

Session 4: Financing strategies

Chair of session: Katie Kedward

December 6th, Paris

The 'Hidden Cost' of Sustainable Debt Financing in Emerging Markets

Authors: Jamie Rickman, Sumit Kothari, Nadia Ameli

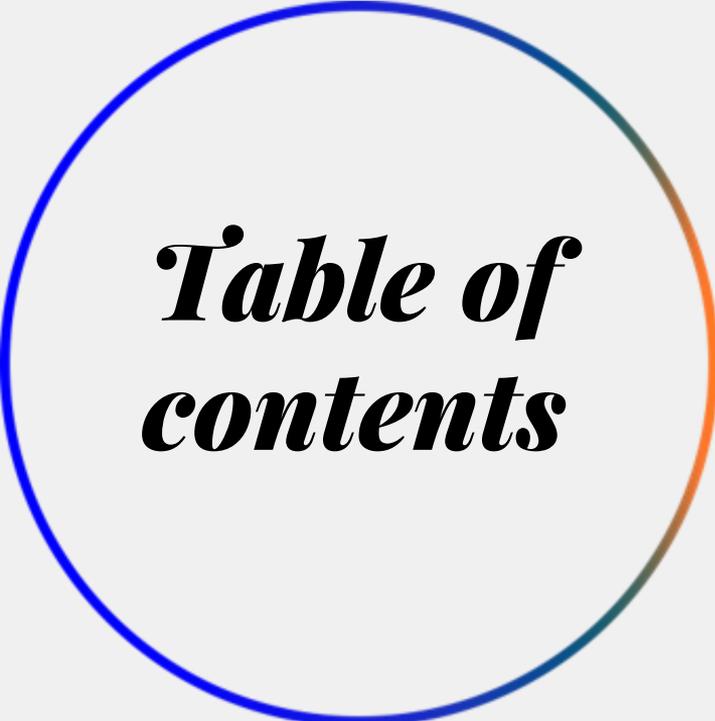
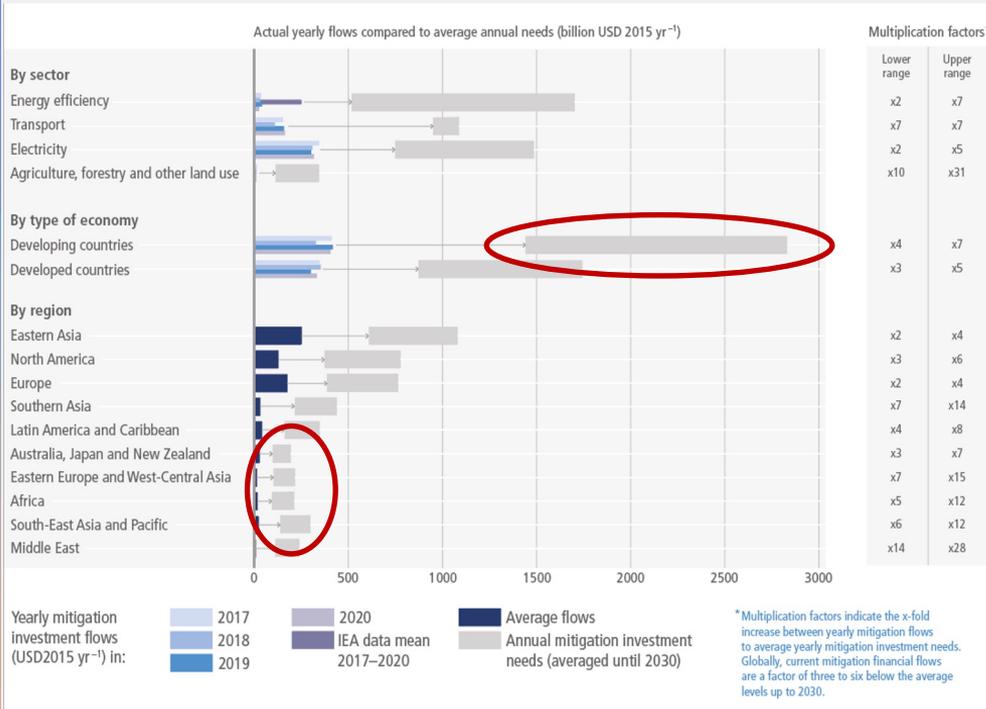


