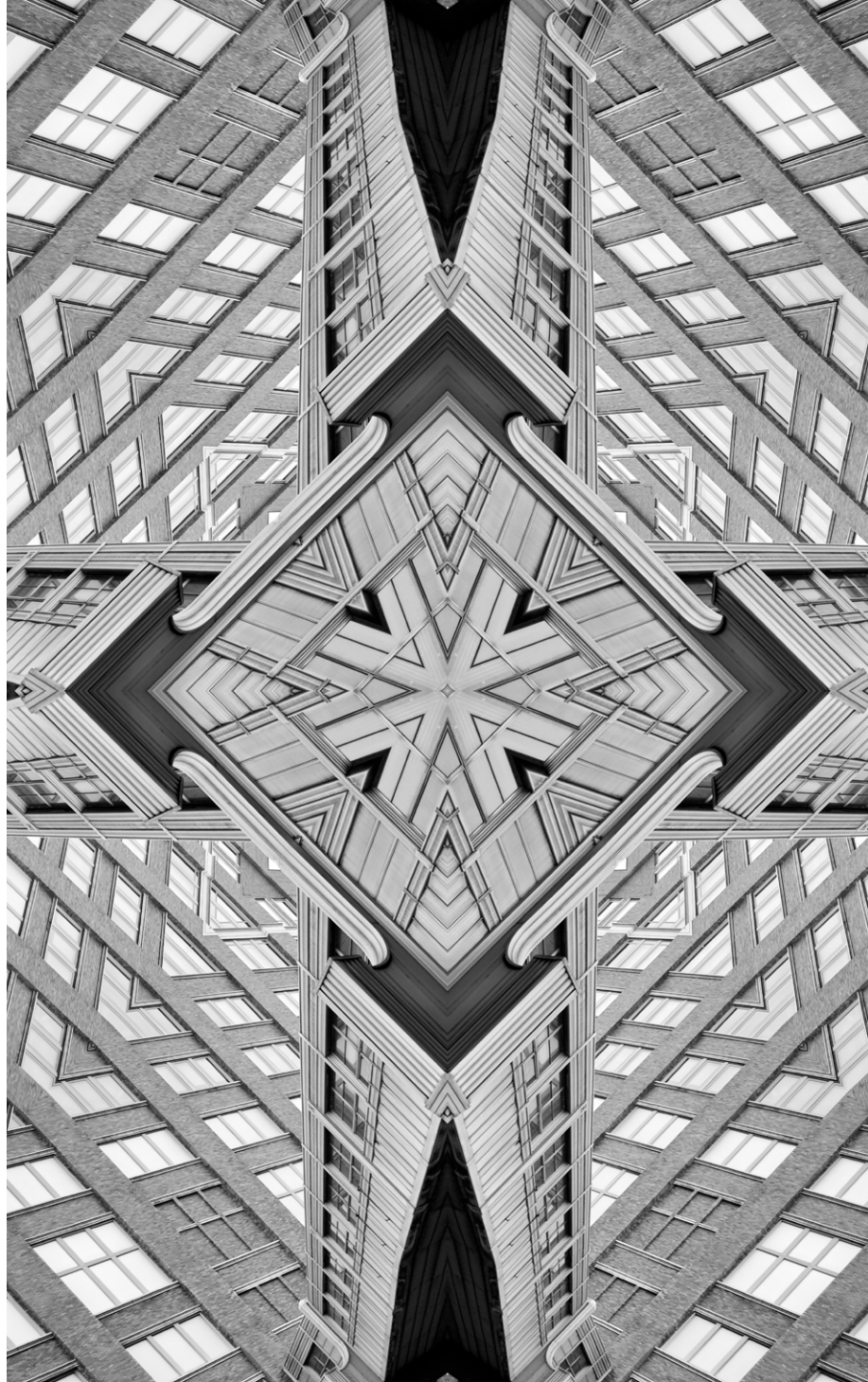


Issue

Brief

ISSUE NO. 878
JUNE 2026



Foreign Exchange Risk and Its Implications for India's Green Financing

Dhruba Purkayastha

Abstract

Foreign exchange (FX) risk is an important factor while discussing global green finance flows between developed and developing countries. This brief analyses the role of FX risk relative to the broader cost of capital for cross-border green finance flows. It argues that FX risk should not be treated as an independent binding constraint in scaling green finance in developing countries, but as a component within sovereign and macroeconomic risk premia reflected in the higher cost of capital. Policy responses should prioritise structural reduction and mitigation in cost of capital for cross-border flows rather than focusing on FX-hedging instruments. Short-term FX volatility could be addressed through dedicated hedging structures for international green finance flows to developing countries. Creating risk-sharing frameworks and leveraging platforms for pooling and hedging development finance will help India reduce the cost of green finance and attract greater international capital for climate investments.

