

The climate–currency nexus

Currency conversion as a means of
reducing exposure to currency volatility
in vulnerable economies

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and Alexander Weston

Policy insight

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Summary

The connection between currency depreciation and climate vulnerability

The increasing intensity and frequency of extreme weather events, such as droughts, floods, heatwaves, storms or wildfires, disproportionately affects emerging markets and developing economies (EMDEs) and small island developing states (SIDS). With this increasing vulnerability to the effects of climate change comes greater exposure to the risk of currency depreciation.

Around 80% of lending by multilateral development banks (MDBs) is in 'hard' currencies, such as the US dollar, euro, Japanese yen or pound sterling. This exposes borrowers to exchange rate risk. If a borrower's local currency depreciates following a climate-related shock, debt service costs can increase sharply, adding pressure on the debt management offices (DMOs) of EMDEs.

The potential for currency conversion clauses

Currency conversion clauses (CCCs) can be used as a means of converting hard currency loans into local currency to reduce EMDEs' exposure to currency risk following climate-related shocks. While many MDBs now offer CCCs, their uptake remains low, and many DMOs continue to manage debt in hard currency in the aftermath of climate-related shocks.

Drawing on the latest evidence on the climate-currency nexus, we recommend the following actions for multilateral development banks, their shareholders and debt management offices:

Multilateral development banks

- MDBs not lending in local currency should consider incorporating local currency conversion clauses in as many debt products as possible.
- MDBs should actively offer DMOs the option to convert hard currency debts to local currency after a country has suffered a climate-related shock.

Debt management offices for EMDEs and SIDS

- Where MDB hard currency debt has a CCC, DMOs should convert the loan when the yield curve difference is in their favour.
- At the point of a climate-related shock, if hard currency debt has not been converted into local currency, DMOs should negotiate conversion as early as feasible to limit further exposure to currency depreciation and volatility.
- When assessing the terms of loans, DMOs should focus on the foreign exchange adjusted rate for the duration of the loan, not the absolute interest rate on local versus hard currency. The hard currency interest rate will almost always be lower by design as these currencies lack the same currency and depreciation risk priced into local currency rates. However, this does not mean the expected debt servicing costs will be lower over the duration of the loan.

MDB shareholders

- Shareholders should encourage MDBs to lend in local currencies. Where not feasible, they should be encouraged to include CCCs in their debt products.
- Shareholders should build in the exogeneity of climate-related shocks to currency depreciation as an additional risk that climate-vulnerable EMDEs and SIDS need support with.
- Shareholders should support DMOs in EMDEs and SIDS by providing technical assistance and grant support around the cost of currency conversion in the aftermath of climate-related shocks.

1. Introduction

The increasing intensity and frequency of extreme weather events, including droughts, floods, heatwaves, storms and wildfires, has meant that many emerging markets and developing economies (EMDEs) – and particularly small island developing states (SIDS) – face additional challenges in financing their economic development. The rising costs of climate adaptation and of reconstruction following natural disasters are hindering the long-term development of many EMDEs. These external events are beyond the control of EMDEs, and the international community should support these countries in dealing with the burden they create, particularly as most EMDEs have contributed little to climate change through their greenhouse gas emissions. In response to this situation, multilateral development banks (MDBs) have developed various options to support countries affected by natural disasters.

In this policy insight we focus on a specific financing risk faced by EMDEs and SIDS: their exposure to currency depreciation arising from hard currency (HCY) debts held with MDBs in the aftermath of domestic climate-related shocks. A hard currency debt is denominated in a stable, widely accepted currency, such as US dollars, euros, yen or pounds. Climate-related shocks are an important contributing factor to currency fluctuations, but are only beginning to be understood. The associated risks are particularly salient for EMDEs and SIDS given their greater vulnerability to the impacts of climate change and currency depreciation. Climate-related shocks are not the only unexpected external event that can lead to currency depreciation: they are one of many. In this context, the tools examined in this policy insight for managing currency exposure are not specific to climate-related events. Nonetheless, the growing frequency and severity of climate-related shocks, and the scale of adaptation and reconstruction financing they demand, make climate-related currency risk a particularly important issue to address.

The majority (80–90%) of international sovereign lending by MDBs is carried out in hard currency. Because many EMDEs lack access to sufficient long-term capital in their own currency through domestic markets, they are reliant on external borrowing and tend to accept hard currency denomination to gain market access. Hard currency borrowing is also often superficially cheaper, since local currency (LCY) interest rates typically price in expected depreciation and a currency risk premium, while the HCY rate does not. In the case of the HCY rate, however, this foreign exchange (FX) risk has simply been shifted from the interest rate into the exchange rate itself, to be paid if the currency weakens. As such, when a climate-related shock triggers currency depreciation, the cost of servicing this HCY debt rises sharply in local currency terms, compounding the fiscal stress caused by the disaster itself.

Debt management offices (DMOs) in EMDEs have several financial instruments available to them in debt contracts with MDBs. One of these is currency conversion clauses (CCCs), such as those offered by the Inter-American Development Bank (IDB) under its Flexible Finance Facility (FFF). This allows DMOs to request currency conversion, both to LCY and other hard currencies, at various points during the lifetime of a loan. However, the uptake of these clauses by DMOs remains low, and many DMOs continue to manage debt in hard currency in the aftermath of climate-related shocks. We argue that CCCs are a key instrument for managing debts more effectively as climate-related shocks place increasing pressure on local currencies. We also make the case for DMOs to execute such conversions as early as possible once a climate-related shock has occurred, rather than delaying in the hope of more favourable terms, given the evidence on how quickly currency depreciation and volatility can compound in the aftermath of a shock.