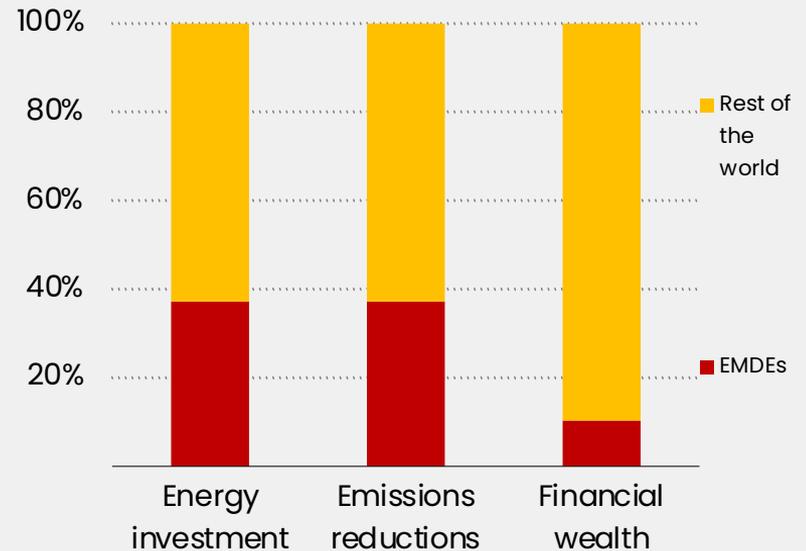
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Context: The investment challenge and lack of capital in emerging and developing economies (EMDEs)



Emerging and developing economies account for around 40% of energy investment and emissions reductions, but hold only 10% of global financial assets



Sources: IPCC 2022, IEA (2022)

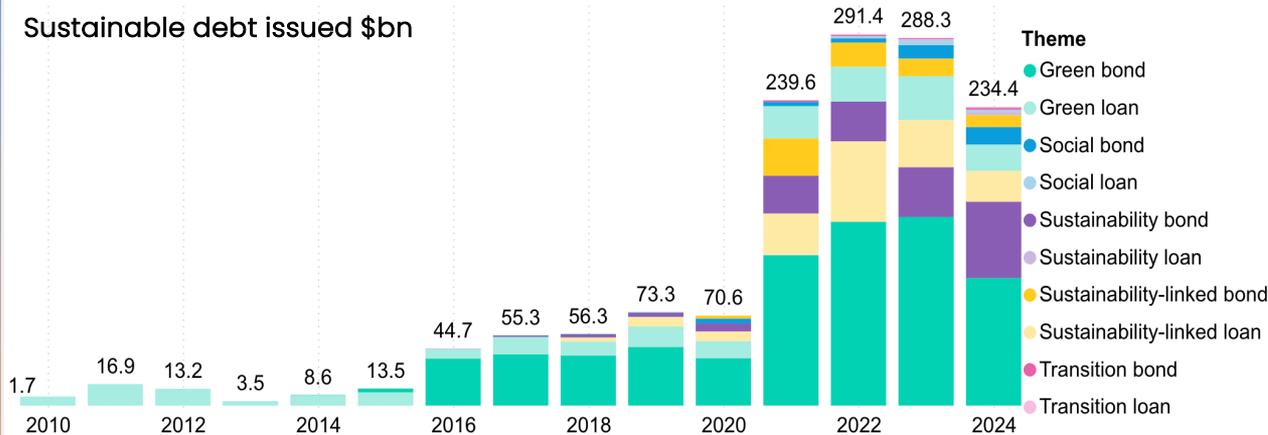
Global wealth is defined as cumulated financial asset value, including investable (equity, bonds, deposits etc.) and non-investable (unlisted debt and equity, life insurance and pensions) assets

Context: International debt markets provide a critical capital source for EMDEs

Foreign capital is needed: international debt markets hold large pools of financial capital and serve as a crucial financing source, particularly for commercially viable projects

EMDE sustainable debt markets have grown rapidly in recent years

Sustainable debt issued \$bn



Sources: BNEF (2024)

Most sustainable debt is issued in **hard currencies** (USD and euros)

In 2023, **only 1%** of global green bonds from EMDEs (excluding China) were issued in **local currencies**

EMDE borrowers often face a choice between a *hard currency loan* – bearing the currency risk – or *no loan at all* (“**the original sin**”)

Challenge: the Currency Mismatch (between corporate revenues in local currencies, and debt obligations in hard currencies)

Currency risk is a key macro-factor blocking international sustainable finance from reaching emerging economies

Micro
(Companies)

- Exposed to exchange rate fluctuations
- Increased financial vulnerability
- Their risk of default increases

Macro
(Economy)

- Amplifying the impact of economic shocks
- Constraining economic policy
- Leading to sovereign credit rating downgrades

Currency risk-mitigation and guarantee solutions are being called for by the international climate community