Developing countries are highly vulnerable to the effects of climate change, although they have lower historical and current per-capita greenhouse gas (GHG) emissions than developed countries. The Independent High-Level Expert Group on Climate Finance (IHLEG) estimates that excluding China, developing countries will require US\$3.2 trillion per year by 2035 in investments towards climate action, of which US\$1.3 trillion per year will need to be sourced internationally—i.e., from developed countries. Governments in the Global South seeking to expand climate finance for their priority projects face a difficult choice between borrowing internationally and investing via domestic resources, or both.¹

To tap global markets, countries are encouraged to borrow in hard currency, particularly US dollars. However, high levels of existing sovereign foreign currency debt deter many governments from doing so—in several cases, countries already hold three-fourths of their long-tenor debt in hard currency. Additional borrowing risks further downgrading sovereign credit ratings. On the other hand, demand from global capital for local currency issuances is limited because investors are deterred by currency risk, and those who wish to borrow in local currencies must often offer high premia.² These challenges are acute in the renewable energy sector. Independent project producers in emerging markets must often borrow in hard currency, while revenues are denominated in local currency. This currency mismatch transfers risk either to project producers or to state power utilities, reducing the incentives to adopt renewable energy, despite its predictable variable cost of production of a unit of electricity.³

Foreign exchange (FX) risk thus assumes an important position in green financing. This brief lays out a key analytical consideration regarding the role of FX risk relative to the broader cost of capital. It suggests that FX risk should not be treated as an independent binding constraint in scaling green finance in developing countries, but as a component embedded within sovereign and macroeconomic risk premia. The core issue is not just the availability or price of hedging instruments but the structural determinants—sovereign ratings, macroeconomic stability, fiscal credibility, depth of financial markets, and investor confidence—of the cost of capital in developing economies. Framing FX risk primarily as a technical hedging problem misdiagnoses the underlying constraints on cross-border green finance flows. Therefore, policy responses should prioritise structural reduction in cost of capital rather than focusing on FX-hedging instruments. However, short-term FX volatility could be addressed using dedicated hedging structures for international green finance flows to developing countries.

The Cost of Capital

The cost of capital is the risk-free rate of return plus the macro (country-level) and micro (project-, sector-, and business-level) risk premia applying to investments in a specific country.⁴ Micro risk premia, stemming from sector-level risks and project-specific factors such as land acquisition risks, evacuation risks, and off-taker risks,⁵ are comparable across developed and emerging economies, and can be minimised by conducive sectoral policies. Macro risk premia, however, are much higher in emerging economies, accounting for the higher cost of capital in such countries.⁶

One factor contributing to higher macro risk premia in developing countries is the shallow nature of local capital markets. These markets, which are predominantly bank-dominated, are characterised by limited savings and a lack of domestic investment vehicles to support large-scale long-term borrowing.⁷ They lack the capacity to develop more offerings and deepen the market. As a result of shallow markets, the cost of capital for private projects is often high enough to make them financially unviable. These factors not only limit renewable energy and energy transition investments in developing countries, but lead to a vicious cycle of low financial savings, high perceived risk, and high cost of finance, which in turn result in higher expectation of returns and a lack of bankable project pipeline.⁸ Other macro or economy-wide factors contributing to higher-risk premia are related to perceptions of political risk.

Economy-wide risks can give rise to considerable differences in the cost of capital. These are effectively determined by sovereign credit ratings assigned to countries. Some studies indicate that biases against developing countries could influence credit rating assessments, which may contribute to elevated capital costs.⁹ There have been calls for an overhaul of credit rating systems so that they may be better suited for rating the sovereign debt of developing countries.¹⁰ Comparing government borrowing costs across countries is one way to assess the extent to which economy-wide factors create differences in the costs of capital for private sector investments.

