

Expanded abstract

Green and social bonds to finance sustainable projects in the European Union

Objectives

To mitigate the economic and social damage caused by the COVID-19 pandemic, in 2020, the EU launched the European Recovery Fund program, known as “Next Generation EU” (NGEU), endowed with 750 billion euros, with the aim of boosting economic activity and achieving more sustainable, greener, digital, and resilient growth. Additionally, to address the negative social and economic effects caused by the pandemic, the European Commission approved Regulation EU 2020/672, known as SURE, aimed at mobilizing up to 100 billion euros to preserve employment in the member states. To finance both programs, the EU issued, for the first time, green and social bonds.

One of the topics widely studied in the scientific literature, with varying results, is the so-called green premium, especially in the U.S. and Chinese markets. However, research on social bonds, specifically regarding the social premium, is scarce in the scientific literature. The fact that the EU has become one of the main issuers of euro-denominated debt due to the NGEU and SURE programs justifies an investigation into its green and social bonds, particularly given the EU's top credit rating. This paper analyzes whether these bonds, issued by the EU, offer lower yields compared to their conventional counterparts in the secondary debt market. Using a linear regression model, the study examines whether differences in liquidity, volatility, and bond type (environmental or social) have an influence. The hypotheses tested in this work were, firstly (H1), that ESG bonds yield lower returns than conventional bonds, thus inferring a green or social premium; secondly (H2), the hypothesis tested whether liquidity differences are an explanatory factor for yield differences between ESG and conventional bonds; thirdly (H3), whether volatility differences can be considered another factor explaining yield differences; and finally, the fourth hypothesis (H4) assumes there are no differences between the green and social premiums of bonds issued by the EU.

Methodology

To conduct the research, all bonds issued by the EU and listed on the Luxembourg Green Exchange (LGX) index were selected; of the seventeen selected bonds, thirteen were social bonds from the SURE program, and four were green bonds aimed at financing NGEU environmental projects. Additionally, all other bonds issued by the EU that were trading at the time of sample selection were included, specifically sixty-two conventional bonds issued by the same institution. Using the ISIN codes of each of the seventy-nine bond issuances (ESG and conventional)

made by the EU, complete price data were collected from the Refinitiv Eikon-ESG Bond Guide database for the period between April 1, 2023, and March 31, 2024. For this study, each ESG bond issued by the EU was compared with a synthetic conventional bond obtained through the matching method, resulting in a sample composed of seventeen ESG bonds and the same number of comparable synthetic bonds.

The dependent variable selected was the average daily yield difference between ESG and conventional bonds. The independent variables considered were the average daily liquidity and volatility differences between the two types of bonds. Additionally, to analyze the differences between green and social bonds, a binary variable was introduced, taking a value of 0 if the ESG bond was labeled as social under the SURE program or 1 if it was a green bond intended to finance environmental projects under the NGEU program.

Results

Firstly, the first hypothesis is confirmed, as the yield of the ESG bonds (both social and green) issued by the EU is lower than the yield of the conventional bonds from the same issuer. As for the second hypothesis, it is accepted that the liquidity of the bond explains the yield difference between ESG and conventional bonds, specifically, higher levels of ESG bond liquidity lead investors to demand higher returns. Regarding bond volatility (third hypothesis), this also explains the yield difference between ESG and conventional bonds. In fact, investors in green and social bonds issued by the EU in the secondary market accept lower yields in exchange for lower volatility, in line with standard financial theory and previous studies on the green and social premium. Finally, the fourth hypothesis is rejected, as the social premium is found to be larger than the green premium in the secondary market, meaning that investors in ESG bonds issued by the EU are willing to pay a higher price for social bonds compared to green bonds.

Conclusions

Given the significance of the European green bond market on a global scale and the EU's leading role in both regulatory development and environmental and social policies, this institution was selected for this study as it is one of the largest issuers of green and social bonds worldwide.

The main contribution of this paper is to demonstrate that, in the secondary market, the premium for bonds financing social projects (13.89) is greater than that for bonds financing environmental projects (4.22). Although environmental regulations and academic literature primarily focus on climate-related aspects and green bonds, ESG bond investors issued by the EU seem to show a preference for social bonds. Furthermore, in general, based on the results, EU ESG bond investors in the secondary market appear willing to pay for the environmental and social characteristics of these investments.

Regarding the other explanatory variables, secondary market investors in EU-issued ESG bonds are not impacted by the low levels of liquidity these bonds may present. Moreover, with respect to volatility, our results show that investors require higher returns for more volatile bonds, consistent with expectations and standard financial theory.

This research is not without limitations. It only analyzes the issuances made by the EU to finance the NGEU programs and Regulation 2020/672. Regarding the green and social premiums evidenced, and considering the destination of the funds, there is a possibility that the results would have been different if the bonds had been issued for other types of social or environmental programs or projects. Lastly, the results might have differed if the research had been conducted at a different point in time.

To address some of these limitations, future research could investigate upcoming EU bond issuances to determine whether the results from the secondary market influence yields on future issuances, potentially offering a financing cost advantage. Additionally, future studies could analyze issuances intended to fund other social and environmental programs to see if the results remain stable or vary. Finally, as suggested earlier, another research avenue would be to compare these results with other major ESG bond issuers in the EU, such as the EIB, making it a priority to continue investigating social bonds, both those issued by the EU and other issuers.