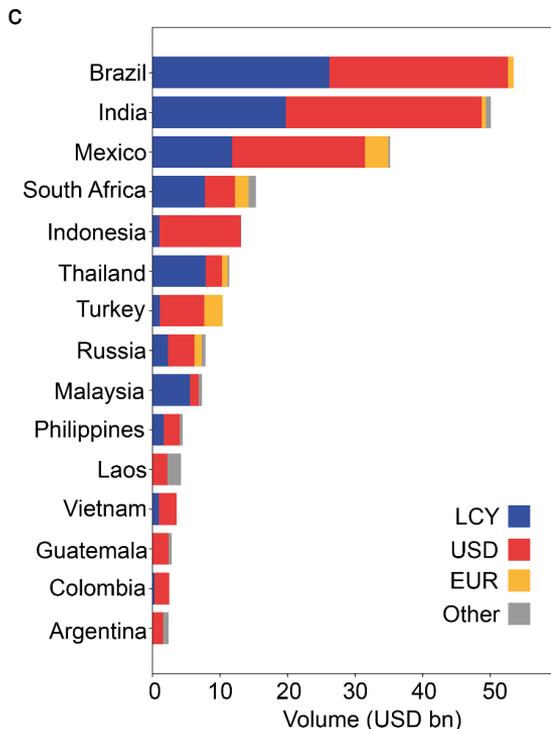
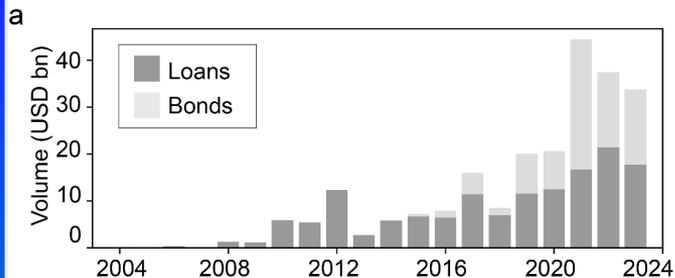
*“If you're an investor investing dollars, euros or yen into a country, and your earnings are principally in local currency, that's an **unhedged exposure**”*
(Ajay Banga, 2024)

*“Currency risk is **stifling** climate finance for developing countries. It should – and can – be mitigated”*
(OECD, 2024)

*“**Unblocking** the green transformation in developing countries with a partial foreign exchange guarantee”*
(Persaud, 2023)

*“Currency exchange rate risks are a **key barrier** to large-scale foreign investment in climate solutions, such as renewable energy, in developing countries”*
(Climate Investment Funds, 2024)

Landscape: Sustainable debt market in EMDEs



Significant growth in sustainable debt markets began **around 2010-2012** in major emerging markets like India, Brazil, and Thailand.

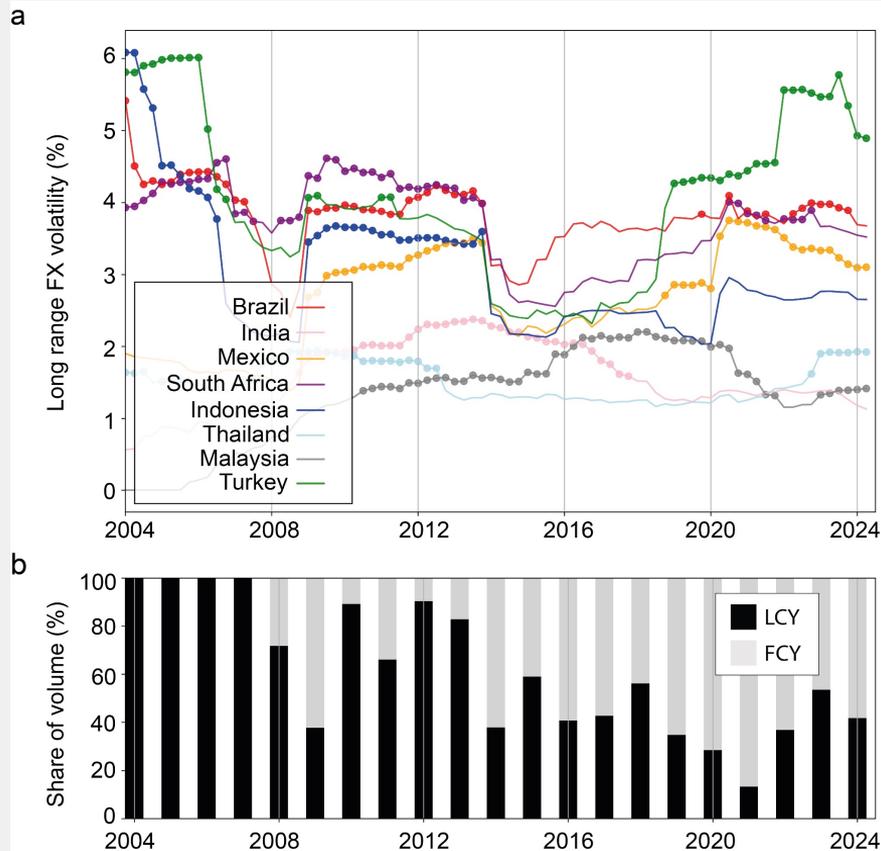
Loans were the primary financing channel **initially**, with **bonds gaining prominence after 2015** and representing 48% of the sustainable debt universe between 2019 and 2023.

