

A Diagnostic Tool for Evaluating Discursive Misrepresentation in Sovereign and Corporate Green Bonds

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Abstract

Green bonds have become a central instrument of sustainable finance, yet the credibility of issuers' environmental claims remains unevenly scrutinized. Existing diagnostic approaches rely heavily on post-issuance allocation reporting, ESG ratings, or project-level life-cycle assessment, none of which systematically captures *discursive misrepresentation*—the gap between the rhetorical framing of a bond's environmental purpose and the substantive commitments encoded in its documentation. This study develops and validates a diagnostic instrument for evaluating discursive misrepresentation in sovereign and corporate green bond disclosures. Drawing on performative purpose alignment theory and signalling theory, the research constructs a four-dimensional coding framework—claim specificity, temporal bindingness, omission architecture, and directive-evidentiary balance—and applies it to a stratified sample of 312 green bond frameworks and offering documents issued between 2018 and 2025 across 24 jurisdictions. The instrument achieves an inter-rater reliability of 0.87 (Krippendorff's α) and a classification accuracy of 89.4% against expert-assigned credibility ratings, outperforming a sentiment-based

baseline by 23.1 percentage points. Findings indicate that sovereign issuers exhibit systematically higher omission architecture scores than corporate issuers, while corporate issuers display greater variance in directive-evidentiary balance. The diagnostic tool offers regulators, investors, and researchers a replicable method for moving beyond disclosure-presence checks toward disclosure-*quality* assessment, thereby strengthening the accountability infrastructure of the green bond market.

Keywords: green bonds, discursive misrepresentation, greenwashing diagnostics, disclosure quality, performative governance

1. Introduction

1.1 Background

The global green bond market has expanded from a niche instrument to a central pillar of sustainable finance, with cumulative issuance exceeding USD 2.5 trillion by 2024 and sovereign issuers from both advanced and emerging economies entering the market at an accelerating pace . This expansion has been accompanied by a parallel growth in scholarly and regulatory attention to the credibility of environmental claims. A substantial body of research documents that green bond issuance is not uniformly associated with substantive environmental improvement; some issuers exhibit improvements in disclosure quality following issuance, while others display patterns consistent with symbolic legitimation rather than resource reallocation . The phenomenon of greenwashing—broadly defined as the misalignment between environmental communication and environmental action—has therefore migrated from equity markets and consumer marketing into the debt capital markets, where the stakes involve not only reputational capital but the allocation of trillions in fixed-income investment.

The regulatory architecture governing green bonds remains fundamentally voluntary. The International Capital Market Association’s Green Bond Principles provide four core components—use of proceeds, project evaluation and selection, management of proceeds, and reporting—but do not prescribe enforceable standards for the *discursive* content of bond documentation . External review mechanisms, including second-party opinions and verification, vary widely in scope and rigor; a World Bank study of emerging market sovereign issuers found that while nearly 90% meet core reporting principles, a third fail to publish reports within twelve months, and a quarter lack dedicated web pages for bond-related documents . This voluntary, fragmented landscape creates structural opportunities for issuers to deploy language that signals environmental commitment without incurring the reputational or operational costs that substantive commitment would entail.

Recent theoretical advances have begun to address this gap by reconceptualizing sustainability communication as a governance mechanism rather than a neutral conveyance of information. Okeke and Ugbebor develop performative purpose alignment theory (PPAT), arguing that corporate purpose becomes socially legible through patterned discursive acts that bind the firm to evaluative scrutiny. Their framework distinguishes between assertive elements (verifiable content), expressive elements (moral orientation), and directive appeals (calls for stakeholder trust), proposing that discourse acquires credibility when directive appeals are scaffolded by sufficient assertive grounding. In parallel, Okeke demonstrates that corporate environmental misrepresentation can be measured through a multidimensional instrument encompassing misleading claims, strategic disclosure, metric manipulation, and trust erosion, validated through confirmatory factor analysis. These contributions establish that the *form* and *architecture* of sustainability discourse carry diagnostic information independent of the substantive metrics disclosed.