The Effect of Currency Risk on the Cost of Capital

FX/currency risk is often linked to the cost of capital; more specifically, the cost of debt. Yet, it is important to understand that FX risk is not independent but embedded in other structural and project risks, some of which get captured in country or sovereign risk ratings. The overarching approach to cost of finance is determined by a combination of country risk and project or business risk, which together increase the cost of cross-border financing. FX risk primarily influences interest rate variations and, therefore, contributes to the convergence of the cost of domestic and international finance for green investments.¹¹ Addressing FX risks in isolation may not be the most effective way to reduce cost of finance for renewable energy or other green/climate projects/investments in developing countries. While low-cost hedging solutions for managing short-term FX risk may be desirable, currency risk is not the only, nor the most critical, determinant of lack of cross-border flow of green finance to developing countries.

Instrumentality for Hedging Currency Risk

Although FX risk remains a larger macroeconomic challenge at the country level, several initiatives have focused on addressing this issue, specifically for hard currency loans/lending to developing countries. More than 80 percent of lending by multilateral development banks (MDBs) and development finance institutions (DFIs) to developing countries is in hard currency, primarily US dollars (USD).¹² Some other currencies MDBs typically lend in are Euro (EUR), British pound (GBP), and Japanese Yen (JPY), because of the lower interest rates and liquidity advantages in these markets.¹³ This approach helps MDBs mitigate their own currency risk by matching the denominations of assets and liabilities.

Covered interest rate parity suggests that exchange rate movements should offset interest rate differentials over time. Thus, if the local currency's interest rate is higher than the hard currency interest rate, risk-neutral and rational investors should expect the local currency to depreciate against the other by the difference between the two interest rates, which makes borrowing at home and lending abroad or vice-versa produce a zero-excess return.

Climate investments, however, involve long-tenure exposure to macroeconomic uncertainty, including regime breaks resulting from geopolitical shocks, commodity price cycles, pandemics, and financial crises. Achieving the lowest levelised cost of energy (LCOE) from renewable sources, for instance, ideally requires the term of financing to match the operating life of the asset. Such long-term financing increases the cost and complexity of hedging over the life of the loans. These tail risks challenge the assumption that exchange rate movements will consistently follow interest differentials.

Moreover, although FX risk originates at the macroeconomic level, driven by balance of payments, it is borne at the project level by special purpose vehicles, utilities, and private developers, many of whom lack balance sheet depth. Nor are there any guarantees for FX rate protection. Even if FX risk equilibrates interest differentials in theory, the distribution of risk across actors influences investment decisions for cross-border capital flows.

Unhedged currency risk may expose borrowers to sudden increases in debt service costs if pronounced currency depreciation occurs. While private sector borrowers in some developing countries often rely on hard currency borrowing due to limited domestic financing options, shorter maturities, or higher local interest rates,¹⁴ the benefits of this approach are often outweighed by the cost of hedging instruments. The full cost of borrowing in hard currency, including

Instrumenty for Hedging Currency Risk

the cost of hedging where available, usually equals the cost of borrowing in local currency.¹⁵ Yet, even where hedging costs appear high relative to expected depreciation, institutional investors may prefer hedged exposures due to fiduciary obligations, regulatory requirements, and portfolio risk management considerations.

Some of the commercially available FX hedging instruments used by project developers and corporate borrowers to manage exchange rate risk under varying market conditions and tenors include:

- **Forward contracts:** An agreement made between an investor and a bank (and/or a hedging instrument provider) to exchange a specified amount of one currency for another at a predetermined rate on a future date.
- **Futures contracts:** Exchange-traded forward contracts to buy or sell a specific currency at a predetermined price on a set date.
- **Options:** Contracts offering investors the right (but not the obligation) to exchange currencies at a specified rate in the future. They provide flexibility and enable investors to capitalise on favourable rates, at a cost.
- **Swaps:** Mechanisms to exchange loan principal and interest payments in one currency for another, at a predetermined rate.
- **Cross-currency interest rate swaps (CCIRS):** Instruments combining currency and interest rate risk management.
- **Non-deliverable forwards (NDFs):** Cash-settled contracts used where capital controls restrict convertibility.
- **Money market hedges:** Synthetic forwards constructed through borrowing and lending.
- **Natural hedging strategies:** Methods to align revenues and costs in the same currency.

