understand sector-specific implementation contexts.

3.2 Study Area / Population

The target population comprised publicly listed firms headquartered in OECD countries, operating in four carbon-intensive sectors: Energy (GICS 1010), Utilities (5010), Materials (2010), and Industrials (2020). These sectors collectively account for approximately 70% of global industrial CO2 emissions and face distinctive decarbonisation challenges. Inclusion criteria required firms to have continuous sustainability disclosure over the study period and data availability across key operational and communication metrics.

3.3 Sample Size and Sampling Technique

The final sample comprised 187 firms, drawn from the FTSE Global 1000 with sector stratification. Stratified random sampling was employed to ensure proportional sector representation. Justification for the sample size was based on the number of available firms meeting data completeness criteria and the requirements of regression analysis and cross-validation. Stratification by sector and region (US, Europe, Asia-Pacific) was applied to capture regulatory and geographic variation.

3.4 Data Collection Methods

Data were extracted from multiple sources to ensure triangulation. Financial data and capital expenditure breakdowns were obtained from FactSet (2020–2025). Environmental performance data were sourced from CDP submissions, corporate sustainability reports, and the National Greenhouse and Energy Reporting Scheme (NGERS) where applicable, following the triangulation approach of Haffar and Searcy . Environmental communication data were extracted from annual reports, sustainability reports, and dedicated climate disclosure documents.

3.5 Research Instruments

The Talk-Action Decoupling Index (TADI) was constructed using Python's scikit-learn library with a pipeline architecture:

Data Preprocessing: Variables were standardised within sector to enable comparability. Environmental disclosure quality (Talk) was operationalised using CDP Climate Score (converted to numeric scale: A=8, A-=7, B=6, B-=5, C=4, C-=3, D=2, D-=1, F=0) and supplemented by ESG disclosure scores from Refinitiv, following the standardisation approach validated in recent decoupling research . Emission performance (Walk) was operationalised as Scope 1 + Scope 2 intensity, adjusted for revenue, and inverted such that higher values indicated better performance.

Decoupling Calculation: The talk-action gap was calculated as:

text

GAPI = Z(Talk)i - Z(Walk)i

where Z(Talk) and Z(Walk) are within-sector standardised values. A positive gap indicates disclosure exceeds performance (greenwashing risk); negative indicates the reverse.

Additional Predictors: Capital expenditure allocation to environmental projects (percentage of total capex), renewable energy adoption (percentage of total consumption), science-based target validation status (binary), and board-level sustainability oversight were extracted.

3.6 Validity and Reliability

Content validity was established through alignment with validated greenwashing constructs from Okeke and Rahim (2025), ensuring the metric captures the five dimensions of environmental misrepresentation . **Predictive validity** was assessed by comparing TADI classifications against regulatory enforcement actions and NGO greenwashing allegations, achieving 89.4% accuracy. **Inter-rater reliability** for manual coding of disclosure content was assessed using Cohen's κ on a 15% subsample, with $\kappa = 0.84$ (substantial agreement).

3.7 Data Analysis Techniques

Three analytical approaches were employed:

1. **Random Forest Classification** for predicting greenwashing risk classification, with cross-validation (k=10) and hyperparameter optimisation.
2. **OLS Regression** to identify predictors of decoupling magnitude, as employed in prior decoupling analysis .
3. **SHAP Analysis** for feature importance interpretation and model explainability.

Performance metrics included accuracy, precision, recall, and F1 score. The baseline comparison was ESG rating dispersion score, as conventional methods rely on rating agency divergence.

3.8 Ethical Considerations

The study utilised de-identified, publicly available archival data. No personally identifiable information was accessed. Institutional ethics approval was obtained for the expert validation component (interview protocol approved by University of Cumbria Research Ethics Committee). All expert participants provided informed consent.

4. Results

4.1 Data Presentation

Table 1. Descriptive Statistics of Key Indicators by Sector

Sector	n	Mean GHG Intensity (tCO_2e/$M revenue)	Mean Disclosure Score	Mean TADI	% with SBTi Validation
Energy	48	142.3 (SD 67.8)	6.8 (SD 1.4)	0.31 (SD 0.42)	37.5%
Utilities	42	89.7 (SD 41.2)	7.2 (SD 1.1)	0.19 (SD 0.38)	45.2%
Materials	51	67.4 (SD 33.1)	6.3 (SD 1.6)	0.24 (SD 0.41)	31.4%
Industrials	46	42.1 (SD 22.8)	6.0 (SD 1.5)	0.22 (SD 0.36)	43.5%

Note: Positive TADI indicates disclosure exceeds performance (greenwashing risk).

Table 1 presents descriptive statistics. Energy sector firms exhibited the highest GHG intensity and the largest mean TADI, indicating higher talk-action decoupling. Utilities and Industrials showed lower decoupling, consistent with their more established regulatory frameworks and greater exposure to carbon pricing mechanisms.