Foreign currency debt issuance during the study period ranged from 25% in Malaysia (leading markets for Islamic 'sukuk' green bonds) to 100% in Laos, with an average of 70%.

Sustainable debt issuances from 1996 to 2024 ~ 239 billion USD (Bloomberg data, China is excluded from our analysis)

The US dollar dominates foreign currency debt, accounting for 80% of all such issuances

Landscape: Currency mismatch is growing



The share of foreign currency-denominated debt grew from an average of 17% (2004-2013) to 61% (2014-2023)

The **rise in foreign currency debt coincided with significant growth** in EMDE sustainable debt markets.

Countries with higher-than-average currency risk issued substantial volumes of sustainable debt (e.g. Brazil, South Africa, Mexico).

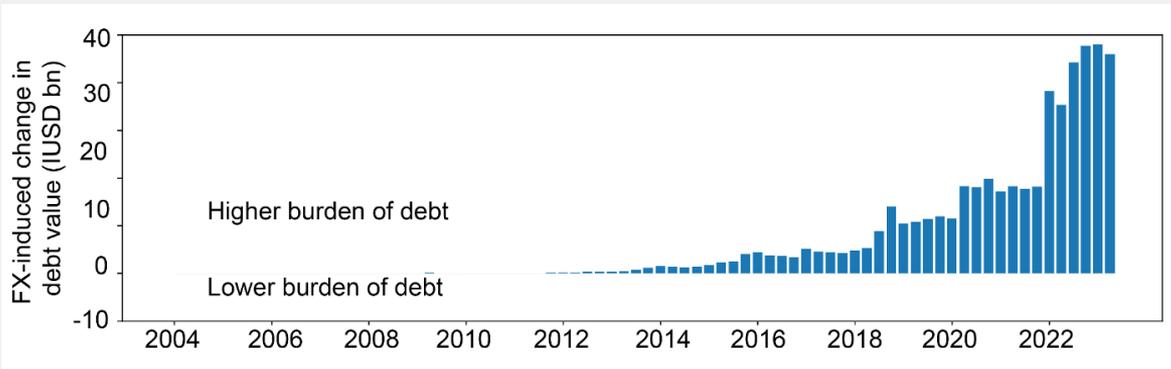
Currency risk has not hindered market growth but **has influenced currency composition**, leading to increased foreign currency borrowing and debt dollarization.

Line graph shows long-run quarterly foreign exchange (FX) volatility for the top eight EMDEs between 2004 and 2024. Circle markers indicate quarters where FX volatility is above the 2000-2024 average in each country

Results: The hidden cost of sustainable debt

The depreciation of domestic currencies against a prominent foreign currency (e.g. USD) creates a **hidden cost for borrowers** earning revenues in domestic currency

Foreign currency depreciation increases the burden of sustainable debt, as seen in the exchange rate fluctuations affecting debt values in EMDEs



FX-induced changes in sustainable debt are calculated by comparing the value of foreign currency bonds and loans at issuance with their value in a specific quarter

During Q1 2020, EMDE currencies dropped sharply against the US dollar due to pandemic-driven economic volatility.

By Q2 2020, corporates in the top eight EMDEs faced an additional USD 16 billion debt burden, a 66% increase from the previous quarter.

Results: Currency volatility, global uncertainty and credit ratings drive currency choice

Currency risk (FX volatility)

Currency risk is the most significant factor in our model. High volatility increases reliance on foreign currency debt.

Global uncertainty (market volatility and investor sentiment)

Increased global uncertainty drives a 'flight-to-safety' phenomenon. A rise in uncertainty drives demand for dollar assets, reducing local currency debt.

Sovereign credit risk (sovereign rating)

A lower sovereign credit risk (or higher sovereign credit rating) increases the likelihood of issuing foreign currency debt, rather than promoting the issuance of local currency debt.

The modeling exercise focuses on India, Brazil, South Africa, Mexico, Thailand, and Indonesia. China, Malaysia (a leading market for Islamic Sukuk bonds), and Turkey (dominated by euro-denominated bonds) are excluded