In Section 2, we review the empirical evidence on the climate–currency nexus, drawing on recent work that identifies which countries bear the most substantial exchange rate consequences of climate-related shocks. We focus on cases where an EMDE has an outstanding hard currency debt to an MDB at the point of a climate-related shock. In Section 3, we then map climate vulnerability against multilateral debt burdens to identify the countries for which these risks may be most acute. In Section 4, we turn to sovereign yields and the broader policy toolkit before, in Section 5, examining CCCs in detail and the options for converting them following a climate-related shock.

2. The climate–currency nexus

There is a limited yet rapidly growing body of literature addressing the impact of climate-related shocks on exchange rates, with particular concern regarding the implications of currency depreciation and volatility for debt sustainability in EMDEs and SIDS. Lower-income economies with relatively higher exposure to climate-related shocks due to their vulnerability to the impacts of climate change and weaker capacities to mitigate its effects are disproportionately exposed to exchange rate depreciation and volatility, which makes managing hard currency debt and ensuring debt sustainability more difficult. Although it is not yet possible to establish a definitive causal link between climate-related shocks and exchange rate movements, the growing empirical evidence points to a meaningful and consistent relationship.

Transmission channels

There are two main ways in which EMDEs are vulnerable to the climate shock–currency fluctuation nexus. First, climate-related shocks create immediate domestic fiscal pressures in the form of emergency relief, reconstruction costs and budget adjustments. Government spending increases, as does foreign exchange demand to pay for increased imports to pay for reconstruction (Lee et al., 2022; Hale, 2022). Second, EMDEs could lose income if key industries such as tourism and agriculture are damaged, thereby reducing income from exports and increasing current account deficits (Ezekwe and Aor, 2025). Mounting pressures on the local currency to depreciate in the aftermath of a climate-related shock therefore enhance FX volatility (Bharadwaj et al., 2025).

From a theoretical standpoint, rare and extreme disasters are priced into asset markets and raise country risk premia. A study has modelled these ‘rare disasters’ as key determinants of exchange-rate risk premia, showing that a perception of disasters being more likely in a particular state or region leads to persistent currency weakness (Farhi and Gabaix, 2016). This helps to explain why economies with elevated exposure to the effects of climate change experience structurally higher FX volatility, even in the absence of new climate-related shocks. Further empirical research suggest that markets often under-react to gradually rising risks of disaster, which may lead to future corrections in exchange-rate valuations as beliefs catch up with reality (Hale, 2024).

Empirical evidence: heterogeneity by income

Recent empirical work provides important new evidence on the heterogeneous effects of climate-related shocks across groups of countries. Lo and Volz (2025b) investigate the impact of major natural disasters on capital flows, international reserves and real effective exchange rates using a panel dataset covering up to 66 countries between 2005 and 2021. They define major disaster quarters as those where reported losses linked to a natural disaster exceed 1% of gross domestic product (GDP) or where more than 1% of the population have been affected. They find that disaster effects on exchange rates and capital flows are largely determined by country-level income. For high-income countries, major disasters produce no statistically significant effects on exchange rates or capital flows. For the broader EMDE sample, disasters are associated with reserve increases and modest real effective exchange rate appreciation.¹ Lo and Volz suggest this may reflect the international community’s disaster response, where bilateral and multilateral support enters recipient countries via reserve accounts. Importantly, International Development Association- (IDA) eligible borrowers experience statistically significant portfolio and other investment outflows over the quarters following a disaster, alongside real effective exchange rate depreciation. However, they experience no statistically significant increase in international reserves.

Lo and Volz (2025b) also document that, across a full sample of 195 disasters, three out of five countries see their nominal exchange rate depreciate one year after a major disaster. In their

¹ Following Lo and Volz (2025), ‘EMDE’ follows the World Bank’s country income classification and excludes high-income economies. IDA-eligible borrowers are a subset of this group.

subsequent paper (2025a), they report that average depreciation across the sample reaches 4% two years out, noting that many countries fall well below this average. Finally, the authors also find that exchange rate volatility rises markedly in the aftermath of disasters, noting that this has potential negative implications for productivity growth in less financially developed countries (Lo and Volz, 2025a, 2025b).