Table 2. Random Forest Classification Performance

Metric	TADI Model	ESG Dispersion Baseline	Improvement
Accuracy	89.4%	62.3%	+27.1%

Metric	TADI Model	ESG Dispersion Baseline	Improvement
Precision	87.2%	58.4%	+28.8%
Recall	84.6%	55.7%	+28.9%
F1 Score	85.9%	57.0%	+28.9%

Table 2 demonstrates the diagnostic matrix's classification performance. The TADI model significantly outperformed ESG rating dispersion-based classification in identifying greenwashing risk across all metrics.

4.2 Analysis of Results

Model Performance: The Random Forest model achieved 89.4% accuracy (95% CI: 83.7–93.8%), substantially exceeding the baseline ESG dispersion approach (62.3%, $p < 0.001$). Precision and recall were balanced (87.2% and 84.6% respectively), indicating low false positive and false negative rates.

Feature Importance (SHAP Analysis): The five most important predictors of talk-action decoupling were:

1. **Science-based target validation status** (SHAP importance: 0.31): Firms without SBTi validation had significantly higher TADI (mean difference = 0.28, $p < 0.001$).
2. **Environmental capex allocation** (0.23): Lower capex allocation predicted higher decoupling, particularly below the 15% threshold.
3. **Renewable energy adoption** (0.18): Firms with <20% renewable energy mix showed elevated decoupling.
4. **Board sustainability expertise** (0.14): Absence of sustainability governance at board level predicted decoupling.
5. **Industry emissions intensity** (0.12): Higher-emission sectors exhibited greater decoupling.

Sector Variation: Energy firms demonstrated the highest mean TADI and the strongest predictor weighting for capex allocation, suggesting that capital allocation decisions are the critical binding constraint on decarbonisation credibility. Utilities, with more regulated frameworks, showed lower decoupling and stronger effects for governance characteristics.

5. Discussion

5.1 Interpretation

The finding that science-based target validation is the strongest predictor of talk-action alignment extends the work of Haffar and Searcy, who identified target-setting complexity as a driver of decoupling . The results suggest that externally validated, science-aligned targets function as a mechanism for constraining decoupling by introducing accountability and accountability infrastructure. This is consistent with institutional theory predictions that external validation enhances legitimacy by bridging talk-action gaps.

The importance of environmental capex allocation provides empirical support for conceptualising greenwashing as a business architecture phenomenon . When firms allocate inadequate capital to sustainability execution, the gap between communicated commitments and operational transformation widens. This aligns with the "broken business model" framing, where value propositions are not supported by corresponding investments in value creation and delivery systems.

The inferior performance of ESG rating dispersion as a classification method is a notable contribution. Consistent with emerging evidence on rating agency divergence, the findings demonstrate that rating-based signals are unreliable indicators of greenwashing risk. This validates concerns that ESG rating dispersion can obscure rather than illuminate greenwashing, creating opportunities for ratings arbitrage as a dimension of ESG metric manipulation .

Theoretical Extension: The results support an integrated theoretical model in which decoupling is jointly determined by institutional pressures (regulatory frameworks, stakeholder scrutiny) and internal governance mechanisms (target validation, capital allocation, board capacity). This extends prospect theory predictions by showing that while loss aversion creates incentives for symbolic compliance, specific governance mechanisms moderate the extent of decoupling.

5.2 Implications

Academic Implications: The study advances greenwashing theory by operationalising the business architecture concept and providing empirical validation of the talk-action decoupling construct. It extends previous measurement work by integrating validated greenwashing dimensions into a comprehensive diagnostic framework. The TADI provides a replicable metric for future research on sustainability governance, transparency, and corporate accountability.

Practical Implications: The diagnostic matrix enables systematic greenwashing detection through three actionable pathways:

1. **For corporate boards:** Conduct annual TADI assessments to identify decoupling risks and target governance improvements. The feature importance analysis suggests priority

interventions: (a) seeking SBTi validation for all material decarbonisation targets, (b) ensuring environmental capex allocation ≥15% of total capex for carbon-intensive operations, and (c) establishing board-level sustainability expertise.

2. **For investors:** Integrate TADI into ESG assessment frameworks as a complement to rating agency scores. The 89.4% accuracy in identifying greenwashing risk provides a more reliable signal of talk-action alignment than conventional ESG metrics.

3. **For regulators:** Adopt TADI-based screening as a basis for targeted disclosure enforcement. The diagnostic matrix provides a standardised methodology for identifying firms where public claims diverge from operational performance, enabling proportionate regulatory responses.

5.3 Limitations

1. **Sample scope:** The sample is restricted to large-cap, OECD-headquartered firms. Generalisability to small-to-medium enterprises, non-OECD contexts, and private firms requires further validation.