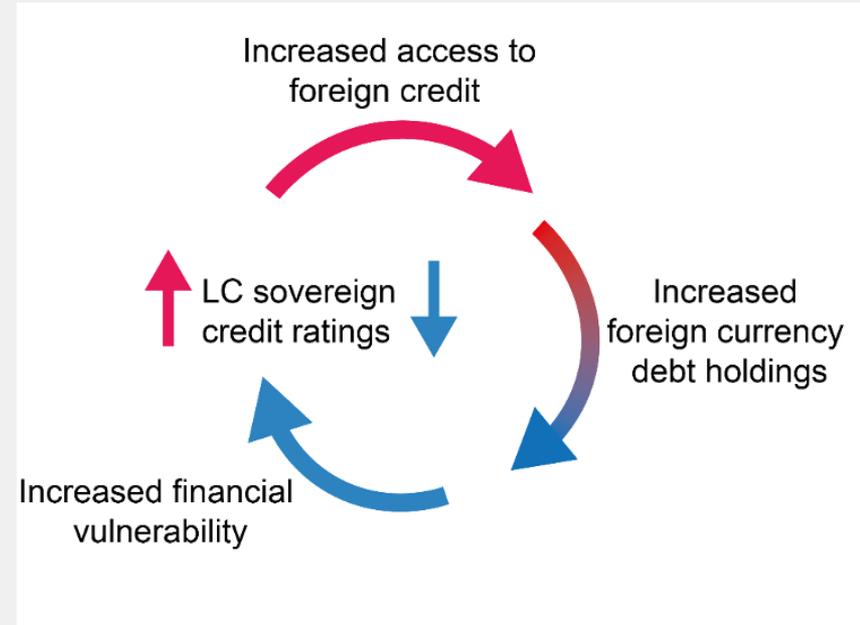
The analysis includes macro-risk variables (e.g. currency risk, sovereign credit risk, political risk, global uncertainty) and controls for deal-specific factors like debt size, maturity, and type

Results: The Rating Trap

Higher sovereign credit ratings increase access to foreign capital, leading to more foreign currency debt issuance, rather than encouraging local currency financing or reducing domestic currency risk premiums

Greater **reliance on foreign currency debt creates financial vulnerabilities** at both the firm and country levels, potentially increasing borrowing costs and leading to a decline in sovereign credit ratings over time.

Political risk, despite being part of sovereign credit ratings, **does not significantly affect** the likelihood of **foreign currency debt issuance**.



Conclusions and key takeaways:

- **Addressing Currency Mismatch**

Sustainable debt markets in EMDEs are crucial for financing climate and sustainability projects. However, the dominance of hard currency borrowing exposes non-exporting companies (e.g. energy and utility companies) with limited hedging options to significant exchange rate risks.

- **Systemic Impacts of Currency Risk**

At the macroeconomic level, currency mismatches on corporate balance sheets aggregate into vulnerabilities, amplifying risks during global economic uncertainties. This issue becomes more pressing as sustainable debt markets expand rapidly

- **Global and Sovereign Risk Dynamics**

- High currency volatility undermines local currency debt financing, while global uncertainties trigger a "flight-to-safety" toward hard currency debt, evident during crises like COVID-19 and the Russia-Ukraine war.
- A "ratings trap" emerges where improved sovereign credit ratings encourage foreign currency borrowing but fail to mitigate currency risk or borrowing costs, exacerbating financial vulnerabilities.

Conclusions and way forward:

Mitigating Currency Risk During Global Uncertainty:

- *Strengthen currency-risk mitigation mechanisms* (e.g. FX hedging instruments) or dedicated credit lines, in times of global uncertainties to counter the "flight-to-safety" effect and reduce dependence on foreign currency borrowing
- *Adopt counter-cyclical tools*, like partial exchange guarantees to stabilize FX markets during macroeconomic volatility.

Promoting Multilateral Risk Intermediaries or a "Global FX facility"

- Create institutions to consolidate and manage currency risk across diverse markets, supporting EMDE borrowers. Beyond their role in mitigating exchange rate volatility, these entities would also function as stabilizing agents during crises, stepping in to purchase debt and provide liquidity, thereby preventing defaults and maintaining market confidence.

Boosting domestic currency (more long-term):