Role of exchange rate regimes

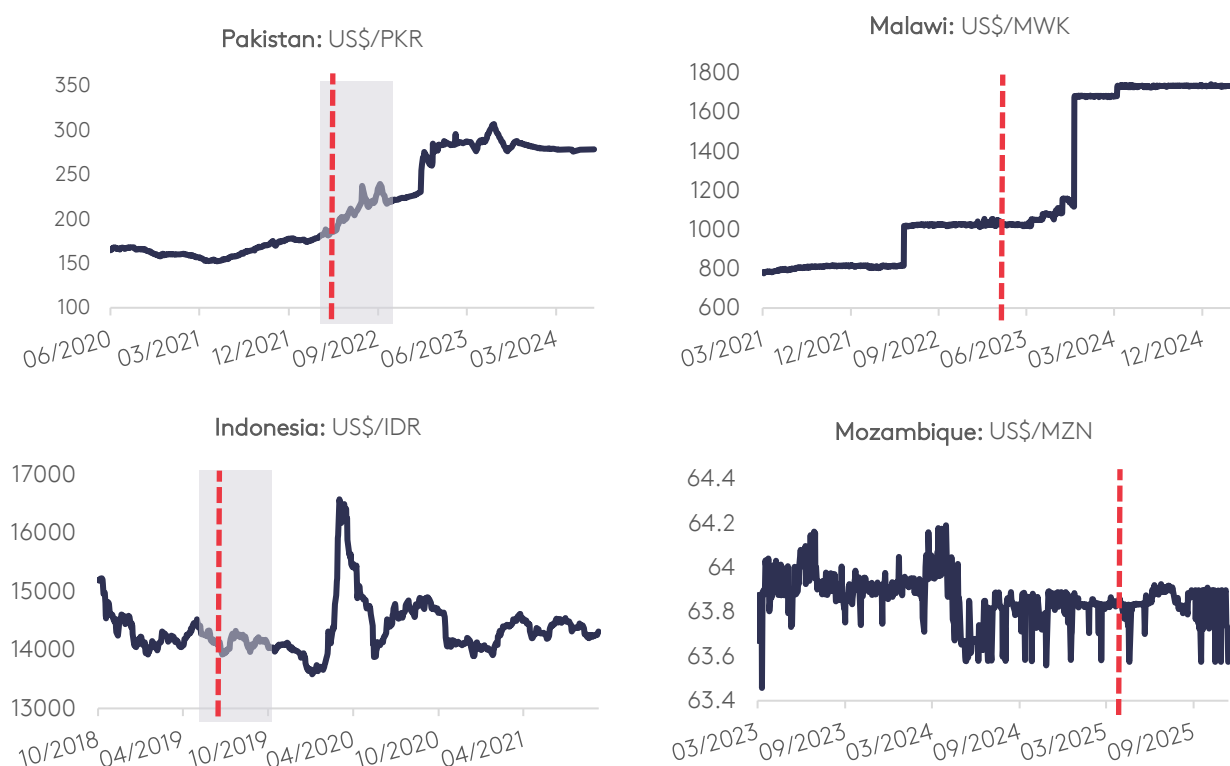
Different exchange rate regimes are also factors in how EMDEs deal with sovereign debt. Under the pegged system, a currency is fixed to another 'stable' currency, often the US dollar. Central banks in EMDEs with pegged currencies must maintain large reserves of hard currency and must buy or sell hard currency to maintain the value of the domestic currency within a strict range, thus avoiding swinging changes in the value of the domestic currency. The pegged approach has the effect of limiting the flexibility of the government's monetary policy. On the other hand, under the floating currency system, currencies are vulnerable to significant fluctuations in value and are much more volatile than in the pegged system (Bharadwaj et al., 2025). In recent decades, many EMDEs have also adopted a managed floating currency. Under this system, the central bank intervenes to smooth currency volatility, but broadly reflects the market price.

A study by the International Monetary Fund (IMF) qualifies this further, showing that vulnerability to currency fluctuations depends on a country's exchange rate regime. The IMF found that nominal and real effective exchange rates could depreciate by up to 6% two years after a climate-related shock in non-pegged regimes, while pegged EMDEs saw a 2% appreciation over the same period (IMF, 2024). Using broader weather-related shocks instead of specific disasters, a study by Elekdag and Tuuli (2023) found similar results; floating regimes depreciate in response to shocks, while pegged currencies show no significant change. They also find that, in the longer term, this difference affects the GDP growth of EMDEs, with floating regimes recovering more quickly. A 1°C rise in temperature reduces medium-term GDP growth by 1.4 percentage points under a pegged regime, compared to just 0.6 percentage points under a flexible regime, a gap driven by stronger export growth (Elekdag and Tuuli, 2023). However, the IMF also notes that although depreciation under floating regimes can support GDP growth through export competitiveness, EMDEs should still prepare for debt and financial stability risks after large disasters, and that price stickiness means this is unlikely to trigger higher inflation, at least in the short run (IMF, 2024).

Illustrative examples

Figure 2.1 below shows a selection of countries where there has been a mixed effect on currency depreciation after a climate-related shock. The red line represents a climate-related shock. Where the shocks were felt for months, such as with Pakistan's floods in 2022, the grey bar presents the elongated period of shock. These examples are not evidence of a causal link between climate-related shocks and the depreciation of non-fixed (pegged/non-pegged) currencies. However, they do illustrate the causal chain demonstrated in the reviewed literature. Within this causal link, whether a country's currency is free-floating or managed free-floating is clearly among the leading factors determining the extent of depreciation. In countries where the currency is free-floating, such as Malawi, the volatility is greater as the full market effect of currency volatility is realised. In contrast, in managed free-floating regimes such as Indonesia, Pakistan and Mozambique, the central bank intervenes to smooth the volatility of shocks. While this is a simplification of the complex trade-off that EMDE central banks navigate, the central point remains that climate shocks are often followed by depreciation and this cost is felt by the EMDE. The full extent of the cost may not be captured by exchange rate movements alone, with FX reserves being an important complementary signal, however this is outside the scope of this policy insight. We treat depreciation as an observed phenomenon, without seeking to measure its precise extent or its timing in the immediate aftermath of a climate-related shock. Therefore, the effect of local currency depreciation is expressed either in the exchange rate or through the exchange reserves of the central bank.