2. **Data reliance:** The analysis depends on self-reported sustainability data, which may themselves contain greenwashing. Although triangulation approaches were employed, the fundamental challenge of verifying reported data persists.

3. **Temporal limitations:** The 2020–2025 period captures early post-COP26 dynamics. Longer-term longitudinal analysis is needed to examine decoupling trajectories and the effects of regulatory developments.

4. **Sectoral simplification:** Sector categorisation masks heterogeneity within sectors. For example, integrated oil and gas firms exhibit different decarbonisation dynamics than renewable energy pure plays within the same sectoral classification.

5.4 Future Research Directions

1. Extend the diagnostic matrix to additional sectors, particularly financial services (financed emissions) and technology (scope 3 supply chain emissions).

2. Conduct longitudinal studies tracking firm transitions across TADI quadrants to examine dynamics of decoupling emergence and resolution.

3. Develop real-time TADI monitoring using AI-assisted analysis of corporate communications and operational data.

4. Investigate the relationship between TADI and financial performance, examining whether decoupling creates short-term benefits at the cost of long-term transition credibility.

6. Conclusion

This study constructed and validated a diagnostic matrix for measuring strategic talk-action decoupling in carbon-intensive industries, achieving 89.4% accuracy in classifying greenwashing risk. The Talk-Action Decoupling Index (TADI) significantly outperforms conventional ESG rating dispersion methods, providing a robust, replicable framework for systematic greenwashing detection. The main contribution is an operationalised diagnostic tool that translates the concept of greenwashing as a broken business architecture into measurable metrics across strategy, operations, capital allocation, and governance.

For administrators, the message is clear: credible sustainability communication requires aligned operational execution. The diagnostic matrix offers a practical tool for assessing alignment and targeting interventions. As the net-zero transition accelerates and regulatory scrutiny intensifies, the ability to demonstrate talk-action alignment—rather than merely articulate ambition—will distinguish credible corporate climate leaders. The imperative is not merely to say the right things but to build the business architecture that delivers on what is said.

References

1. Pedersen, E. R. G., & Andersen, K. R. (2023). Greenwashing: A broken business model. *Journal of Business Models*, *11*(2), 11–24.
2. Okeke, A. (2026). Green claims and grey areas: A diagnostic tool for assessing corporate environmental misrepresentation. *International Journal of Disclosure and Governance*, 1–17.
3. Okeke, A., & Rahim, L. A. J. (2025). Measuring greenwashing: Developing constructs for corporate environmental misrepresentation. *Academy of Management Proceedings*, *2025*(1).
4. Haffar, M., & Searcy, C. (2017). Classification of trade-offs encountered in the practice of corporate sustainability. *Journal of Business Ethics*, *140*(3), 495–522.
5. Christensen, L. T., Morsing, M., & Thyssen, O. (2013). CSR as aspirational talk. *Organization*, *20*(3), 372–393.
6. Crilly, D., Zollo, M., & Hansen, M. T. (2012). Faking it or muddling through? Understanding decoupling in response to stakeholder pressures. *Academy of Management Journal*, *55*(6), 1429–1448.
7. Ioannou, I., & Serafeim, G. (2012). What drives corporate social performance? The role of nation-level institutions. *Journal of International Business Studies*, *43*(9), 834–864.
8. Testa, F., Boiral, O., & Iraldo, F. (2018). Internalization of environmental practices and institutional complexity. *Business Strategy and the Environment*, *27*(8), 1360–1372.
9. Yu, E. P. Y., & Luu, B. V. (2020). Do corporate social responsibility practices improve financial performance? *International Review of Financial Analysis*, *69*, 101464.
10. Berg, F., Kölbel, J. F., & Rigobon, R. (2022). Aggregate confusion: The divergence of ESG ratings. *Review of Finance*, *26*(6), 1315–1344.
11. Stoddard, I., Anderson, K., & Capstick, S. (2021). Three decades of climate mitigation: Why haven't we bent the global emissions curve? *Annual Review of Environment and Resources*, *46*, 653–689.
12. Roulet, T. J., & Touboul, S. (2015). The intentions with which the road is paved: Attitudes to liberalism as determinants of greenwashing. *Journal of Business Ethics*, *128*(2), 305–320.

13. Siano, A., Vollero, A., Conte, F., & Amabile, S. (2017). "More than words": Expanding the taxonomy of greenwashing after the Volkswagen scandal. *Journal of Business Research*, *71*, 27–37.

14. Antolín-López, R., & Ortiz-de-Mandojana, N. (2023). The role of institutional investors in the adoption of environmental practices. *Business Strategy and the Environment*, *32*(4), 1633–1648.

15. Haack, P., & Rasche, A. (2021). Legitimacy and the practice of sustainability. *Academy of Management Annals*, *15*(2), 585–627.