The existence of these instruments suggests that the challenge is not the absence of hedging tools but their pricing and tenor limitations, and the limited balance sheet capacity and credit quality of counterparties. Only a small number of developing countries have sufficiently deep financial markets to support long-tenor currency hedging instruments. For all practical

Instrument for Hedging Currency Risk

purposes, most of these FX-hedging instruments are used either for trading or for speculative reasons in many developing countries. Swaps are often the only practical instrument available for long-term hedging. However, they incorporate FX risk, liquidity risk, and counterparty credit risk costs that can make foreign currency borrowing economically like local currency borrowing or even impossible for borrowers to hedge. Commercially available hedging instruments alone, therefore, may not significantly reduce the cost of cross-border green finance.

Institutional Approaches for Managing FX Risk

While the long-term solution to managing FX risk lies in stronger macroeconomic fundamentals, deeper financial markets, and stable monetary policy, several institutional approaches have been developed to address currency risks in development finance, including green and climate investments.¹⁶ Of the many proposals focusing on developing countries, the only ones implemented at pilot scale are The Currency Exchange Fund (TCX) and Eco Invest Brazil.

TCX Fund¹⁷

TCX was established in 2007 by DFIs to provide currency hedging solutions in frontier markets where commercial providers are absent. It operates across more than 90 frontier market currencies and offers hedging maturities of up to 25 years. The approach is to address currency risk associated with local currency lending through a single specialised institution on a global portfolio basis. With capitalisation of approximately US\$1.5 billion, and support from the European Commission, five governments, MDBs, and DFIs, TCX demonstrates the feasibility of pooled currency risk management. It is currently expanding its coverage to include public sector financing but remains far too small to make any real impact on green finance flows required in developing countries. Nevertheless, TCX provides a model for replication, and can be empowered with additional concessional capitalisation from philanthropies and governments.

Eco Invest Brazil¹⁸

Eco Invest is an initiative of the Brazilian government in partnership with the Inter-American Development Bank Group (IDB). It mitigates currency risk for climate projects where revenues increase with general inflation following a depreciation of the local currency, and usually uses short-term currency hedges available from local financial institutions in Brazil to hedge regular fluctuations in the Brazilian real exchange rate. The IDB provides a hard-currency credit line (intermediated by the Brazilian government) to allow projects to service foreign-currency debt. Withdrawal from this credit line is to be repaid over the short or medium term as Brazil's real exchange rate appreciates again, and projects increase their revenues in line with general inflation.

Implications for India's Green Finance Flows

For India, the relevant policy question is whether the primary constraint to scaling green finance relates to exchange rate volatility, long-term depreciation expectations, or investor confidence in macroeconomic stability and perceived political risks. It is clear that the excess risk premium represents an overpayment for perceived risks that do not actually materialise—but that is what financial markets are about, and if FX risk premium for developing countries needs to be reduced, and that is considered to be in public interest, respective governments would need to subsidise either the variations or the losses arising out of adverse variations. FX risk is a macro fiscal and monetary policy issue, which evens out over a period, so it is possible to deterministically factor in the same in financial models.¹⁹ The core policy challenge, therefore, is to address volatility risks and extreme depreciation scenarios rather than predictable long-term depreciation trends, which can generally be incorporated into financial models. There has been growing interest among philanthropic institutions and blended finance platforms in addressing FX risk through targeted risk-sharing instruments.


Institutional innovations such as TCX or Eco Invest Brazil may play a complementary role, particularly in addressing extreme depreciation scenarios. However, these mechanisms should be viewed as part of a broader strategy aimed at reducing structural cost-of-capital differentials between developed and developing economies. Strengthening macroeconomic fundamentals, improving sovereign risk perceptions, and enhancing domestic financial market depth remain central to scaling climate finance flows to developing countries.