Figure 2.1. Sample countries exchange rates relative to the US dollar before and after climate shock



Source: Bloomberg

Note: PKR: Pakistani rupee; IDR: Indonesian rupiah; MZN: Mozambican metical; MWK: Malawian kwacha. The climate-related shocks are: Pakistan flooding in June to October 2022, Malawi torrential rainfall and cyclone March 2023, Mozambique cyclone Jude in March 2025, Indonesia flooding July to September 2019.

In summary, while there is a small and growing evidence base that addresses the interconnected issue of climate-related shocks and currency risk for EMDEs, it is becoming clear that climate shocks are a key factor in currency fluctuations. As climate-related shocks increase in frequency and severity, acknowledging and hedging the risk of currency depreciation is increasingly vital. Climate exposure is also currency exposure; exchange rate risk amplifies the fiscal and external costs of climate disasters, especially for economies with high foreign currency debt and narrow export bases. MDBs and debt management offices should therefore consider currency denomination as a central pillar of climate resilience strategy. While methodologically it is challenging to isolate and determine a causal effect of the climate shock on currency depreciation, the relationship is theoretically logical and the existing empirical evidence suggests that there is an additional depreciation on the currencies of climate-vulnerable SIDS and EMDEs.

3. Identifying frontline countries

The exchange-rate consequences of climate-related shocks fall most heavily on lower income economies with hard currency debt. This raises a practical question for how policy is targeted, namely: which countries are most acutely exposed to such risks and would therefore stand to benefit most from the greater adoption of currency conversion clauses?

Figure 3.1. Climate vulnerability and readiness versus multilateral debt burden



Note: See Appendix for list of countries in the high-climate-vulnerability/low readiness and high-debt quadrant.

Source: JEDG (BIS-IMF-OECD-WB), ND-GAIN (Notre Dame Global Adaptation Initiative); elaborated by the authors.

To answer this question, we position 132 countries along two dimensions in Figure 3.1.² The first dimension is climate-related vulnerability and readiness, measured using the ND-GAIN Country Index from the Notre Dame Global Adaptation Initiative, which combines a country's climate *vulnerability* (exposure, sensitivity and adaptive capacity across six sectors) with its *readiness* to adapt (economic, governance and social factors). The second dimension is the stock of debt owed to multilateral development banks. Given the difficulty of obtaining debt data disaggregated by both creditor and currency, we proxy hard currency exposure using MDB debt as a share of GDP, drawing on the Joint External Debt Hub, maintained jointly by the Bank for International Settlements, IMF, Organisation for Economic Co-operation and Development, and the World Bank. This proxy is reasonable because MDB debt is almost entirely denominated in

² The sample size (n=132) reflects Joint External Debt Hub data availability (originally n=154) alongside data cleaning steps that include removing countries with zero and negligible debt (n=18), those missing GDP figures (n=3; Eritrea, Syria, Yemen), and one duplicate entry for Serbia.

foreign rather than local currency (80-90% of MDB lending is in hard currency). This means the debt obligation is in non-local-currency and is therefore exposed to depreciation of the borrower's exchange rate. We divide each axis at its median, so that high vulnerability/low readiness, and high debt are defined relative to the sample; the median multilateral debt burden is around 7% of GDP, whereas the median score is approximately 45.

The countries listed in the upper right quadrant combine a below-median ND-GAIN score with an above-median stock of MDB debt (see Appendix for full list). These are the frontline countries identified in this policy insight, namely countries for whom a climate-related shock is both more likely to occur and more costly in debt servicing terms should the local currency depreciate. The quadrant comprises 40 countries and is dominated by sub-Saharan African economies, alongside a cluster of small island and Pacific states. Within this group, Rwanda and Lesotho have the largest MDB debt burdens, each close to 28% of GDP, followed by Liberia (23%) and Senegal (19%). Several countries examined in this policy insight, including Mozambique, Malawi and Pakistan, fall within this frontline quadrant, underscoring their relevance as case studies for understanding the climate-currency nexus.

It is important to stress that this framing is indicative as the two axes provide one possible measure of exposure to risk and not its realisation. A country's position does not predict whether or when a climate-related shock will occur; the vulnerability measure is a structural indicator not a forecast. In addition, the ND-GAIN score combines physical exposure to the impacts of climate change, which lies largely outside a country's control and which ND-GAIN treats as fixed, with a country's sensitivity to climate change (e.g. dependence on sectors exposed to its effects or population susceptible to climate-related hazards), its adaptive capacity and its readiness, which measures a country's economic, governance and social factors that determine its ability to leverage investments and convert them into adaptation actions. Unlike exposure, sensitivity, adaptive capacity and readiness are all factors which ND-GAIN treats as capable of change over time. A country's position in the high-vulnerability quadrant may therefore reflect acute exposure to climate-related shocks, underdeveloped adaptive capacity, or both. This matters for how MDBs and donors should read the incentives facing frontline countries. The debt proxy also does not capture the precise currency composition of each country's multilateral obligations, nor other factors, such as exchange rate regime, reserve adequacy and export concentration that further determine the fiscal cost of depreciation. Nonetheless, the quadrant provides a useful visualisation of where the climate-currency nexus may be most pronounced, and where the instruments discussed in the remainder of this policy insight could be most needed.