Yet neither the PPAT framework nor the corporate misrepresentation scale has been adapted for the distinctive institutional context of green bonds, where the “issuer” may be a sovereign state or a corporation, where the “claim” is embedded in a framework document with legal and financial consequences, and where the relevant audience comprises institutional investors with heterogeneous capacities for scrutiny. Sovereign green bonds, in particular, operate under different accountability logics than corporate issuances: sovereigns cannot be “disciplined” by shareholder activism, their reporting obligations are shaped by debt management offices rather than corporate sustainability teams, and their environmental claims intersect with national development agendas in ways that corporate claims do not. A diagnostic tool that treats “green bond discourse” as a homogeneous category risks mis-specifying the mechanisms through which misrepresentation operates in each domain.

1.2 Problem Statement

Existing approaches to evaluating green bond credibility suffer from three interrelated limitations. First, they are predominantly *outcome-oriented*: they assess whether proceeds were allocated to eligible projects, whether impact metrics were reported, or whether third-party verification was obtained. These approaches presuppose that misrepresentation occurs primarily at the level of fund allocation or impact quantification. They are poorly equipped to detect misrepresentation that operates at the level of *framing*—through strategic omission, temporal vagueness, or the substitution of aspirational language for binding commitment—before any allocation decision has been made.

Second, the available measurement instruments were developed for corporate contexts and have not been validated for sovereign issuers. Okeke’s four-factor scale, while rigorous, relies on survey-based perceptions of corporate behavior and does not address the documentary-discursive features specific to bond frameworks. Similarly, sentiment-based and tone-based approaches to greenwashing detection capture affective orientation but not the *structural* features of claims—

whether a commitment is bounded by a deadline, whether a metric is specified with sufficient precision to be falsifiable, whether counter-evidence is acknowledged or omitted. These structural features are precisely where discursive misrepresentation is most likely to reside in green bond documentation, which is drafted by legal and financial professionals trained to minimize liability exposure while maximizing signaling value.

Third, no validated instrument exists that explicitly models the *discursive* dimension of green bond credibility across both sovereign and corporate issuers. The World Bank's reporting assessment provides descriptive statistics on reporting compliance but does not offer a scoring mechanism for claim quality. Life-cycle assessment approaches provide rigorous environmental quantification but require project-level data that is often unavailable at the time of bond issuance and does not address the rhetorical construction of the bond's environmental rationale. The field thus lacks a tool that can be applied *ex ante*—at the point of issuance—to evaluate whether the discursive architecture of a green bond framework exhibits patterns associated with misrepresentation.

The unsolved issue, therefore, is this: **there is no validated, multidimensional diagnostic instrument for evaluating discursive misrepresentation in green bond documentation that is applicable across sovereign and corporate issuer types, grounded in a testable theory of performative sustainability communication, and calibrated against expert credibility judgments.**

1.3 Objectives of the Study

General objective: To develop and validate a diagnostic tool for evaluating discursive misrepresentation in sovereign and corporate green bond documentation.

Specific objectives:

1. To identify the discursive dimensions—claim specificity, temporal bindingness, omission architecture, and directive-evidentiary balance—that most strongly differentiate high-credibility from low-credibility green bond frameworks.
2. To design a coding instrument that operationalizes these dimensions for both sovereign and corporate issuer contexts and to establish its reliability and validity.
3. To validate the instrument's classificatory performance against expert-assigned credibility ratings and to compare its accuracy against a sentiment-based baseline.

1.4 Research Questions

1. What combination of discursive features most accurately distinguishes green bond frameworks judged by experts as exhibiting high versus low credibility?
2. How does the proposed diagnostic instrument compare to a sentiment-based baseline in classification accuracy and inter-rater reliability?

3. Do sovereign and corporate issuers exhibit systematically different patterns of discursive misrepresentation, and if so, along which dimensions?

1.5 Significance of the Study

For practitioners and administrators: The diagnostic tool provides debt management offices, corporate treasury teams, and sustainability officers with a structured self-assessment mechanism for identifying discursive vulnerabilities in bond frameworks before issuance. By highlighting dimensions such as omission architecture and directive-evidentiary balance, it enables issuers to strengthen the evidentiary scaffolding of their claims and reduce exposure to subsequent credibility challenges.

For policymakers and regulators: The instrument offers a replicable scoring methodology that regulators can adapt for supervisory review, listing requirements, or “green” label eligibility screening. Its capacity to differentiate sovereign from corporate patterns informs the design of proportionate regulatory approaches that recognize the distinct accountability structures of each issuer type.

For academic literature: The study extends performative purpose alignment theory into the sovereign debt domain and operationalizes the discursive governance construct at the level of bond documentation. It also provides an empirical bridge between the corporate greenwashing measurement literature and the green bond credibility literature, demonstrating that discursive features carry diagnostic signal independent of allocation or impact metrics.

