



SUSTAINABILITY & CLIMATE RISKS

THOUGHT LEADERSHIP BRIEF SERIES

Adaptation Finance for Emerging Markets

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KEY POINTS



- ▶ There is a substantial investment gap in financing climate change adaptation in emerging markets. It is estimated that adaptation costs range from US\$215 billion to US\$387 billion per year.
- ▶ Investors are willing to accept a lower yield to support climate change adaptation than other green projects in emerging markets.
- ▶ The Greenium of adaptation bonds from emerging market public issuers is even larger than that from developed market public issuers even if both of their countries face above-median physical risk exposure.
- ▶ It is important to build institutional strength to attract cross-border green capital flows.

ISSUE

Climate change adaptation is increasingly urgent for reducing current and future climate-related losses. The demand for adaptation investments is growing, especially in resource-dependent and vulnerable regions. Estimates for adaptation costs in emerging markets this decade range from US\$215 billion to US\$387 billion per year. However, climate finance has been prioritizing mitigation over adaptation globally. As a result, there is a significant investment gap in adaptation finance estimated to be 10-18 times larger than international public capital flows to adaptation projects. The shortage of adaptation finance is particularly concerning for emerging markets. Given the inadequacy of public funding, governments are beginning to leverage private capital from the green bond market to help bridge this gap. The green bond market has experienced substantial growth in recent years, with cumulative green bond issuances rising from US\$100 billion in 2015 to over US\$3 trillion in 2023.

The additionality of adaptation finance for emerging markets may appeal to climate-conscious investors. However, many emerging markets face difficulties raising capital from the financial market due to poorly developed banking systems, lack of liquidity, and geopolitical risks.

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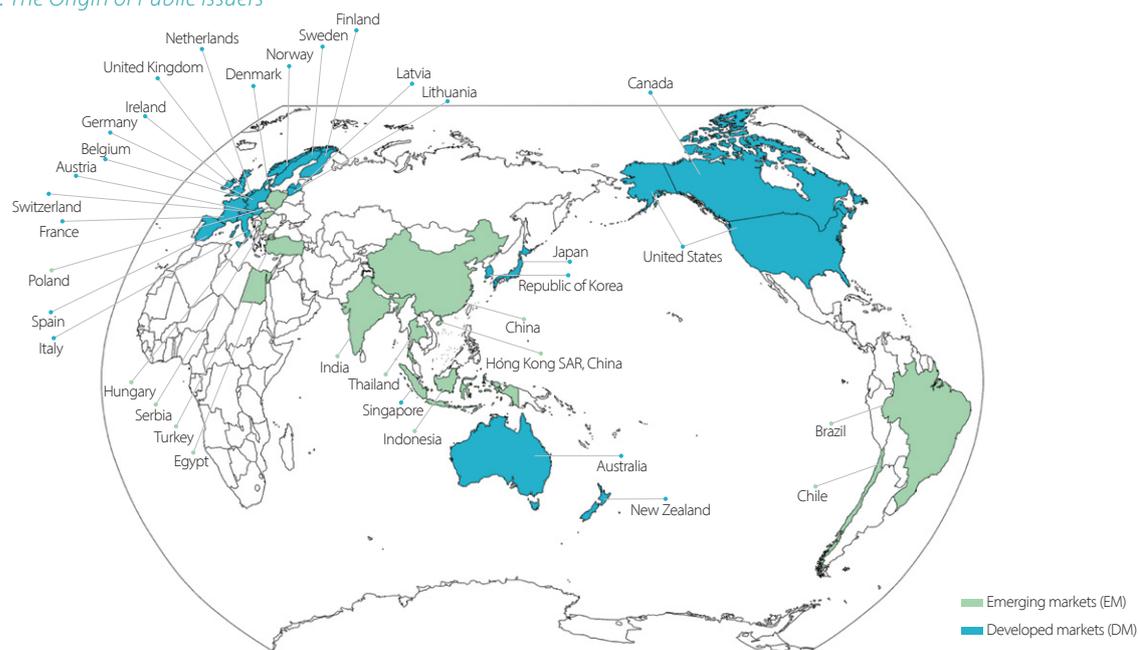


