

*"Cui prodest? The heterogeneous impact of green bonds  
on companies' environmental performance"*

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19th South-Eastern European Economic Research Workshop

Bank of Albania, Tiranë, Albania

November 6-7, 2025

## Main Results (I)

The paper's results are compelling and robust:

- The central finding, i.e. green bond issuance significantly improves the ESG (specifically the E) scores of initially “brown” firms but not “green” firms, is strongly supported by the empirical evidence (Table 1, Table 2) and is consistent with the theoretical model's predictions.
- The result is robust to alternative definitions of “brown” firms (e.g. sector-specific medians), focusing on debut bonds, and different econometric specifications.

## Main Results (II)

- The extension analyzing the “use of proceeds” is a valuable contribution. The finding that mitigation bonds (particularly for clean transportation and construction) have the strongest impact on ESG scores and the largest greenium (Tables 4 and 5) is novel and provides actionable insights.
- The link between a larger greenium and a greater improvement in environmental performance, as predicted by the model, is convincingly established.

⇒ These results significantly advance our understanding of *how*, *for whom*, and *under what conditions* green bonds are an effective tool for promoting corporate environmental responsibility.

⇔ However, ...

## *Discussion and Suggestions for Improvement*

- Cool title!
- The paper represents a substantial contribution to the literature
- The following suggestions are intended to build upon the paper's already strong foundation
- Addressing even a subset of these points would further enhance the paper's contribution and robustness.

## A General Comment

- Aren't three research questions too many?
- **Q1** Are the green bond placements able to improve the environmental performance of the issuer via an increase in the ESG score, and the E score in particular?
- **Q2** Is the effectiveness of green bonds influenced by the use of their proceeds?
- **Q3** Do investors (differently) price the "use of proceeds" to which the issuing company committed in the green bond prospectus?

## A Suggestion

- **Paper 1 (theoretical and empirical models):**
  - 1 **Q1** Are the green bond placements able to improve the environmental performance of the issuer via an increase in the ESG score, and the E score in particular?
- **Paper 2 (empirical model):**
  - 1 **Q2** Is the effectiveness of green bonds influenced by the use of their proceeds?
  - 2 **Q3** Do investors (differently) price the "use of proceeds" to which the issuing company committed in the green bond prospectus?

## Theoretical Framework Considerations

- The assumption of a perfectly inelastic capital supply ( $\bar{k}$ ) is restrictive. In reality, the total capital available for green projects might expand as investor demand grows.
- The model treats the greenium ( $\delta$ ) as exogenous. A valuable extension would be to endogenize the greenium, perhaps by modeling how investor preferences interact with the perceived credibility of different "uses of proceeds" or certification standards.
- The binary technology choice (clean vs. polluting) could be extended to consider gradual technological transitions, which might better reflect real-world corporate decarbonization pathways.

## Empirical Robustness Checks

- **Alternative ESG Metrics:** While the paper uses LSEG Data Analytics, cross-validation with other ESG providers (e.g., MSCI, Sustainalytics) would test whether results are sensitive to ESG measurement methodologies.
- **Longer-term Effects:** The analysis focuses on a two-year post-issuance window. Examining effects over 3-5 years would reveal whether the ESG improvements are sustained or represent short-term responses.
- **Geographical Heterogeneity:** The global sample masks potential regional differences. Sub-sample analyses by region (EU vs. North America vs. Asia) could reveal how regulatory environments or market maturity affect green bond effectiveness.
- **Greenwashing Controls:** While the paper addresses certification, additional analysis could control for the quality of third-party verification or alignment with international standards (e.g., Green Bond Principles), which might affect both greenium size and environmental impact.



## Methodological Considerations

- **Selection Bias:** While the parallel trends assumption is tested, the decision to issue green bonds is non-random. A more formal treatment of selection (e.g., using a Heckman selection model or instrumental variables) could address potential unobservable factors driving both green bond issuance and ESG improvement.
- **Spillover Effects (and Supply Chain):** The analysis assumes no interference between treated and control firms. However, green bond issuance by one firm might affect the ESG performance of competitors through competitive pressures or industry norms. Spatial or industry diffusion models could explore these spillovers.

## Conceptual Limitations

- **ESG Score as Proxy:** While ESG scores are standard proxies, they have known limitations regarding transparency and methodology. The paper could more explicitly discuss these limitations and how they might affect the interpretation of results.
- **Mechanism Exploration:** The paper establishes *that* brown firms improve their E-scores, but could do more to explore *how*.
- **Investor Heterogeneity:** The model assumes homogeneous investor preferences. Empirical exploration of how different investor types (e.g., dedicated green funds vs. conventional asset managers) affect both greenium size and environmental outcomes could be fruitful.

## Policy Implications Nuance

- The suggestion for central banks to target **brown** firms' green bonds should consider potential financial stability implications, as these firms may carry **higher transition risks**.
- The discussion could address how policy might encourage **standardization in "use of proceeds" reporting** to reduce information asymmetries and potentially increase the greenium for currently less-favored categories.