For future researchers: The validated coding framework and the annotated corpus of 312 bond documents constitute a reusable resource for investigating the antecedents and consequences of discursive misrepresentation, including its relationship to greenium pricing, investor composition, and post-issuance reporting behavior.

1.6 Scope and Limitations

This study is bounded in four respects. **Time period:** Bond frameworks and offering documents issued between January 2018 and December 2025, a period selected to capture the post-Paris Agreement expansion of sovereign green bond issuance and the maturation of corporate green bond frameworks. **Geographic scope:** 24 jurisdictions across Europe, Asia-Pacific, Latin America, and Africa, selected to ensure variation in regulatory stringency and market maturity. **Issuer types:** Sovereigns and non-financial corporations; supranational issuers, municipal issuers, and financial institutions are excluded to maintain analytical focus on the two institutional logics of primary interest. **Data sources:** Publicly available English-language bond frameworks, second-party opinions, and offering documents; documents available only in other languages are excluded, a limitation that may introduce language bias.

Key limitations are acknowledged upfront. The instrument measures *discursive* features, not environmental outcomes; a framework scoring high on credibility may still finance projects with

contested environmental benefits. The expert credibility ratings used as the validation criterion are themselves socially constructed and may reflect the composition of the expert panel. Finally, the cross-sectional design captures document characteristics at a single point in time and cannot assess whether discursive patterns change in response to market or regulatory feedback.

2. Literature Review

2.1 Conceptual Review

Green bonds are fixed-income instruments whose proceeds are exclusively applied to finance or refinance eligible green projects, as defined by the issuer's framework and typically aligned with the ICMA Green Bond Principles . The defining feature of a green bond is not the legal structure of the debt obligation but the *designation* of environmental purpose, which creates a signalling relationship between issuer and investor.

Discursive misrepresentation refers to the deployment of language, framing, and narrative architecture that creates an impression of environmental commitment disproportionate to the issuer's substantive obligations, without necessarily involving false statements of fact. This construct draws on Okeke and Ugbebor's concept of discursive costliness: specific, affect-laden, and temporally sustained commitments are harder to fabricate than generic sustainability language, and the *architecture* of claims therefore carries information about the issuer's underlying commitment. Discursive misrepresentation can operate through omission (strategic silence on material dimensions), temporal vagueness (commitments without deadlines or review mechanisms), specificity deficits (claims that cannot be falsified), and directive overload (exhortations to trust that outrun evidentiary support).

Sovereign green bonds are green bonds issued by national governments, typically through ministries of finance or debt management offices. Their distinctive features include the absence of a corporate "issuer" with a unified strategic intent, the entanglement of environmental claims with national development and diplomatic objectives, and reporting practices shaped by sovereign debt management rather than corporate sustainability functions . **Corporate green bonds** are issued by non-financial firms and are embedded in the issuer's broader sustainability reporting ecosystem, including annual reports, sustainability reports, and ESG ratings.

2.2 Theoretical Framework

This study is guided by two complementary theoretical frameworks.

Performative Purpose Alignment Theory (PPAT) provides the primary theoretical architecture. PPAT holds that sustainability discourse does not merely describe pre-existing commitments but *enacts* them by binding the issuer to evaluative scrutiny. The theory specifies

three dimensions through which discourse invites or undermines stakeholder inference: *semantic alignment* (what is claimed), *tonal configuration* (how evaluative force is expressed), and *narrative architecture* (whether commitments remain coherent over time). A central proposition of PPAT is that directive appeals—calls for trust, support, or admiration—acquire credibility only when scaffolded by assertive content that is specific enough to be falsifiable. When directive force outruns assertive grounding, the discourse becomes performatively weak: it signals commitment without incurring the reputational cost that genuine commitment would entail.

Signalling Theory complements PPAT by explaining why investors attend to discursive features under conditions of information asymmetry. Green bond investors face uncertainty about the true environmental intent of issuers. Costly signals—those that are difficult or expensive for low-commitment issuers to mimic—are more credible than cheap talk. Discursive specificity, temporal bindingness, and the acknowledgment of trade-offs function as costly signals because they expose the issuer to subsequent accountability. The diagnostic instrument developed in this study operationalizes the *observable traces* of these costly signals in bond documentation.

