

# Greeniums and Sovereign Debt: A Short Report

Audrey Azerot

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## Abstract

This report explores the presence and significance of the *greenium*—the yield differential between green and conventional (“brown”) bonds—in sovereign debt markets. The evidence suggests that sovereign greeniums are modest, averaging around 3 basis points, and can vary over time. While some emerging markets appear to exhibit higher greeniums, the robustness of this finding remains uncertain. Case studies from countries like Germany and Denmark, which have issued near-identical twin bonds, confirm the existence of greeniums, albeit small in magnitude.

## 1. Introduction: What is a Greenium?

The term **greenium** (short for “green premium”) refers to a yield discount that green bonds may enjoy compared to otherwise equivalent non-green (“brown” or conventional) bonds. It is typically measured as the yield spread between two bonds that are identical in maturity, seniority, issuer, and currency, but differ by the presence of a green label.

**Measuring Greeniums.** Perfectly matched green and brown bonds are rare, which complicates precise measurement. Researchers typically rely on three main approaches:

- (1) **Regression-based methods** that control for observable bond characteristics.
- (2) Use of **twin bonds**—nearly identical bonds differing only in their green label, such as those issued by Germany and Denmark.
- (3) **Matching techniques** that pair bonds with similar attributes such as maturity, rating, and issuer.

Each method has limitations, particularly regarding unobserved heterogeneity and small sample sizes.

**What Explains the Greenium?** Several theories have been proposed:

- **Supply-demand imbalance:** If demand for green bonds exceeds supply, greeniums may emerge. As markets mature, this premium may diminish, as seen in corporate bond markets (Stubbington 2021).
- **Non-pecuniary motives:** Investors may value the environmental impact of their investments and accept lower returns as a trade-off. Studies show that green bonds certified by an independent entity tend to exhibit higher greeniums (Pietsch and Salakhova 2022).
- **Risk-related characteristics:** Green bonds may be perceived as safer investments due to enhanced transparency, more stable pricing, and lower turnover (Meyer and Henide 2021). Issuers of green bonds—especially sovereigns—are also typically highly credible.

**Why Greeniums Matter.** Greeniums are important for two key reasons:

- **Cost of capital:** A persistent greenium suggests lower financing costs for green projects, effectively increasing relative costs for brown investments.
- **Climate finance policy:** Sovereign green bonds are a central tool in climate finance strategies aligned with COP30 and the Sustainable Development Goals.

A substantial greenium could indicate that climate transition funding, particularly in developing nations, can rely more on private capital. Conversely, if greeniums are small or unstable, complementary policy instruments may be required.

## 2. Is There a Greenium in Sovereign Bond Markets?

Evidence of greeniums in sovereign bond markets varies depending on the country context.

### 2.1. Greeniums in Developed Countries

Studies leveraging twin bond issuances in countries like Germany and Denmark provide direct evidence of greeniums. Ando et al. (2024) find that greeniums do exist, but are generally small—around **3 basis points (bps)** and fluctuate over time. In some instances, they may even turn negative or become statistically insignificant.

Research by the Banque de France Descombes and Szczerbowicz (2024) further reveals that greeniums vary across European countries (France, Germany, Italy) in ways not fully explained by supply-demand dynamics. Instead, bond-specific idiosyncrasies seem to drive these differences, complicating generalizations.

In the United States, studies focusing on municipal and state bond markets find that greeniums depend on issuance timing. When green and brown bonds are issued simultaneously, no greenium is observed in the primary market (Baker et al. 2022; Larker and Watts 2020). However, in the secondary market—or when issuance is non-simultaneous—small greeniums, comparable to those in the Eurozone, are observed.

In summary, developed countries exhibit modest and inconsistent greeniums.

## 2.2. Greeniums in Emerging Markets

According to an IMF study (Ando et al. 2024), emerging markets show significantly higher average greeniums than their developed counterparts. The analysis covers 23 green bonds across 15 countries and relies on regression techniques rather than perfectly matched bond pairs. This introduces limitations due to small sample sizes and less precise matching.

Several factors may contribute to the higher greeniums observed in emerging markets:

- Support from international organizations (e.g., IMF, World Bank) may reduce perceived risk, making green bonds more attractive.
- Green projects in these countries may have higher marginal environmental benefits, given their lower baseline for sustainability.

While the evidence is suggestive, it is not conclusive, and the robustness of these findings remains in question.

## 3. Conclusion

Sovereign greeniums do exist, but they are generally **small** and highly context-dependent. In advanced economies like Germany and Denmark, greeniums range between **1–6bps**, often within normal yield volatility. Although emerging markets may display larger greeniums, the evidence is less robust due to weaker bond matching and greater market heterogeneity.

Policymakers should approach the use of sovereign green bonds with realistic expectations. While greeniums may help reduce financing costs for sustainable investments, their size and stability are not guaranteed. As such, sovereign green bonds should be part of a broader climate finance strategy rather than a standalone solution.

## References

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