ASSESSMENT

Cost of Climate Capital for Public Issuers from Emerging Markets

The green bond premium, i.e., the Greenium, is defined as the difference between the yield of a green bond and that of a comparable conventional bond. A larger Greenium means that a green bond faces a lower financing cost. We focus on green bonds from public issuers over the period 2014-2023 and generate a sample of 444 matched bond pairs covering 35 countries and regions and 17 currencies. We label a green bond as EM and DM if its public issuer is from an emerging market and a developed market, respectively.

Figure 1: The Origin of Public Issuers



* Source: compiled by the authors based on the definition of emerging and developed markets from the International Monetary Fund (IMF).

In general, emerging markets face a higher cost of capital when seeking funds for green projects. The Greenium of EM non-adaptation green bonds is 30.0 basis points (bps) smaller than that of their DM counterparts. Interestingly, the cost of capital disadvantage facing emerging market public issuers dwindles when looking at adaptation bonds. The Greenium of EM adaptation bonds is only 6.7 bps smaller than that of their DM counterparts.

We find that investors are willing to accept a lower yield to support climate change adaptation than other green projects in emerging markets. The Greenium of EM adaptation bonds is 9.5 bps larger than that of EM non-adaptation green bonds. Nevertheless, the picture reverses when we focus on developed markets. The Greenium of DM adaptation bonds is 0.3 bps lower than that of DM non-adaptation green bonds.

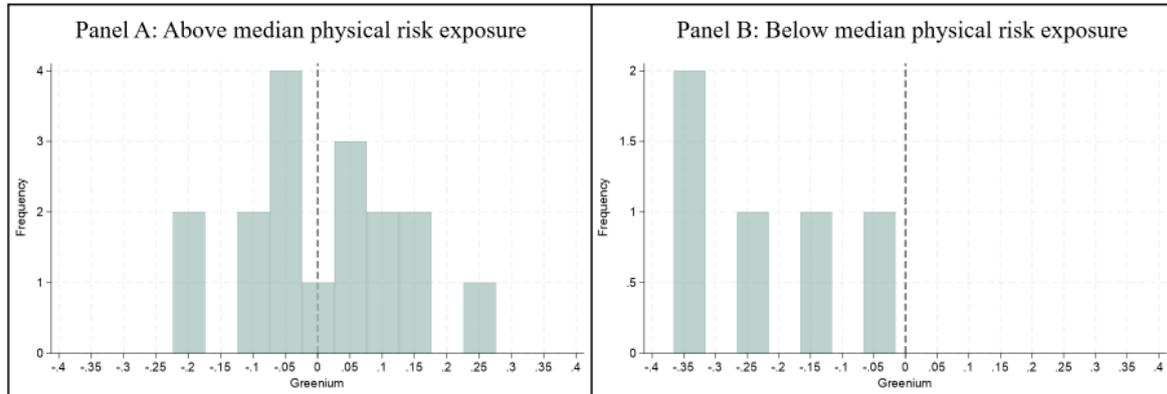
Physical Risk Exposure and Greenium of Adaptation Bonds

To understand the efficiency of adaptation capital allocation, we study whether the Greenium of adaptation bonds is positively correlated with their additionality. In other words, we are interested in whether public issuers with a stronger need for climate change adaptation incur a lower cost of adaptation capital. To do so, we use the exposure indicator from the Notre Dame Global Adaptation Initiative's (ND-GAIN) Country Index to measure country-level physical risk exposure. The ND-GAIN exposure indicator assesses the projected impact of climate change risks on six sectors: ecosystem services, food, human habitat, health, infrastructure and water, with higher values indicating greater exposure. We categorize the country-level physical risk exposure of the issuers into above and below the global median, which remains constant over the sample period.