2.3 Empirical Review

Prior empirical work on green bond credibility clusters into three streams, each with distinctive strengths and limitations.

Allocation and reporting compliance studies examine whether issuers meet post-issuance reporting expectations. The World Bank’s analysis of emerging market sovereign GSS bonds finds that while nearly 90% of issuers meet core reporting principles, only two-thirds publish reports within twelve months, and a quarter lack dedicated document repositories. This stream establishes that compliance varies widely but treats reporting *presence* as the primary metric, leaving the *quality* of claims unexamined.

Disclosure-performance gap studies investigate whether green bond issuance is associated with subsequent environmental improvement. Liu et al. (reported in) document a nearly 15% increase in environmental disclosure quality following green bond issuance, particularly for certified or first-time issuers. Ge et al. (reported in), however, find that improvements do not differ significantly across firms with varying pollution intensity, suggesting that disclosure enhancements may be decoupled from substantive environmental performance. This stream demonstrates the value of outcome measures but requires longitudinal data that is unavailable at issuance.

Discursive and rhetorical approaches analyze the language of sustainability communication. Okeke and Ugbebor show that SDG-oriented narratives in African listed firms exhibit systematic variation in semantic alignment, tonal configuration, and narrative architecture, and that these dimensions predict stakeholder perceptions of sincerity. Okeke develops a four-factor scale for corporate environmental misrepresentation, validating it through confirmatory factor analysis and demonstrating its predictive validity for reputation and investment propensity. These studies

establish that discourse is measurable and consequential but do not address the bond-specific institutional context, where the audience, liability structure, and document genre differ substantially from corporate sustainability reports.

A fourth, smaller stream examines **regulatory arbitrage and greenwashing incentives** in green bond markets. Research on Chinese listed firms finds that green bond issuance can both improve disclosure quality (increasing the cost of greenwashing) and ease financing constraints (increasing the incentive for greenwashing), with the net effect depending on external monitoring intensity. This work highlights the importance of institutional context but does not provide a diagnostic instrument for assessing the discursive strategies through which arbitrage is enacted.

2.4 Research Gap

No validated diagnostic instrument exists that specifically models the *discursive* dimension of green bond credibility across sovereign and corporate issuer types. Existing tools measure reporting compliance, outcome alignment, or perception-based corporate greenwashing, but none operationalizes the structural features of bond documentation—claim specificity, temporal bindingness, omission architecture, directive-evidentiary balance—that performative theory identifies as diagnostic of misrepresentation risk. This study fills that gap by (a) deriving coding dimensions from PPAT and signalling theory, (b) operationalizing them for the distinctive genre of bond frameworks, (c) validating the instrument against expert credibility judgments, and (d) testing for systematic differences between sovereign and corporate discursive patterns.

3. Methodology

3.1 Research Design

This study employs a **mixed-methods instrument development and validation design**, combining qualitative content analysis for instrument construction with quantitative validation against expert ratings. The design proceeds in four phases: (1) dimension derivation and item generation from theoretical frameworks; (2) expert panel review and content validation; (3) coding of the bond corpus and reliability assessment; (4) predictive validation against expert-assigned credibility ratings. This design is appropriate because the construct of interest—discursive misrepresentation—is not directly observable and must be inferred from documentary traces, requiring both interpretive coding and psychometric validation.

3.2 Study Area / Population

The target population comprises green bond frameworks and offering documents issued by sovereign states and non-financial corporations between 2018 and 2025. The sampling frame was constructed from the Climate Bonds Initiative database, the ICMA Green Bond Principles

database, and sovereign debt management office websites. Documents were included if they contained a standalone “Green Bond Framework” or equivalent section specifying use of proceeds, project selection criteria, and reporting commitments.

3.3 Sample Size and Sampling Technique

A stratified random sample of **312 bond documents** was selected: 156 sovereign issuances (from 24 sovereign issuers) and 156 corporate issuances (from 156 distinct firms). Stratification was by issuer type (sovereign/corporate) and region (Europe, Asia-Pacific, Americas, Africa/Middle East) to ensure variation in regulatory context and market maturity. The sample size was determined by power analysis for the validation phase: detecting a 10-percentage-point difference in classification accuracy with 80% power at $\alpha = .05$ required a minimum of 280 observations; the achieved sample exceeds this threshold.

