Do green sovereign bonds benefit from a green premium?

This post is part, with the post 379 "Green premium: can firms fund their green projects at a lower cost? » and post 381 "Valuation of the climate risk of corporate bonds" of the series dedicated to **"Green Premiums".**

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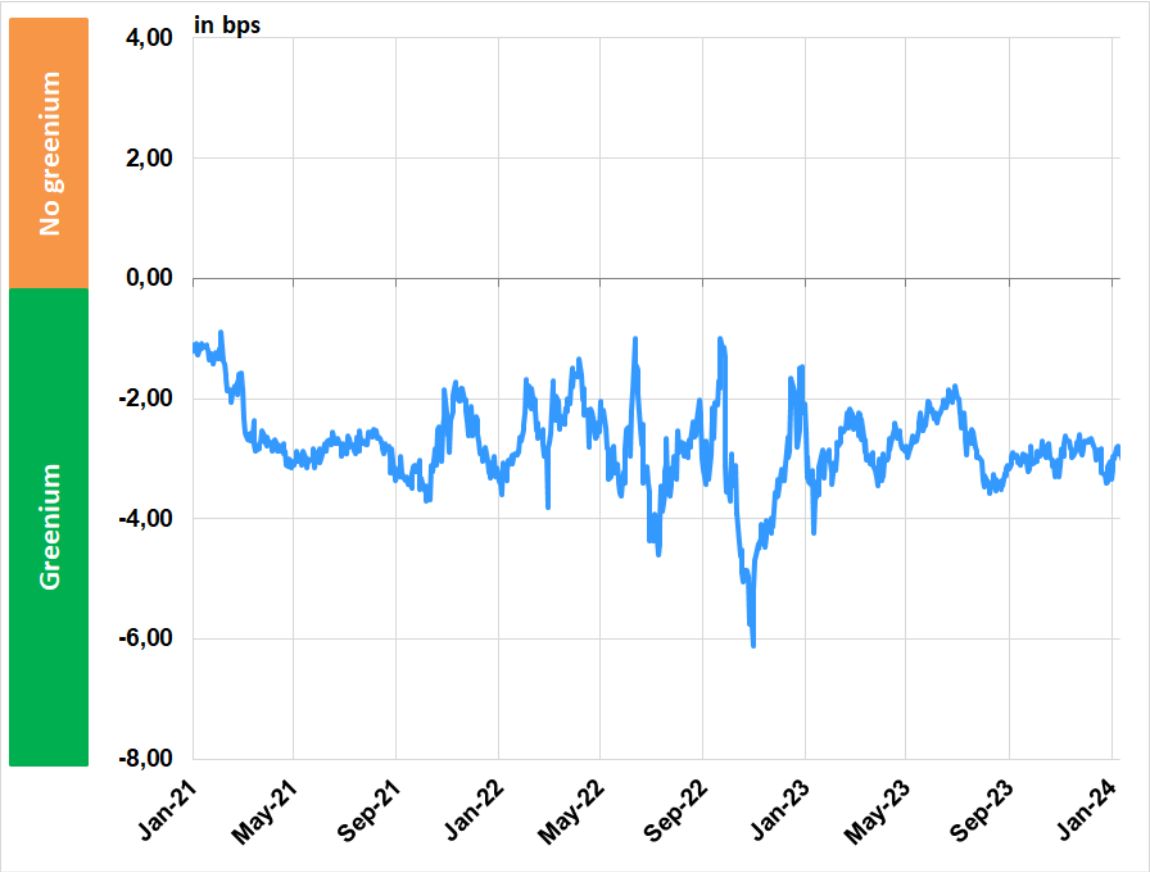
An increasing number of governments are issuing green bonds to finance their environmental projects, thereby contributing to the development of the green bond market. This post shows that, in the euro area, the market price of these bonds is higher than that of equivalent conventional bonds, and takes a look at the factors underpinning this green premium (or "greenium").

Chart 1: Weighted average "greenium" on euro area sovereign bonds



Note: average valuation (zero volatility spread) of sovereign green bonds and their comparable peers, weighted by outstanding amount issued from 01/01/2021 to 01/15/2024.

Source: Bloomberg, Banque de France calculations.

Governments are the driving force behind the development of the green bond market

Green bonds are securities used to raise funds to finance projects with an explicit environmental benefit. These instruments provide governments with a stable source of financing for their environmental objectives, such as the European Union's objective of carbon neutrality by 2050.