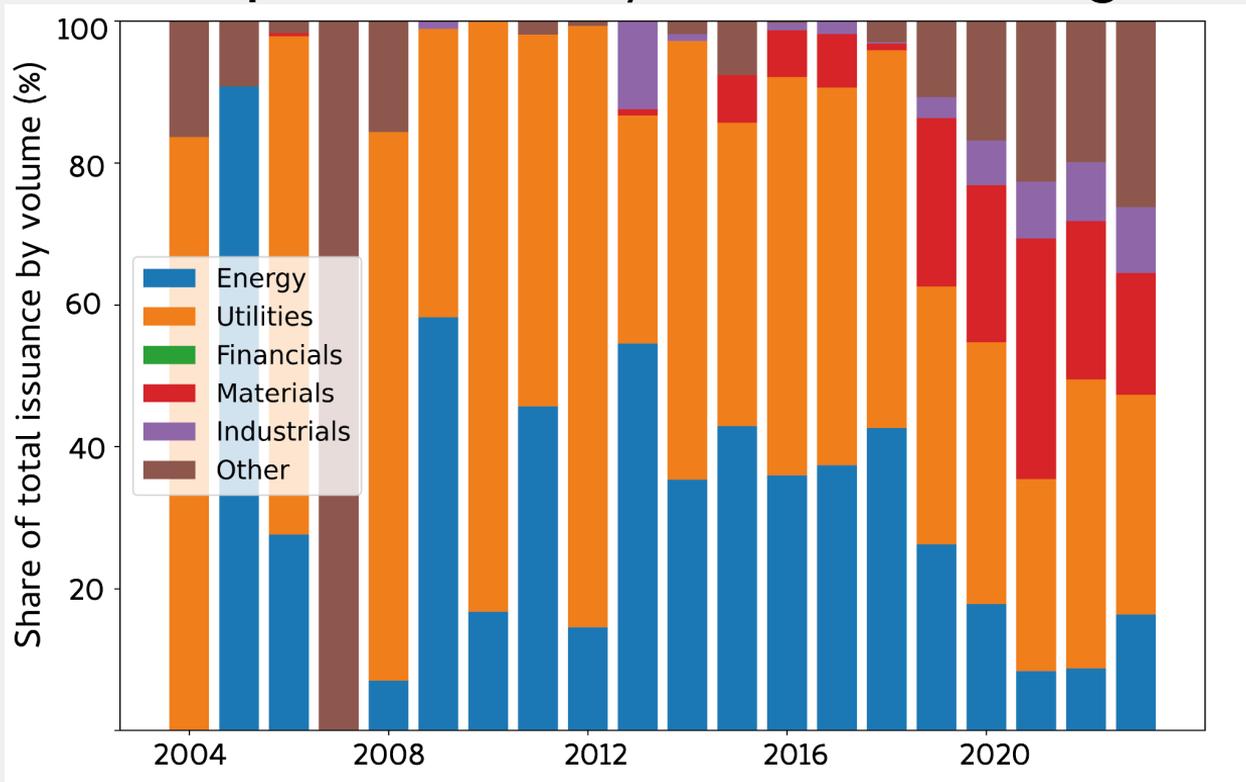
- **Promote Local Currency Financing:** Establish robust regulatory frameworks and market infrastructure to support innovative financial instruments, ensuring sustainable finance access for borrowers while mitigating currency risks
- **Enhance Public-Private Collaboration:** Develop investment frameworks where public and private sectors, with multilateral backing, share risks, provide technical assistance, and create incentives to attract diverse investors and strengthen market stability.

Thank you

Annex



Landscape: Currency mismatch is growing



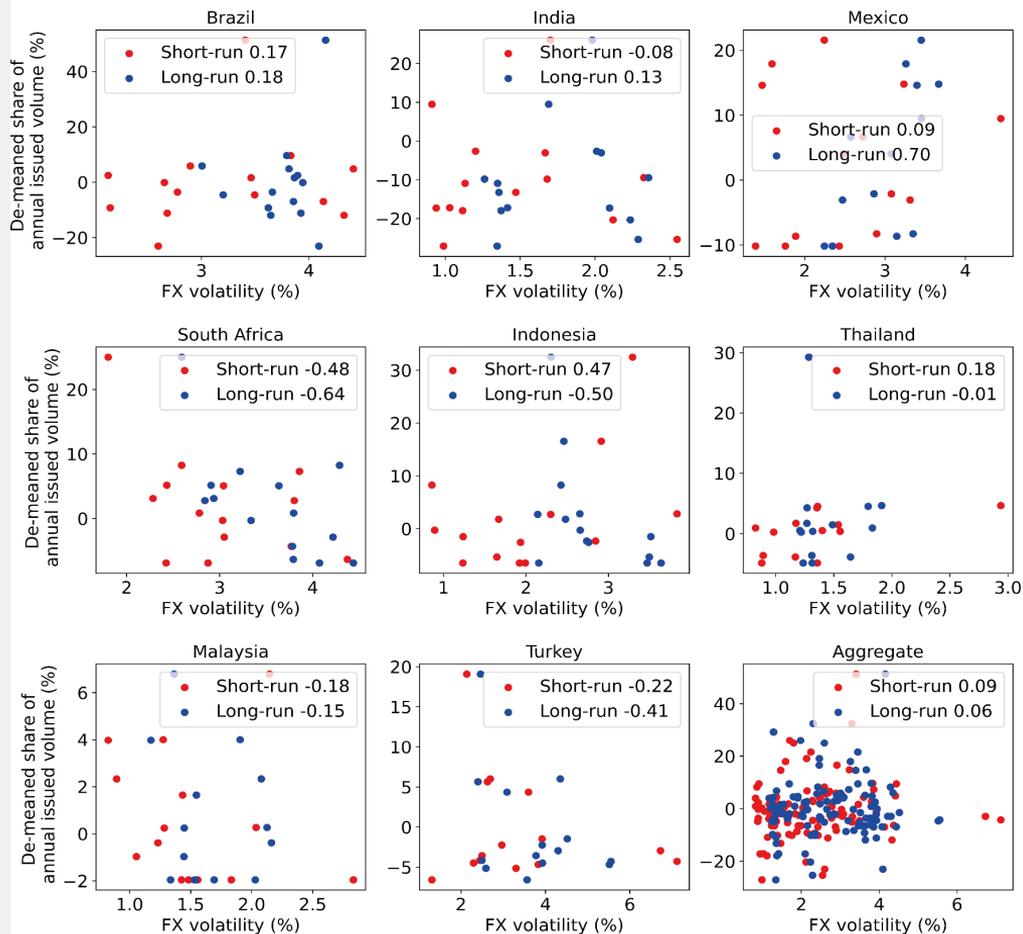
Many borrowers, like energy and utility companies, lack natural currency hedges