We find that the Greenium of EM adaptation bonds is 31.4 bps larger if the physical risk exposure of the public issuers' countries is above median rather than below median.

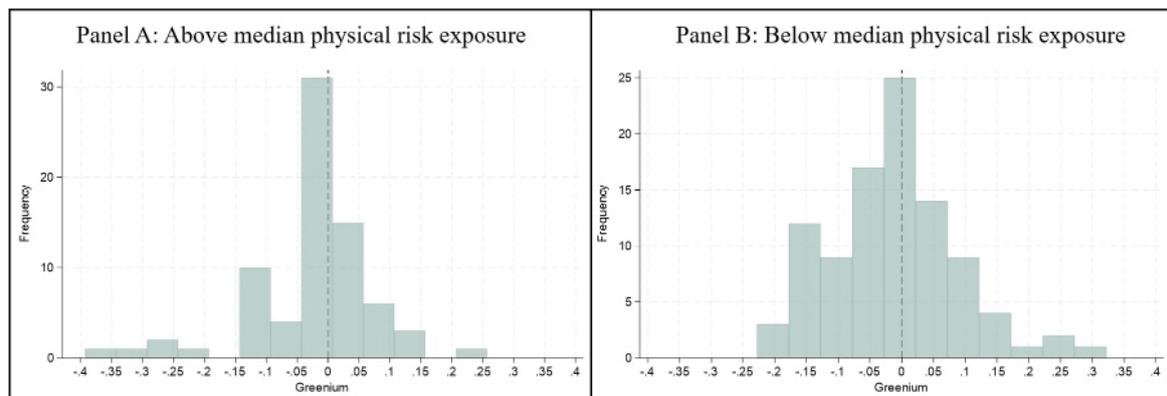
Figure 2: Greenium distribution for EM adaptation bonds for public issuers with different levels of country-level physical risk exposure



* Larger Greenium means lower financing costs. In our sample, only 5 bonds are from emerging markets with below-median physical risk exposure.

Interestingly, the Greenium of EM adaptation bonds is 18.3 bps larger than that of DM adaptation bonds if both public issuers' countries face above-median physical risk exposure.

Figure 3: Greenium distribution for DM adaptation bonds for public issuers with different levels of country-level physical risk exposure



Lastly, we use the governance readiness indicator from the ND-GAIN Country Index to measure the governance capacity of each country. The readiness indicator assesses the political stability, control of corruption, rule of law, and regulatory quality of a country. We categorize the governance capacity of the issuers' countries into above and below the global median for each year.

As expected, emerging markets have weaker governance capacities than developed markets on average. Within our sample, 100% of developed market public issuers come from countries with above-median governance capacity. Contrastingly, 54.5% of the EM adaptation bonds are issued by public issuers from countries with below-median governance capacity.

We find that having an above-median governance capacity can significantly reduce the cost of capital disadvantage of emerging market issuers. The Greenium of EM adaptation bonds is 7.1 bps larger if the governance capacity of the public issuers' countries is above median rather than below median.



CONCLUSION

By estimating the costs of capital for green bonds issued by governments and public agencies around the world, we show that investors are willing to accept a lower yield to support climate change adaptation than other green projects in emerging markets. These findings are in spite of a higher cost of climate capital compared to their developed market counterparts.

Attesting the efficiency of adaptation capital allocation, our research shows that investors seriously consider the additionality of adaptation bonds when conferring Greenium. In fact, the Greenium of adaptation bonds from emerging market public issuers is larger than that from developed market public issuers even if both countries face above-median physical risk exposure. Finally, we show that the cost of climate finance for emerging market public issuers can be significantly reduced if they are from countries with higher governance capacity. This emphasizes the importance of building institutional strength to attract cross-border green capital flows.



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