4. Sovereign yields and climate-related shocks

Impact channels

Climate-related shocks influence sovereign yields and debt sustainability through three main channels. First, climate-related shocks worsen fiscal balances by raising spending needs and suppressing revenues. Second, shocks heighten the perceived default risk, which investors incorporate as higher spreads. Third, depreciating local currencies in the aftermath of climate-related shocks lead to higher debt burdens in hard currency in domestic currency terms, which increases debt service ratios further (Bharadwaj et al., 2025; Hale, 2024).

Empirical analyses find a positive correlation between climate vulnerability and sovereign yields. Rising climate-related risks raise realised volatility and risk compensation in EMDE currencies (Bonato et al., 2023; Ezekwe and Aor, 2025). Climate-related shocks also produce temporary yet significant increases in sovereign spreads, especially in cases where external debt is large and reserves are limited (Hale, 2024). Together, these trends lead to EMDEs and SIDS facing outsized debt service costs when climate-related shocks weaken their currencies (Bharadwaj et al., 2025).

Recent policy literature also highlights the structural nature of currency risk in sovereign debt portfolios. As noted, hard-currency denomination dominates lending to low and lower-middle-income countries (80-90%), exposing borrowers to significant FX volatility that undermines debt predictability, a prerequisite for long-term debt sustainability. Despite the availability of indexed local currency financing, many DMOs are unaware of its mechanics or benefits (TCX, 2025). Although concessional hard-currency debts may appear cheaper in nominal terms, they do not account for the long-term fiscal impact of currency depreciation. Indexed local currency instruments, while carrying higher upfront interest costs, can reduce credit spreads and improve debt sustainability over time (TCX, 2025). This is particularly relevant for countries with narrow export bases and high external debt exposure, where FX risk translates directly into fiscal stress.

In this way, the literature suggests that MDBs and DMOs should treat currency risk as a core component of debt sustainability analysis. Managing these risks requires not only technical tools such as swaps and indexed instruments, but also institutional capacity, political will and long-term planning frameworks that align debt strategy with climate-related resilience.

Climate-related debt risk toolkit

As climate-related shocks intensify and compound existing macroeconomic vulnerabilities, the international financial community has begun to expand and refine the toolkit available to sovereign borrowers for managing climate-related debt risks. At the Fourth International Conference on Financing for Developments (Seville, 2025), MDBs, governments and private investors endorsed a set of financial instruments aimed at improving sovereign resilience to climate-induced FX and yield shocks. Table 4.1 summarises some of these instruments.

Effective debt-management strategies must blend fiscal, currency and financial-market tools. The optimal mix will vary by country. Economies where the US dollar is used in parallel or as a substitute for the local currency may prioritise contingent instruments, such as debt-pause clauses. In contrast, economies with deeper local markets (those characterised, among other things, by high bond-market liquidity and a broad domestic investor base) can benefit most from MDB-facilitated local-currency lending and derivative hedges. For MDBs, it is essential to integrate climate-risk metrics into pricing and portfolio allocation to maintain development impact without exacerbating FX-linked vulnerabilities (Bharadwaj et al., 2025; Hale, 2024). However, as shown in Table 4.1, currently few of the tools used by MDBs deal directly with FX risk.

Table 4.1. Instruments for managing climate-related sovereign debt risks

Instrument	Flexibility	Cost and pricing	Duration and timing	Trigger or activation	Link to FX risk
Extension of maturity and grace periods	Negotiated relief	May affect future pricing	Medium- to long-term deferral	Post-disaster negotiation of pre-agreed clause	Indirect link to FX – currency not addressed
Debt pause clause	Post-shock	Minimal direct cost to borrower	Short-term suspension	Pre-agreed disaster event	Indirect as FX risk may persist during pause
Catastrophe bonds	Structured payout mechanism	Market-price paid by issuer/investor	Fixed term, payout upon event	Parametric trigger (e.g., hurricane index)	Indirect; transfers disaster risk, not FX risk directly
Debt-for-nature swap	Negotiated restructuring	Opportunity cost of foregone debt recovery	Long-term restructuring	Bilateral agreement, policy commitment	Indirect as FX risk depends on new debt terms
Local currency debt	Market depth-dependent	High upfront cost; FX risk typically hedged rather than borne by the MDB	Full loan duration	At disbursement	Direct link
Currency conversion clause	Ability to switch mid-loan	Transaction fees, borrower pays for hedging	Flexible; post-disbursement or mid-loan	Borrower request subject to lender approval	Direct, mitigates FX risk

Source: Sevilla Commitment: Outcome Document adopted at the Fourth International Conference on Financing for Development (A/RES/79/323) (2025)

5. Currency conversion clauses

Currency conversion clauses (CCCs) versus local currency lending

Local currency conversion is when a loan originally denominated in a foreign currency or hard currency is converted into the borrower's domestic currency. Conversion options typically apply to both disbursed and undisbursed loan amounts and may be exercised at various stages of the loan lifecycle. Local currency conversion is subject to market availability and the lending institution's ability to identify an intermediate currency or to hedge the local currency. Conversion often requires amendments to the loan agreement and may involve additional transaction fees or cost pass-through mechanisms reflecting the bank's funding or hedging costs (ADB, 2025).

