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SUSTAINABILITY & CLIMATE RISKS

THOUGHT LEADERSHIP BRIEF SERIES

Greenwashing Risks in the Corporate Green Bond Markets: An Expenditure-based Measurement

Keith Jin Deng Chan and Wilson Tsz Shing Wan

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KEY POINTS

- Greenwashing undermines the credibility of green financial instruments and jeopardizes climate outcomes.
- We propose an expenditure-based indicator that directly captures a firm's environmental investment behavior, offering a clearer lens into its true sustainability commitment.
- Institutional investors tend to favor high-risk green bond issuers with low transition capacity, an allocation that may inadvertently amplify greenwashing and climate risk. When constrained in the bond market, these issuers increasingly turn to green loans, thereby transferring greenwashing risk to creditor banks.
- Policymakers can mitigate these distortions by incentivizing low-carbon technology diffusion and integrating expenditure-based greenwashing indicators into bank portfolio monitoring frameworks.

ISSUE

The corporate green bond market has expanded rapidly, from USD 1 billion in 2012 to over USD 1.8 trillion in 2023, growing from below 0.01% to almost 5% of the global corporate bond market. Green bonds theoretically reduce greenhouse gas (GHG) emissions by channeling resources into environmental initiatives. Across 112 global issuers, we find that a 1% rise in environmental expenditure leads to a 1.5 percentage-point reduction in year-on-year GHG intensity growth. Similarly, a 1% increase in green bond outstanding corresponds to a 0.33% increase in environmental expenditure, indicating that larger issuance tends to yield greater investment in decarbonization.

However, greenwashing risk - the likelihood that a company makes unsubstantiated or misleading claims about its environmental commitment - continues to challenge the integrity of climate finance.

Existing greenwashing risk measurement, such as reported post-issuance improvements in firms' environmental performance, do not necessarily reflect authentic commitment, as performance can be externally driven. Despite growing attention to this issue, how to measure firm-level greenwashing risk and its market implications remains poorly understood. Our paper introduces a novel, expenditure-based metric that evaluates how a firm's actual environmental spending deviates from its expected level. Unlike conventional measures that rely on observed performance changes affected by external factors, our approach provides a direct reflection of a firm's genuine commitment and effort toward environmental improvement.

Using this measure, we find that institutional investors generally reduce holding for firms with higher greenwashing risk, they might paradoxically allocate more capital to those issuers if the latter possess low transition capacity. When unable to issue additional green bonds, these firms frequently resort to green loans, exposing banks to parallel greenwashing risks.

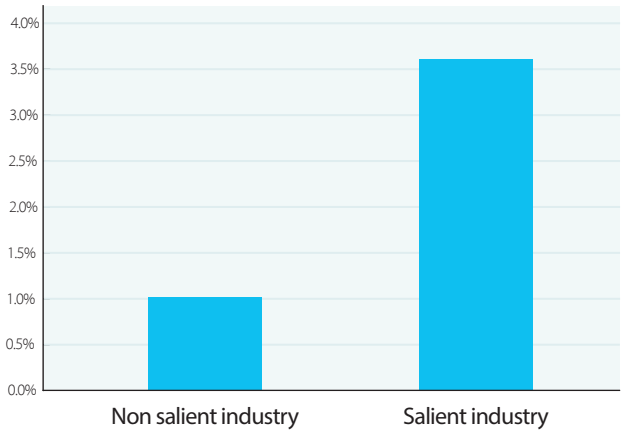
ASSESSMENT

Measuring Greenwashing Risk

We estimate the expected environmental expenditure for each firm using fixed effect regression. The gap between this estimate and actual spending quantifies a firm's greenwashing risk: larger shortfalls indicate higher risk. High-risk issuers, on average, have green bond sizes that are 20% smaller and environmental expenditures 50% lower than low-risk peers, suggesting potential misallocation of bond proceeds. They also exhibit higher yields, smaller size, greater leverage, lower capital investment, and weaker Environmental, Social, and Governance (ESG) scores, particularly in environmental and governance pillars.

Figure 1 illustrates the estimated changes in the growth rate of annual GHG intensity resulting from a one-standard deviation increase in our expenditure-based greenwashing risk measure. A salient industry is defined as firms in the Energy or Utilities sectors. This expenditure-based risk measure strongly predicts progress made in decarbonization within high-emitting industries, an area where traditional measures fail. This offers actionable insight for governments aiming to accelerate transition efforts in sectors that struggle to reduce GHG emissions.

