

Do Sustainability Metrics Matter? ESG Effects on Green Bond Premiums

Wen-Wen Cheng^a and Chia-Lin Chang^{b,c,d} 

^a CTBC Bank Co., Ltd., Taichung, Taiwan

^b Department of Applied Economics, National Chung Hsing University, Taiwan

^c Department of Finance, National Chung Hsing University, Taiwan

^d Institute of Economic Research, Kyoto University, Japan

Email: changchialin@email.nchu.edu.tw

Abstract: This study investigates how Environmental, Social, and Governance (ESG) performance and Corporate Social Responsibility (CSR) engagement affect global green bond pricing. Using 663 matched green–conventional bond pairs (2013–2024) and a two-stage regression framework, we estimate the green premium and test its drivers. Higher Environmental scores lower premiums, while higher Social scores raise them, reflecting contrasting investor responses. CSR strategy scores show no significant impact on pricing.

Keywords: Green Bonds, ESG Performance, CSR Engagement

1. INTRODUCTION

Green bonds are a key financing tool for renewable energy, energy efficiency, and low-carbon projects, enabling investors to support climate goals while meeting socially responsible investment objectives (Bhutta et al., 2022). Their credibility depends on transparency and standards such as the Green Bond Principles (GBP) and Climate Bonds Standard (CBS) (Ehlers & Packer, 2017; Hyun et al., 2021). Since the 2015 Paris Agreement, issuance has exceeded USD 2.16 trillion, with strong growth in Asia-Pacific, including Taiwan’s regulated market launched in 2017. Yet concerns over greenwashing remain, driving calls for stronger certification and disclosure. This study examines how issuer-level Environmental, Social, and Governance (ESG) performance and Corporate Social Responsibility (CSR) engagement influence green bond pricing. Using a matched sample and Zerbib’s (2019) two-stage framework, we estimate green premiums and assess the role of ESG/CSR metrics in explaining yield differences, offering insights for investors, issuers, and policymakers.

2. METHODOLOGY AND RESULTS

Using Zerbib’s (2019) two-stage framework, we match 6,042 labelled green bonds with 310,774 conventional bonds from Refinitiv Datastream (2007–2024), yielding 663 pairs (450,931 daily observations). Stage 1 estimates green premiums via fixed-effects regression on yield spreads, controlling for liquidity (bid–ask differences). Stage 2 regresses premiums on ESG sub-scores, a composite CSR score, and bond/issuer controls.

The sample is mostly European (71%), banking sector (46%), and investment grade (74%), with a mean premium of 3.19 bps. Table 1 shows liquidity as a key spread driver. Table 2 indicates Environmental scores lower premiums, Social scores raise them, while Governance and CSR scores are insignificant. Bank-issued bonds have higher premiums, underscoring investor confidence and the greater pricing relevance of detailed ESG metrics over broad CSR measures.

Table 1 First-Stage Fixed Effects Regression Results

Explanatory Variable	Coefficient
$\Delta Liquidity_{i,t}$	82.235*
Constant	-844.502*
Observations	450,931
Adjusted R^2	0.958
F Statistic	5.73e+06***

Note: Dependent variable represents the yield differential between a green bond and its matched conventional bond. Robust standard errors are reported in parentheses. *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

Table 2 Effects of ESG Scores and Bond Characteristics on Green Premium

Variable	Coef.
Environmental score	2.454***
Social score	-3.722***
Governance score	0.538
CSR strategy score	-0.019
Observations	663

Note: *** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$.

3. CONCLUSION

Using 663 matched global green bonds (2013–2024) and a two-stage regression, we find Environmental scores lower premiums while Social scores raise them; Governance and CSR scores are insignificant. Bank-issued bonds carry higher premiums, reflecting greater credibility. Results show investors value detailed ESG metrics over broad CSR measures, highlighting the need for targeted sustainability disclosures. Strong ESG performance lowers financing costs, while limited CSR impact suggests a need for standardized reporting. Future work should broaden time, sector, and regional coverage to better understand market and policy influences on green bond pricing.

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