In contrast, local currency loans are disbursed and serviced entirely in the borrower's domestic currency. They eliminate exchange rate risk from the outset and provide greater fiscal predictability for the DMO in the EMDE. These loans are more common in countries with more liquid currencies. However, they require the lender to mobilise funding in the local currency or absorb the FX risk on its own balance sheet or to find a counterparty. This can limit the scale and availability of such loans, especially in smaller or less developed markets.

On the other hand, CCCs offer a flexible mechanism for managing FX risk. CCCs preserve the initial hard currency funding structure. This makes them easier to implement in different markets, while remaining scalable and responsive. However, CCCs introduce a degree of complexity in loan administration and require robust monitoring of macroeconomic indicators. MDBs also need to be proactive in promoting CCCs as their overall uptake by EMDE DMOs is low.

MDB case studies

Multilateral development banks offering CCCs include the World Bank, which provides conversion of disbursed loan balances into local currency through its IBRD Flexible Loan and free-standing local currency swaps (World Bank Treasury, 2024), as well as the Inter-American Development Bank (see Box 5.1) and the Asian Development Bank (see Box 5.2).

Box 5.1. Inter-American Development Bank (IDB) Flexible Financing Facility

The IDB offers sovereign borrowers a currency conversion option through its Flexible Financing Facility (FFF). This mechanism allows countries to convert outstanding loan balances from US dollars into local currencies, helping mitigate FX risk exposure. Since 2012, IDB has included currency conversion clauses through its FFF in every loan contract it has made with sovereign borrowers. In 2024, US\$4.6bn was converted to local currencies – around 5% of IDB's total outstanding balance.

Conversions under the FFF are subject to market availability and IDB's capacity to source a counterparty or execute hedging transactions. IDB does not hold any risks; swaps are carried out by organisations such as TCX or market counterparties. IDB pays local currency to the borrower and receives US dollars from the swap counterparty. These conversions can be from HCY to LCY or HCY to other HCYs.

Borrowers may request full or partial conversions, and the facility supports forward exchange rate fixing, enabling governments to lock in future rates. Each loan can be split into tranches with distinct financial structures, including currency denomination, interest rate type and repayment terms. Fixing rates in advance incurs an option cost, which is worked into the terms of the loan contract. There is scope within the FFF to envisage the arrangement of a conversion based on a rate that predates any climate-related shock. Such an arrangement would incur a fee of five basis points (0.05%), the same as the climate debt pause clauses of the World Bank, with an additional cost based on expectations of currency depreciation.

A key feature of the FFF is its flexibility: borrowers can initiate conversions mid-loan, allowing for responsive risk management. However, the facility includes operational constraints. For example,

conversions to currencies of countries that are not World Bank members are capped at four per contract, though conversions to local currencies are exempt. A minimum threshold of US\$3m applies to any conversion, and IDB retains discretion to reject requests during market disruptions.

The FFF has proven useful for countries facing climate-induced fiscal stress, offering a scalable tool to reduce FX exposure without requiring full local currency lending infrastructure. However, borrowers must weigh the cost implications, including potential surcharges for non-standard conversions and the administrative complexity of managing multiple tranches.

Crucially, IDB does most of its conversion through swaps rather than by issuing local currency bonds on the onshore market. The use of swaps to initiate loan currency conversion is a strength of the FFF and supports broader market development of EMDE, SIDS and LDC currency swap markets.

Currency conversion is increasingly being used as a loan product by MDBs. While the mechanics differ across institutions, the underlying objective remains consistent: to offer borrowers flexibility in managing currency exposures and to support broader debt sustainability goals.

Box 5.2. Asian Development Bank (ADB) Flexible Loan Product

The ADB includes currency conversion options within its Flexible Loan Product (FLP), which enables sovereign borrowers to switch from foreign to local currency either at disbursement or during the loan's life. Importantly, ADB frames its conversion clause as a product feature rather than a crisis response tool. This allows borrowers to proactively manage FX risk, aligning debt servicing with domestic fiscal realities.

ADB offers both fixed and floating rate options, contingent on market conditions and its ability to source local currency funding or execute derivative hedges. Two funding approaches are used: pool-based and back-to-back. Pool-based loans may attract rebates or surcharges depending on the cost margin, while back-to-back funding via bond issuance or swaps passes all costs directly to the borrower.