Figure 1: Estimated changes in the growth rate of annual GHG intensity

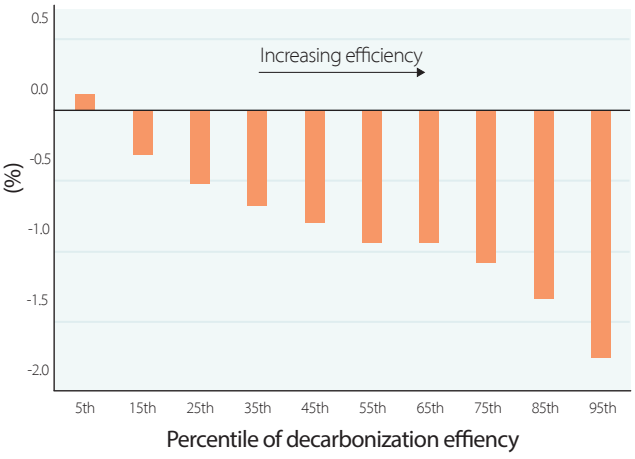


Source: Authors' calculation based on information from S&P Capital IQ, LSEG.

Investors' Reactions and Spillover to the Banking Sector

Firms' decision to greenwash may reflect cost-benefit optimization. Those with low transition capacity face higher costs per unit of GHG reduction and may strategically underinvest. We compute transition capacity by comparing actual and expected changes in firms' GHG intensity; a more negative deviation indicates stronger capacity. Accounting for this factor, Figure 2 shows that while institutional investors generally divest from high-risk issuers, they paradoxically increase investment when such issuers exhibit low transition capacity, therefore prioritizing short-term portfolio returns over long-term climate integrity.

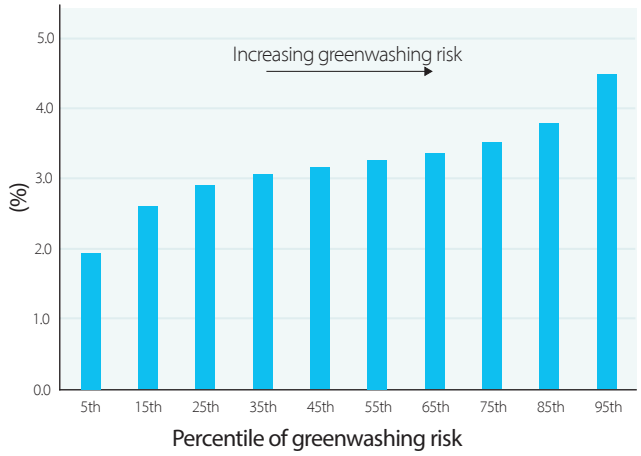
Figure 2: Estimated changes in institutional ownership



Source: Authors' calculation based on information from S&P Capital IQ, LSEG.

Figure 2 illustrates the estimated percentage changes in institutional ownership resulting from a one-standard-deviation increase in our expenditure-based greenwashing risk measure, contingent on the firm's transition capacity. When constrained in the climate bond market, some of these issuers turn to green loans, exposing creditor banks to greenwashing risk. Figure 3 illustrates the estimated percentage changes in green loan size resulting from a one-percentage decrease in green bond outstanding, contingent on our expenditure-based greenwashing measure.

Figure 3: Estimated changes in green loans



Source: Authors' calculation based on information from S&P Capital IQ, LSEG.

CONCLUSION

Green bonds remain powerful instruments for advancing sustainability, as they are associated with measurable increases in firms' environmental expenditure and GHG emissions abatement. However, average market behavior masks heterogeneity in issuer integrity. Our expenditure-based measure captures this nuance by identifying issuers that under-allocate bond proceeds relative to expectations, offering superior predictive power for GHG abatement compared to current proxies. Policymakers can employ this measure as a monitoring and early-warning tool against potential climate risk accumulation.

Moreover, our evidence that institutional investors reward low-capacity, high-risk issuers underscores the need for stronger diffusion of transition technologies to realign financial incentives toward genuine decarbonization. Additionally, many institutional investors are financial intermediates and make investments on behalf of their principals. As such, enhanced disclosure standards are warranted, such that capital flows from the principals do not inadvertently reinforce greenwashing behavior.

Finally, given the migration of high-risk issuers into green loan markets, regulators should require banks to integrate expenditure-based greenwashing metrics into their credit risk management. Doing so will safeguard climate finance integrity and prevent accumulation of systemic risk in the low-carbon transition.

Keith Jin Deng Chan is an Assistant Professor in the Division of Environment and Sustainability at The Hong Kong University of Science and Technology (HKUST). He specializes in applying economic and game theory to study the optimal design of governance mechanisms. He is currently a member of China Technical Expert Group under the IPSF Taxonomy Working Group. His research has also informed the Hong Kong Monetary Authority in formulating the Hong Kong Taxonomy for Sustainable Finance. He holds a PhD in Economics from the University of Cambridge.

Wilson Tsz Shing Wan is a PhD candidate in the Division of Environment and Sustainability at HKUST. He specializes in applying empirical methods to study the financial instability implications of climate finance. His paper, The Economics of the Greenium: How Much is the World Willing to Pay to Save the Earth?, was awarded for outstanding publication in the Journal Environmental and Resource Economics in 2022. He is also currently working in the Banking Supervision Department of the Hong Kong Monetary Authority. He holds a MPhil in Economics from HKUST.