The strong growth of the global green bond market (Descombes et al. 2022), particularly in the sovereign segment, attests to the interest taken by both issuers and investors in this type of instrument. Demand for these securities is apparently so great that they trade on the secondary market at a higher price than other similar securities without a green label. This

price differential is known as a green premium or "greenium". But is this the right explanation in the case of euro area sovereign green bonds?

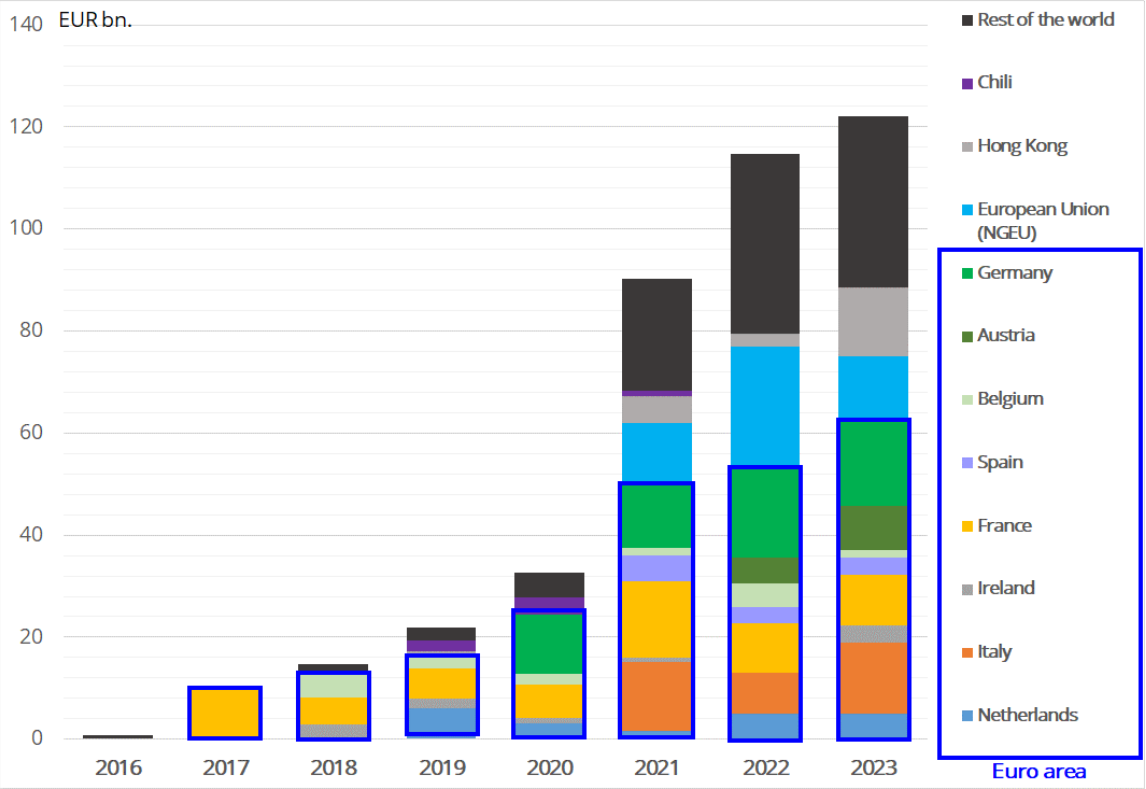
This work on sovereign green bonds is linked to two other posts that take a look at this "greenium" on the market for green corporate bonds (Chouard and Jourde, 2024), and conventional bonds issued by green companies (Clémentin and Serge, 2024).

A euro area sovereign bond "greenium" persists despite rising supply

This post examines the "greenium" on green bonds issued by euro area Member States since the first issue of this type by France in 2017, i.e. 21 green bonds, for a total outstanding amount of EUR 214 billion, issued by Austria, Belgium, France, Germany, Italy, Ireland, the Netherlands and Spain. The maturities of these bonds range from 5 to 29 years. We compare the valuation of each green sovereign bond (the "zero volatility spread") with that of conventional debt securities issued by the same issuer and maturing over the same period: using this measure, if the bond valuation is higher, this reflects a "greenium". The observation period has been shortened from January 2021 to mid-January 2024 (years with significantly higher issuance volumes). Over this period, an average green premium of -2.8 basis points (bps) has been observed (Chart 1). Unlike corporate bonds (Chouard and Jourde, 2024https://www.banque-france.fr/en/publications-and-statistics/publications/green-premium-can-firms-fund-their-green-projects-lower-cost), sovereign bonds thus continue to benefit from a "greenium" even over the most recent period.