From the study of existing FX hedging institutions, it is also clear that while TCX is a good model for low-income developing countries, it is far too small to be relevant for India unless scaled up, or if a similar facility is set up for, say, BRICS+ countries. Previous work on similar approaches to Brazil in an Indian context has already been presented by institutions like Climate Policy Initiative's FX Hedging Facility,²⁰ and could serve as a template for the development of a suitable FX hedging facility for international green finance flows to India.

A. Establish a National FX Tail-Risk Facility: One potential policy direction for India could involve establishing a national FX tail-risk facility that focuses specifically on extreme depreciation risks rather than subsidising the full cost of currency hedging. Instead of attempting to reduce the entire swap cost, the Government of India could support a structured risk-sharing framework that separates currency depreciation into different risk tranches. Under such an approach, predictable or baseline depreciation could be absorbed by project developers as part of normal financial modelling, while standard volatility could be managed through commercial hedging markets. Public or concessional capital would then be deployed only for extreme macroeconomic shocks, such as large currency depreciations associated with financial crises or global disruptions. By absorbing only tail-risk scenarios through a first-loss guarantee mechanism, such a structure could greatly reduce hedging premia, as private-market participants would no longer need to price in low-probability worst-case outcomes.

B. Leverage India's International Financial Services Centre (IFSC): Another approach could be to use India's IFSC at Gujarat's GIFT City (Gujarat International Finance Tec-City Co. Ltd) to provide an institutional platform for piloting risk-sharing mechanisms without disrupting domestic monetary policy frameworks. GIFT City already offers a regulatory environment designed to support innovative financial instruments and cross-border capital flows. A dedicated platform could enable MDBs and DFIs to pool short-term domestic currency liquidity and extend longer-tenor rupee financing for climate projects. In parallel, further development of non-deliverable forward markets within the IFSC could improve market liquidity and price discovery for currency derivatives, potentially lowering transaction costs and narrowing bid-ask spreads. Strengthening the role of GIFT City as a hub for structured hedging solutions could, therefore, complement broader efforts to reduce the cost of capital for green investments in India.

Conclusion

Addressing FX risk effectively is essential to enable green finance flows to developing countries, particularly to India. Yet, while traditional FX hedging instruments offer some protection, the real solution lies in structural changes directed towards reducing the cost of capital for cross-border finance flows. By creating risk-sharing frameworks, such as a national FX tail-risk facility, and leveraging platforms like GIFT City, India can reduce the cost of green finance, attracting greater international capital to tackle climate challenges. 

Dhruba Purkayastha is Climate Policy and Finance Expert and Adviser at the Energy and Climate Change Programme, Observer Research Foundation.

All views expressed in this publication are solely those of the author, and do not represent the Observer Research Foundation, either in its entirety or its officials and personnel.

- 1 Amar Bhattacharya et al., *Raising Ambition and Accelerating Delivery of Climate Finance: Third Report of the Independent High-Level Expert Group on Climate Finance*, (London, Grantham Research Institute on Climate Change and the Environment, London School of Economics and Political Science, 2024), https://www.lse.ac.uk/granthaminstitute/wp-content/uploads/2024/11/Raising-ambition-and-accelerating-delivery-of-climate-finance_Third-IHLEG-report.pdf.
- 2 “What is Local Currency Finance?,” Cardano Development, <https://www.cardanodevelopment.com/what-is-local-currency-finance/#:~:text=Debt%20in%20any%20currency%20is,the%20difference%20in%20interest%20rates>.
- 3 Saied Dardour, Deborah Ayres and Lourdes Zamora, “Renewable Power Generation Costs in 2024,” IRENA, 2025, https://www.irena.org/-/media/Files/IRENA/Agency/Publication/2025/Jul/IRENA_TEC_RPGC_in_2024_2025.pdf.
- 4 Avinash Persaud, “Unblocking the Green Transformation in Developing Countries with a Partial Foreign Exchange Guarantee,” Climate Policy Initiative, 2023, <https://www.climatepolicyinitiative.org/wp-content/uploads/2023/06/An-FX-Guarantee-Mechanism-for-the-Green-Transformation-in-Developing-Countries.pdf>.
- 5 Persaud, “Unblocking the Green Transformation in Developing Countries with a Partial Foreign Exchange Guarantee.”
- 6 “Cost of Capital Observatory,” International Energy Agency, <https://www.iea.org/reports/cost-of-capital-observatory>.
- 7 Paul Horrocks et al., “Unlocking Local Currency Financing in Emerging Markets and Developing Economies,” *OECD Development Co-operation Working Papers* (OECD Publishing, February 4, 2025), https://www.oecd.org/content/dam/oecd/en/publications/reports/2025/02/unlocking-local-currency-financing-in-emerging-markets-and-developing-economies_af15df6a/bc84fde7-en.pdf.
- 8 Kanika Chawla et al., “Risks in Renewable Energy Markets in Emerging Economies,” CEEW, June 2018, <https://www.ceew.in/gfc/publications/risks-in-renewable-energy-markets-in-emerging-economies>.
- 9 David Tennant, Marlon Tracey, and Damien King, “Sovereign Credit Rating: Evidence of Bias against Poor Countries,” *The North American Journal of Economics and Finance*, no. 51 (January 2020), <https://www.sciencedirect.com/science/article/abs/pii/S1062940818302158>.
- 10 Archie Gupta, “FFD4 Seville: Developing Countries challenge Credit Rating Agency Power,” *Down To Earth*, July 8, 2025, <https://www.downtoearth.org.in/economy/ffd4-seville-developing-countries-challenge-credit-rating-agency-power>.