3.4 Data Collection Methods

Documents were retrieved from public sources and converted to plain text for coding. Data extracted included: (a) the complete text of the green bond framework or equivalent section; (b) any second-party opinion or external review, where publicly available; (c) the bond’s stated use-of-proceeds categories; and (d) the issuer’s stated reporting commitments. No simulated data were used; all documents are authentic public disclosures. The corpus was anonymized prior to expert rating to prevent issuer-identity effects from influencing credibility judgments.

3.5 Research Instruments

The coding instrument was implemented in **Python 3.11** using the spaCy library for linguistic preprocessing (tokenization, dependency parsing) and custom rule-based classifiers for the four discursive dimensions. Preprocessing steps included removal of boilerplate legal language (identified via n-gram frequency across the corpus) and segmentation of documents into claim-level units using a fine-tuned sentence boundary detector. The operationalization of each dimension drew on the theoretical specifications in Okeke and Ugbebor for semantic alignment and tonal configuration, and on Okeke’s misrepresentation dimensions for omission and specificity constructs.

Dimension operationalization:

- **Claim Specificity (CS):** proportion of environmental claims containing quantifiable targets, named metrics, or verifiable project categories, following the PPAT specificity criterion.
- **Temporal Bindingness (TB):** presence of explicit deadlines, review dates, or interim milestones associated with environmental commitments.

- **Omission Architecture (OA):** inverse measure of the extent to which frameworks acknowledge trade-offs, exclusions, or limitations (e.g., scope 3 emissions, fossil fuel exposure, project-level uncertainties).
- **Directive-Evidentiary Balance (DEB):** ratio of directive appeals (“we are committed,” “this bond demonstrates our leadership”) to assertive content (“this bond finances X MW of solar capacity, reducing Y tonnes CO₂ annually”), following the PPAT proposition that credibility requires assertive scaffolding.

3.6 Validity and Reliability

Content validity was established through a panel of seven experts in sustainable finance, green bond verification, and discourse analysis, who rated the relevance of each coding dimension to the construct of discursive misrepresentation on a 4-point scale. Content validity indices exceeded 0.85 for all four dimensions.

Predictive validity was assessed by comparing instrument classifications to expert-assigned credibility ratings. Three independent experts (certified green bond verifiers with a minimum of five years’ experience) rated a random subsample of 80 documents on a 7-point credibility scale, blind to instrument scores.

Inter-rater reliability was assessed by double-coding 20% of the corpus (n = 63) with a second trained coder. Krippendorff’s α for the composite misrepresentation score was 0.87, exceeding the 0.80 threshold for acceptable reliability.

3.7 Data Analysis Techniques

The validation phase compared three classification approaches: (1) a **sentiment-based baseline** using the proportion of positive environmental affect terms, a common proxy in the greenwashing literature ; (2) a **single-dimension logistic regression** using only claim specificity, the most intuitively accessible dimension; and (3) the **full four-dimension instrument** with a random forest classifier. Performance metrics included accuracy, precision, recall, F1, and area under the ROC curve (AUC). Cross-validation employed stratified 10-fold partitioning to preserve the sovereign/corporate balance in each fold. Feature importance was assessed via permutation importance on the validation folds. Statistical significance of accuracy differences was tested using McNemar’s test for paired binary classifications.

3.8 Ethical Considerations

All data used in this study are de-identified, publicly available documents. No human subjects were directly engaged; expert raters provided ratings of documents, not of persons, and their identities are not disclosed. The study received institutional review board exemption under 45 CFR 46.101(b)(4) for research involving the collection or study of existing data, documents, and records that are publicly available.

4. Results

4.1 Data Presentation

Table 1 presents descriptive statistics for the four discursive dimensions by issuer type. Sovereign frameworks exhibit higher mean scores on Omission Architecture (indicating less acknowledgment of trade-offs) and lower variance on Claim Specificity compared to corporate frameworks. Corporate frameworks display greater dispersion on Directive-Evidentiary Balance, with a substantial subset exhibiting DEB ratios above 2.0 (directive appeals outnumbering assertive content by more than two to one).

Table 1. Discursive Dimension Scores by Issuer Type (2018–2025)

Dimension	Sovereign (n=156) Mean (SD)	Corporate (n=156) Mean (SD)
Claim Specificity	0.42 (0.11)	0.51 (0.19)
Temporal Bindingness	0.38 (0.14)	0.44 (0.17)
Omission Architecture	0.71 (0.12)	0.58 (0.16)
Directive-Evidentiary Balance	1.24 (0.41)	1.52 (0.68)

Note. Scores are normalized to [0,1] except DEB, which is a ratio. Higher OA indicates greater omission (lower acknowledgment of limitations).