Regardless of the issuer, one explanation generally put forward to justify the existence of this premium is the relative scarcity of green bonds. This is in line with the survey conducted by the Climate Bonds Initiative (Climate Bonds Green Bond European Investor Survey, 2019), which found that investors would like to see more green bond issues. For sovereign bonds, green bond issues remain limited as a proportion of total issuance, despite strong growth since 2016 (Chart 2). While sovereign green bond issuance has posted particularly strong growth in the euro area and the European Union, its share of total sovereign bond issues remains small (5% of total issuance in the euro area in 2023), with disparities across countries (6% for Germany, 4% for Italy and 3% for France). This suggests a supply-demand imbalance that could explain the enduring "greenium" on sovereign green bonds.

Chart 2: Volumes of sovereign green bonds issued worldwide since the first issue in 2016



Source: BloombergNEF, authors' calculations

The usual explanations for "greeniums" are inadequate in the case of sovereign bond issues

In 2023, French, German and Italian green bonds benefited from a weighted average "greenium" of - 1.8 bps, - 3.1 bps and -5.2 bps, respectively, resulting in a "greenium" differential that does not reflect the relative "scarcity" of green bond issues in each country observed above.

For corporate bonds, other determinants have been put forward in the literature, but remain inadequate to explain this differential between euro area country sovereign bonds:

- no "country effect": despite the differences observed, statistically, the issuer does not emerge as a significant explanatory factor for the sovereign bond "greenium" in our sample. One possible explanation is that all the sovereign green issuers considered in this post have established a framework in line with that developed by the International Capital Market Association (the Green Bond Principles), confirming the key role played by governments in promoting standards for green bond classification and verification (Cheng et al. 2022). The sovereign "greenium" therefore differs from the corporate "greenium", for which the credibility of the issuer is an explanatory factor (Chouard and Jourde, 2024);

- no impact of government credit rating on the sovereign “greenium”. The “greenium” differential, in decreasing order of importance, between Italy, Germany and France shows that the credit rating of these countries (in decreasing order of quality: Germany, France and Italy) plays no role in determining the sovereign “greenium”, whereas this criterion plays a significant role in the “greenium” of private issuers (Clémentin and Serge, 2024https://www.banque-france.fr/en/publications-and-statistics/publications/measuring-climate-risk-corporate-bonds).

Issue-specific factors explain sovereign bond “greeniums”

The German case may be attributable to the small size of green bond issues compared to conventional bond issues on the German market. The German federal debt manager issues its green bonds within a highly restrictive “twin bond” framework: green bonds are issued a few days after conventional bonds with identical characteristics (coupon, maturity date) except for the green nature of the projects financed and the smaller volume issued. In this case, the “greenium” is partly attributable to the notable difference between the total outstanding amount of green bonds and the total outstanding amount of “twin” bonds (average bond issue size: EUR 9 billion for a green Bund, compared with EUR 33 billion for a twin Bund).

In the case of France, it appears that the 2044 green OAT did not benefit from a significant “greenium” in 2023, while the 2039 green OAT benefited from an average “greenium” of -3.1 bps. This observation suggests that idiosyncratic factors play a significant role in determining this sovereign bond “greenium”. The same issuer may benefit from a “greenium” on some green bonds and not on others, even though it enjoys the same level of credibility regarding its environmental commitments and displays the same ratio of green bonds to total bonds. These idiosyncratic factors include the amounts raised, the security's liquidity, residual maturity and investor base. Thus, the “greenium” is greater on short-dated bonds: bonds with maturities of five years or less benefit from a higher premium than longer bonds (-7 bps compared with -1.5 to -3 bps on longer-dated bonds).

However, in our study, each residual maturity basket is small (three to five securities), with highly variable premiums from one security to another: it is therefore difficult to pinpoint a strong causal link at this stage. The green sovereign bond market is growing rapidly and future studies will benefit from higher volumes of securities over a longer period. This will contribute to a better understanding of the determinants of “greenium” differentials between euro area countries.