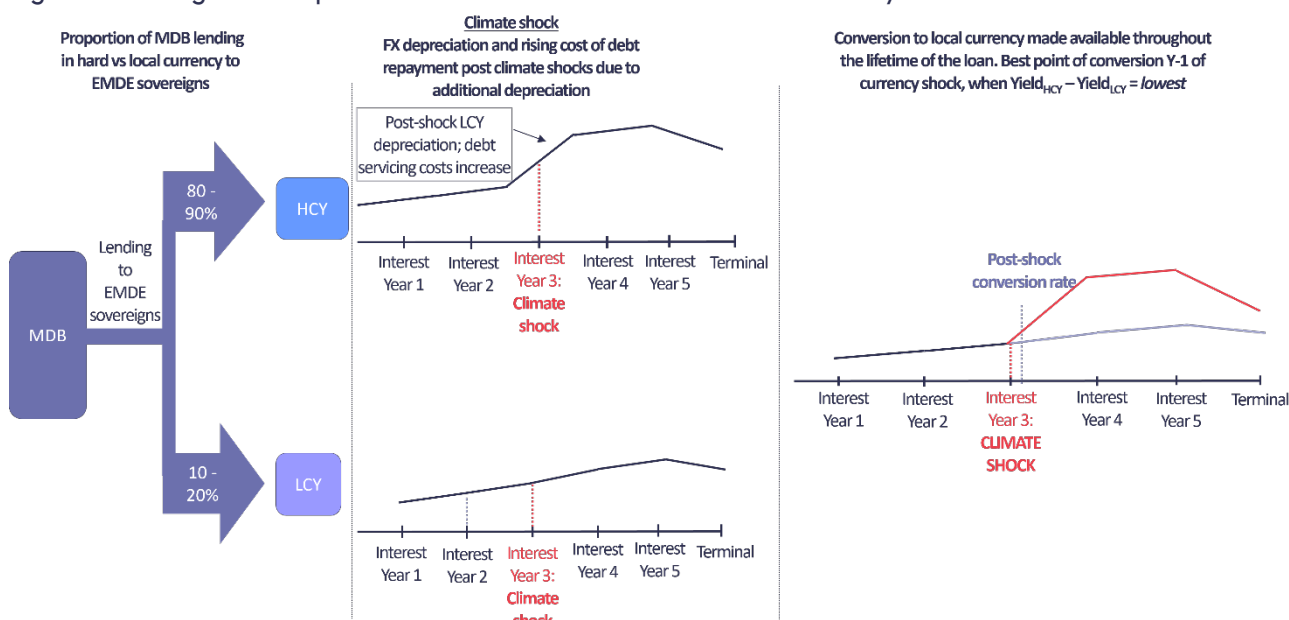
Post-disbursement conversions follow a cost pass-through model, with fees payable in local currency on each interest payment date. Conversion requests require amendments to the loan agreement and are evaluated on a case-by-case basis. ADB's approach emphasises transparency and borrower discretion, but hinges on market depth and the bank's capacity to hedge the resulting FX exposure. In a recent case, Indonesia converted 27 sovereign loans totalling US\$3.3bn from US dollars and Japanese yen into the local currency, Indonesian rupiah, in what was ADB's first large-scale local currency conversion (May 2025). The Indonesian authorities cited lower financing costs and greater fiscal space as the rationale. For other DMOs, this illustrates the benefits of proactively monitoring market conditions and managing currency exposure.

These cases show that some MDBs have CCCs embedded in some of their loan products, and they are being used by astute EMDE DMOs. A wider review examining whether all MDBs can offer CCCs in their lending to EMDEs is crucial and opens avenues for further research on improving local currency financing conditions for EMDEs. CCCs can play a vital role in supporting EMDEs to mitigate vulnerability to climate-related shocks and the impacts of natural disasters.

Conversion timing

In Figure 5.3, we illustrate different scenarios facing DMOs depending on the denomination of their sovereign debts to MDBs. We point out that the vast majority of lending by MDBs continues to be done in foreign ‘hard’ currency. We then illustrate a climate-related shock, where if the loan was in LCY, the additional FX depreciation has no additional effect. If, however, the loan was in HCY, the depreciation of the LCY would add to the burden of interest and principal payments on the loan. The figure illustrates how a DMO with an LCY loan, thanks to a pre-shock conversion, is the ideal scenario. If the DMO has a HCY loan in the phase following the climate-related shock, it now faces additional local currency depreciation due to the shock. This short- and long-term depreciation of currency can lead to higher debt servicing costs compared to a scenario where the DMO converted the loan to LCY prior to the shock. Finally, the figure illustrates the options for a DMO after a climate-related-shock where the DMO has a HCY loan. As discussed above, the academic evidence suggests post-shock depreciation is concentrated among the most vulnerable borrowers. A similar pattern emerges across exchange-rate regimes, where depreciation reaches up to 6% in non-pegged regimes two years after a shock (IMF, 2024).

Figure 5.3. Diagram of options for a DMO with a hard or local currency debt from an MDB



Note: The interest in the y axis refers to interest and principal payments.

Source: Authors' illustration, intended for illustrative purposes only.

As Figure 5.3 illustrates, a DMO with a hard-currency loan from an MDB will typically face higher local-currency debt-servicing costs in a post-shock world than in a pre-shock one, since the loan's foreign-currency payments must now be met from a weaker local currency. The evidence base for emerging and developing economies that are more frequently exposed to natural disasters suggests that they should convert such loans to local currency as early as operationally possible after a shock, rather than delaying. Lo and Volz (2025a) find that, for IDA-eligible borrowers specifically, three out of five major disasters are followed by nominal local-currency depreciation within a year, rising to an average cumulative depreciation of around 7% over two years. Their real effective exchange rate regressions, which are trade-weighted and inflation-adjusted, find statistically significant depreciation occurring in the first and third quarters after a disaster, robust across alternative lag specifications. For the group of countries examined in this policy insight, waiting is, on average, a losing proposition on the exchange rate alone.

DMOs should consider the benefits of converting a HCY loan after a climate-related shock, at the prevailing exchange rate, since that rate would likely already reflect the shock and so make debt servicing more expensive regardless. However, it is important to consider the transaction costs

associated with conversion, which have not been quantified in this policy insight. If MDBs were to truly support vulnerable countries and their DMOs, offering conversion at an exchange rate fixed just before the climate-related shock would shield the DMO from the shock's immediate currency depreciation, and would be more advantageous than conversion at the post-shock rate. In either case, MDBs would need to build CCC provisions into their loans and offer conversion options to DMOs after a shock, so that DMOs can decide on the most debt-sustainable path forward.