As their goods and services are not internationally traded, making them vulnerable to local currency depreciation due to limited foreign currency revenues and alternative hedging options

Corporate bonds and loans labeled green, social, sustainable or sustainability-linked disaggregated by industry. Stacked bar charts show the share of bond and loan volumes issued annually by industry.

Data source: Bloomberg

Landscape: Currency mismatch is growing



Regression analysis of foreign exchange volatility and annual issued volumes

Scatter plots show average yearly FX volatility (short-run and long-run) against de-measured yearly share of annual issued volumes by country and on aggregate.

Legends show Pearson's correlation coefficient for short-run and long-run FX volatility.

Results: Determinants of sustainable debt composition

Variable	Name	Proxy Definition
Currency risk	FX_RISK/ FX_RISK_LONG	Standard deviation of the first difference of logarithms of the monthly spot exchange rate a short-run (1-year) period (FX_RISK). An alternative long-run (5-year) measure is also tested (FX_RISK_LONG). Source: St. Louis Federal Reserve Bank's economic database
Political risk	POL_RISK	Measure of political stability and the absence of violence/terrorism, reported annually. Higher score indicates lower risk. Source: World Bank.
Sovereign credit risk	SOV_RISK	Moody's foreign sovereign credit rating provided annually. Source: Moody's.
Global uncertainty	VIX/WUI	VIX is the 30-day expected volatility of the S&P 500 index. Source: Cboe. The World Uncertainty Index (WUI) is tested as an alternative. This is constructed by text-mining country reports from the Economist Intelligence Unit. Source: World Uncertainty Index.
Hedging	DOMESTIC	Dummy variable equal to 1 if the country of issue is the same as the country in which the firm is domiciled and zero otherwise. Source: Bloomberg.
Instrument type	BOND	Dummy variable equal to 1/0 for a bond/loan. Source: Bloomberg.
Regulation/Access	AMOUNT	Principal issued amount. Larger deal sizes are required for access to international markets. Source: Bloomberg.
Interest rate costs	TENOR	Time to maturity of bond/loan. Source: Bloomberg.
Economic outlook	GDP_GROWTH	Yearly growth rate of gross domestic product (%). Source: World Bank.

Results: Binary logistic regression with country fixed effects

Analyze the factors influencing the currency composition of sustainable debt in six major EMDEs (India, South Africa, Brazil, Mexico, Thailand, Indonesia)

Methodology:

- A binary logistic regression model is used where:
 - Outcome variable = 1 if the bond/loan is issued in foreign currency
 - Outcome variable = 0 if issued in local currency

Regression Variables:

- Regressors include country-level, deal-level, and global variables.
- Country fixed effects are added to account for inter-country differences and reduce omitted variable bias

Equation Overview:

- The probability of a foreign currency issuance is modeled using logistic regression:

$$p_{ct} = Pr(y_{ct} = 1 | x_{ct}, \beta, \alpha_c) = \frac{1}{1 + e^{-\alpha_c - x_{ct}\beta}}$$

where β represents coefficients for regressors x_{ct} , and α captures country-specific effects

Conclusions and way forward: Sukuk bonds in Malaysia?

- **Strong Regulatory Framework:** Malaysia established clear legal frameworks, centralized Shariah Advisory Councils, and regulatory support from Bank Negara Malaysia to ensure sukuk compliance and market confidence.
- **Government Support:** Early and sustained government backing, including benchmark sukuk issuances, tax incentives, and positioning sukuk as a national priority, encouraged market growth.
- **Market Infrastructure:** Development of liquidity tools, Islamic interbank markets, and platforms for sukuk trading enabled a stable and accessible market for investors.
- **Public-Private Collaboration:** Active involvement of the private sector, supported by public initiatives, fostered innovation, including the world's first green sukuk.
- **Human Capital and Expertise:** Investments in education and training through institutions like INCEIF built a strong pool of professionals and Shariah scholars.
- **Global Outreach and Standards:** Adoption of international standards, partnerships with global institutions, and leadership in innovation positioned Malaysia as a global hub for sukuk.
- **Economic and Market Diversification:** Malaysia's stable, diversified economy and inclusive approach to Islamic finance broadened the sukuk market beyond Muslim investors.
- **Challenges Elsewhere:** Other countries face issues like regulatory fragmentation, lack of infrastructure, human capital gaps, and limited government prioritization of Islamic finance