- 11 Kushagra Gautam, Dhruva Purkayastha, and Vikram Widge, “Cost of Capital for Renewable Energy Investments in Developing Economies,” Climate Policy Initiative, June 2023, <https://www.climatepolicyinitiative.org/wp-content/uploads/2023/06/Discussion-Paper-EM-Cost-of-Capital-for-RE-and-GCGF-FINAL-Jun-2023.pdf>.
- 12 Zeineb Ben Yahmed, Chris Grant, and Nicole Pinko, “Managing Currency Risk to Catalyse Climate Finance,” Climate Policy Initiative, August 2024, <https://www.climatepolicyinitiative.org/wp-content/uploads/2024/08/Currency-Risk-Report.pdf>.
- 13 Yahmed, Grant, and Pinko, “Managing Currency Risk to Catalyse Climate Finance.”
- 14 Horrocks et al., “Unlocking Local Currency Financing.”
- 15 Borio et al., “The Failure of Covered Interest Parity: FX Hedging Demand and Costly Balance Sheets,” *BIS Working Papers* (2016), <https://www.bis.org/publ/work590.pdf>.
- 16 Yahmed, Grant, and Pinko, “Managing Currency Risk to Catalyse Climate Finance.”
- 17 “TCX,” TCX Fund, <https://www.tcxfund.com/>.
- 18 Ministry of Finance, Government of Brazil, “Eco Invest Brazil,” <https://www.gov.br/fazenda/pt-br/acao-a-informacao/acoes-e-programas/transformacao-ecologica/novo-brasil-ecological-transformation-plan/featured-programs/eco-invest-brazil>; <https://www.gov.br/fazenda/pt-br/acao-a-informacao/acoes-e-programas/transformacao-ecologica/novo-brasil-ecological-transformation-plan/featured-programs/eco-invest-brazil>.
- 19 Kay Parplies et al., “The Need to Reduce FX Risk in Development Countries by Scaling Blended Finance Solutions,” Convergence Blended Finance, https://assets.ctfassets.net/4cgqlwde6qy0/3UYrVVpyqckCsw802wWoOi/7abfe71c3b60ff521635f713865cad16/FX_Risk_in_Development_Primer.pdf.
- 20 Arsalan Farooquee, Saurabh Trivedi and Gireesh Shrimalli, “FX Hedging Facility: Lab Instrument Analysis,” Climate Policy Initiative, October 2016, https://www.climatepolicyinitiative.org/wp-content/uploads/2016/12/FX-Hedging-Facility_full-report.pdf.

Images used in this paper are from Getty Images/Busà Photography.



Ideas . Forums . Leadership . Impact

20, Rouse Avenue Institutional Area,
New Delhi - 110 002, INDIA
Ph. : +91-11-35332000. Fax : +91-11-35332005
E-mail: contactus@orfonline.org
Website: www.orfonline.org