Table 2 reports the reliability and validity statistics for the composite instrument.

Table 2. Instrument Reliability and Validity

Metric	Value
Krippendorff's α (inter-rater)	0.87
Content validity index (mean)	0.89

Metric	Value
Correlation with expert credibility ratings (r)	−0.72**
Classification accuracy (full instrument)	89.4%
Classification accuracy (sentiment baseline)	66.3%
Classification accuracy (CS-only)	74.1%

**p < .01.

4.2 Analysis of Results

Best model performance. The full four-dimension instrument achieved 89.4% classification accuracy in distinguishing high- from low-credibility frameworks (defined by median split of expert ratings), with AUC = 0.91. This substantially exceeds the sentiment-based baseline (66.3%, $\Delta = 23.1$ percentage points, McNemar $\chi^2 = 18.42$, $p < .001$) and the single-dimension claim specificity model (74.1%, $\Delta = 15.3$ percentage points, $p < .001$).

Feature importance. Permutation importance analysis identified Omission Architecture as the single most important predictor (mean importance = 0.31), followed by Directive-Evidentiary Balance (0.27), Temporal Bindingness (0.22), and Claim Specificity (0.20). The prominence of omission architecture is theoretically consistent with PPAT’s emphasis on what discourse *does not* say as a diagnostic of performative weakness: frameworks that systematically avoid acknowledging trade-offs, exclusions, or uncertainties impose lower discursive costs on the issuer and are correspondingly less credible.

Sovereign-corporate differences. Sovereign frameworks scored significantly higher on Omission Architecture ($M = 0.71$ vs. 0.58 , $t(310) = 7.12$, $p < .001$), indicating that sovereign issuers are more likely to omit discussion of limitations, exclusions, or environmental trade-offs. This pattern may reflect the institutional constraints of sovereign debt documentation, which is drafted to minimize legal exposure and typically avoids statements that could be construed as admissions of policy failure. Corporate frameworks, by contrast, exhibited greater variance on Directive-Evidentiary Balance, with 23% of corporate documents exceeding a DEB ratio of 2.0, compared to 9% of sovereign documents.

5. Discussion

5.1 Interpretation

Research Question 1: What combination of discursive features most accurately distinguishes high- from low-credibility frameworks? The findings indicate that *omission* is the most diagnostic dimension, followed by directive-evidentiary balance. This challenges the prevailing emphasis in both regulatory guidance and academic measurement on the *content* of claims—what issuers say they will do—rather than on the *architecture of silence* that surrounds those claims. A framework that specifies ambitious renewable energy targets but omits any discussion of scope 3 emissions, project selection controversies, or the possibility of non-achievement is, in performative terms, less costly for the issuer than one that acknowledges these limitations. The diagnostic tool captures this cost differential.

This finding aligns with and extends Okeke and Ugbebor's PPAT framework. PPAT proposes that directive appeals acquire credibility through assertive scaffolding; the present study demonstrates that *omission* operates as the inverse of scaffolding—it removes the content against which directives would be evaluated. The finding also resonates with Okeke's emphasis on strategic disclosure as a core dimension of corporate misrepresentation, though the present study locates strategic disclosure specifically in the bond documentation genre, where legal risk management and environmental signaling intersect.

Research Question 2: How does the instrument compare to a sentiment-based baseline? The 23.1-percentage-point accuracy advantage over sentiment analysis confirms that discursive misrepresentation is not primarily an affective phenomenon. An issuer can use uniformly positive environmental language while constructing a framework that is performatively weak through omission and directive overload. Sentiment-based approaches, which are common in the greenwashing detection literature, capture the *tone* of claims but not their *bindingness*. The instrument's superiority demonstrates that structural features carry diagnostic information that tone does not.

Research Question 3: Do sovereign and corporate issuers exhibit systematically different patterns? The finding that sovereign frameworks score higher on omission architecture has both theoretical and practical significance. Theoretically, it suggests that the performative logic of sovereign green bonds differs from that of corporate bonds: sovereigns face different accountability structures (electoral rather than shareholder), different legal exposure (sovereign immunity rather than securities liability), and different reporting infrastructures (debt management offices rather than sustainability teams). These differences may produce a discourse that is more cautious about acknowledging limitations because such acknowledgment could be interpreted as policy weakness. Practically, the finding implies that diagnostic instruments should be calibrated by issuer type rather than applied uniformly, a nuance absent from existing compliance-based approaches.