Lo and Volz (2025b) also find that FX volatility, for the full sample, rises before any visible change in the exchange rate, and that the volatility spike for IDA-eligible borrowers is sharper, if shorter-lived, than for the full sample. This may give DMOs a further reason to consider converting early, as volatility itself creates debt-servicing uncertainty ahead of any depreciation, and a government already under fiscal strain from a disaster may be poorly positioned to absorb a bad outcome. Removing that exposure has value even though it also gives up any benefit from a future appreciation, again without netting out the cost of the conversion itself.

6. Conclusion and recommendations

Although the relationship between the climate and currency valuations is not yet established as causal, climate-related shocks, such as natural disasters pose a risk of currency depreciation for EMDEs. Managing sovereign debt is made ever harder as climate shocks of increasing frequency and severity lead to short- and long-term currency depreciations. As the vulnerability mapping in this insight shows, these risks can be understood to be concentrated among a group of frontline countries that combine high vulnerability to the impacts of climate change with substantial hard currency multilateral debt. It is for these countries that the case for action is arguably strongest.

Recommendations for MDBs, debt management offices and MDB shareholders

Immediate areas of action for MDBs:

- MDBs should work with EMDE and SIDS DMOs to develop solutions to overcome the uncertainties and risks of mounting climate-related shock pressures on local currencies.
- Currency conversion clauses already exist, but awareness of these instruments is limited among DMOs. This means that many DMOs do not currently convert their debts until it is too late. We therefore recommend MDBs actively offer DMOs the option to convert hard currency debts to local currency after a country has suffered a climate-related shock.
- If the country is unable to bear the immediate higher payments post-conversion due to liquidity concerns, we recommend MDBs consider combining such a conversion option with existing products, such as the World Bank's or the Inter-American Development Bank's Climate Resilient Debt Clause (CRDC), which allows for deferment of loan payments after a shock for up to two years and involves a premium charged for offering the product. In the World Bank's case, this premium is five basis points per annum, though this cost is absorbed by the Bank itself rather than passed on to the borrower. A combination of deferment and conversion might be amenable to such DMOs.

Debt management offices – knowing when to convert currencies:

- For EMDEs and SIDS DMOs, strategic timing is crucial. If MDB hard currency debt includes a CCC, the debt could be converted when the yield curve differential is favourable.
- Critically, at the point of a climate shock, if hard currency debt has not yet been converted, DMOs should seek to convert as early as is operationally feasible, at the prevailing post-shock rate, to limit further exposure to currency depreciation and volatility.

An important role for MDB shareholders:

- Overall, we argue that MDBs should prioritise lending to EMDE and SIDS in local currency wherever possible. When this is not feasible, MDBs should incorporate local currency conversion clauses (CCCs) into as many debt products as possible.
- MDB shareholders should encourage these institutions to lend in local currency as a priority. When this is not possible, shareholders should insist on CCCs in debt instruments.

Developing more targeted solutions through new research

Further research is needed to develop a more targeted solution for the challenge of intensified currency depreciations from climate shocks. Different exchange rate regimes feel the effect of currency depreciation from climate shocks at different timespans. Whether this influences the ability of DMOs to manage HCY debt will be a crucial area of inquiry. Another vital area of research is quantifying the cost differential for different EMDEs and SIDS to convert their HCY debt pre- or post-shock. Whether conversion costs are significant enough for DMOs to bear, and whether donor countries and MDBs would need to support them with those costs, will be a crucial policy question going forward. A related area of further research is quantifying the differences in HCY, HCY with CCC and LCY debt costs from both the lenders' and debtor's perspective.

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Appendix: Countries in the high-climate-vulnerability, high-debt quadrant of Figure 3.1

Country	ND-GAIN vulnerability score	Multilateral debt as a % of GDP
Rwanda	43.3	28.8
Lesotho	41.5	28.3
Liberia	37.1	22.8
Senegal	40.9	19.4
Mozambique	38.5	18.7
Nicaragua	41.7	18.4
Nepal	43.6	18.0
Madagascar	35.2	17.4
Niger	35.1	17.0
Tanzania	39.8	16.5
Kenya	40.3	14.8
Burkina Faso	37.7	14.5
Malawi	36.9	14.5
Vanuatu	40.5	13.6
Uganda	37.4	13.4
Marshall Islands	41.7	12.7
Honduras	40.7	11.8
Benin	38.5	11.6
Guinea-Bissau	33.2	11.5
Mali	35.3	11.4
Ecuador	43.6	11.2
Bolivia	41.7	11.1
Zambia	42.5	11.1
Tonga	42.3	11.0
Laos	42.5	10.6
Pakistan	39.2	10.3
Solomon Islands	38.5	10.1
Ethiopia	38.5	10.1
Papua New Guinea	37.1	10.1
Sierra Leone	35.0	9.9
Djibouti	41.0	9.6
Micronesia	37.3	9.4
Eswatini	42.9	9.2
Cambodia	40.5	8.7
Cameroon	38.7	8.6
Gabon	42.6	8.3
Bangladesh	35.5	8.0
Ghana	45.0	7.8
Gambia	40.3	7.5
Kiribati	44.5	7.4