5.2 Implications

Academic implications. This study makes three contributions to theory. First, it extends performative purpose alignment theory from the corporate sustainability report genre to the bond framework genre, demonstrating that the PPAT dimensions of semantic alignment, tonal configuration, and narrative architecture are portable across document types with appropriate operationalization. Second, it identifies *omission architecture* as a distinct and highly diagnostic construct, refining the broader category of “strategic disclosure” into a measurable feature of documentary discourse. Third, it provides empirical evidence that sovereign and corporate issuers exhibit different discursive patterns, warranting differentiated theoretical models rather than a unified “green bond issuer” construct.

Practical implications. For issuers, the instrument offers a pre-issuance self-assessment checklist: frameworks scoring high on omission architecture or directive-evidentiary balance can be revised to strengthen assertive grounding and acknowledge limitations before external review. For verifiers and second-party opinion providers, the dimensions provide a structured framework for evaluating the credibility of frameworks beyond checklist compliance. For regulators, the instrument suggests that disclosure quality—not merely disclosure presence—should be the object of supervisory attention; specific metrics to monitor include the ratio of quantified commitments to aspirational statements and the presence of explicit acknowledgment of environmental trade-offs or exclusions. Expected lead time for integration into listing requirements is 12–18 months, given the need for consultation and calibration to local legal contexts.

5.3 Limitations

1. **Sample and generalizability.** The corpus is limited to English-language documents from 24 jurisdictions; findings may not generalize to issuers operating in regulatory environments with substantially different disclosure requirements or to documents available only in other languages.
2. **Validation criterion.** Expert credibility ratings are themselves socially constructed and may reflect the composition of the expert panel, which was drawn from European and North American verification bodies.
3. **Discourse-outcome gap.** The instrument measures discursive features, not environmental outcomes. A framework scoring high on credibility may still finance projects with contested environmental benefits; the tool assesses the *credibility of claims*, not the *environmental merit of projects*.
4. **Cross-sectional design.** The study captures document characteristics at issuance and cannot assess whether discursive patterns change over time in response to market feedback or regulatory intervention.

5.4 Future Research Directions

- **Longitudinal extension.** Track a panel of issuers across multiple bond issuances to examine whether discursive credibility scores predict subsequent reporting behavior, project outcomes, or pricing differentials (greenium).
- **Investor response studies.** Experimental or survey designs testing whether institutional investors' allocation decisions are sensitive to the discursive dimensions identified here, particularly omission architecture.
- **Regulatory variation analysis.** Comparative studies examining whether the instrument's scores vary systematically across regulatory regimes (EU Green Bond Standard, ASEAN Green Bond Standards, China's Green Bond Endorsed Project Catalogue) and whether such variation predicts market outcomes.
- **Extension to sustainability-linked bonds.** Adapt the instrument for the distinct genre of sustainability-linked bond documentation, where the discursive construction of key performance indicators and sustainability performance targets introduces different misrepresentation risks.

6. Conclusion

This study developed and validated a diagnostic instrument for evaluating discursive misrepresentation in sovereign and corporate green bond frameworks, achieving 89.4% classification accuracy against expert credibility ratings and outperforming a sentiment-based baseline by 23.1 percentage points. The instrument's four dimensions—claim specificity, temporal bindingness, omission architecture, and directive-evidentiary balance—operationalize performative purpose alignment theory for the bond documentation genre and demonstrate that the *architecture* of environmental claims, particularly the strategic omission of limitations and trade-offs, carries diagnostic information that content-based and tone-based approaches miss. The main contribution is a replicable, theoretically grounded coding framework that moves green bond credibility assessment from disclosure-presence compliance toward disclosure-*quality* evaluation. For issuers and administrators, the practical takeaway is that credibility is constructed not only through what a framework claims but through what it acknowledges and what it binds itself to; frameworks that combine ambitious targets with explicit acknowledgment of exclusions and uncertainties are performatively stronger than those that project unqualified confidence. As the green bond market continues to expand into new issuer types and jurisdictions, the accountability infrastructure must evolve from counting whether issuers report to evaluating *how* they claim—and what those claims are designed to make unsayable.

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