Debt for Development Swaps

David Mihalyi, Senior Economist, WB
C3A Symposium, Paris
December 6th, 2024

OUTLINE

- Introduction to swaps
- Key benefits / costs for the borrower
- Criteria for swap eligibility
- Focus on expenditure
- The role of the WB

Debt for Development Swaps

An Approach Framework

DEBT-FOR-DEVELOPMENT SWAPS AND THE POTENTIAL ROLE OF THE WORLD BANK

TECHNICAL NOTE ¹

Executive Summary

The aim of this note is to help stakeholders optimize their decision-making on when, where, and how to use debt-for-development swaps (“debt swaps”), ensuring they bring the intended benefits to all parties involved. It also proposes new approaches to structure these mechanisms, making them less transaction-heavy and more sustainable while maintaining accountability in fulfilling policy and spending commitments. In doing so, it explores modalities for the World Bank Group’s involvement.

Debt swaps are agreements between a government and one or more of its creditors to replace existing sovereign debt with one or more liabilities that include a spending commitment towards a specific development goal. These goals may include nature conservation, climate action, education, nutrition, support for refugees, among others. The spending commitment is often associated with the country’s decision to pursue an important development policy. This note provides a framework for evaluating and enhancing debt swaps and the World Bank’s potential role in supporting these transactions. It focuses on three critical aspects: (1) appropriateness of the use of debt swaps, that is, in what debt situations and countries are debt swaps useful? (2) adequate and enhanced design of the expenditure program commitments, from the standpoint of fiscal policy and sectoral programs, and (3) the potential role of the World Bank Group in debt for development swaps.

INTRODUCTION

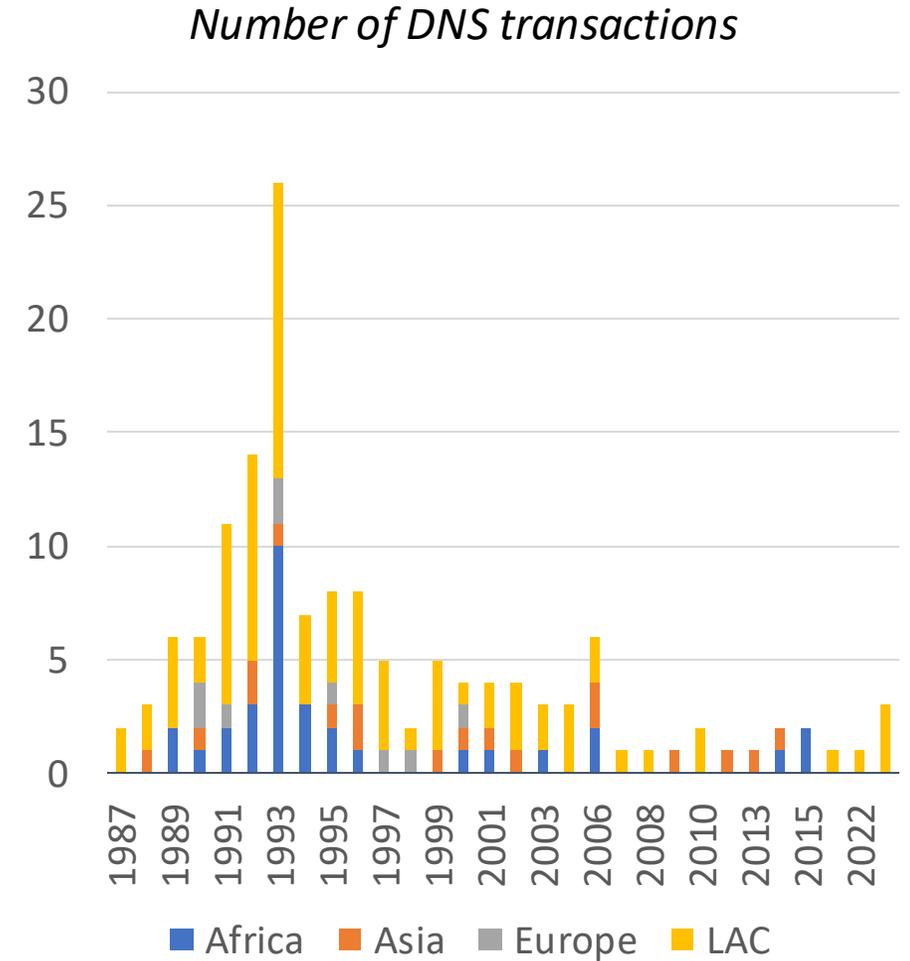
Debt for development swaps (“debt swaps”) replace sovereign debt with cheaper and/or lower debt alongside a spending commitment towards a development goal (conservation, climate, education, etc.)

Debt for development (typically nature/conservation) swaps have been used since 1980s.

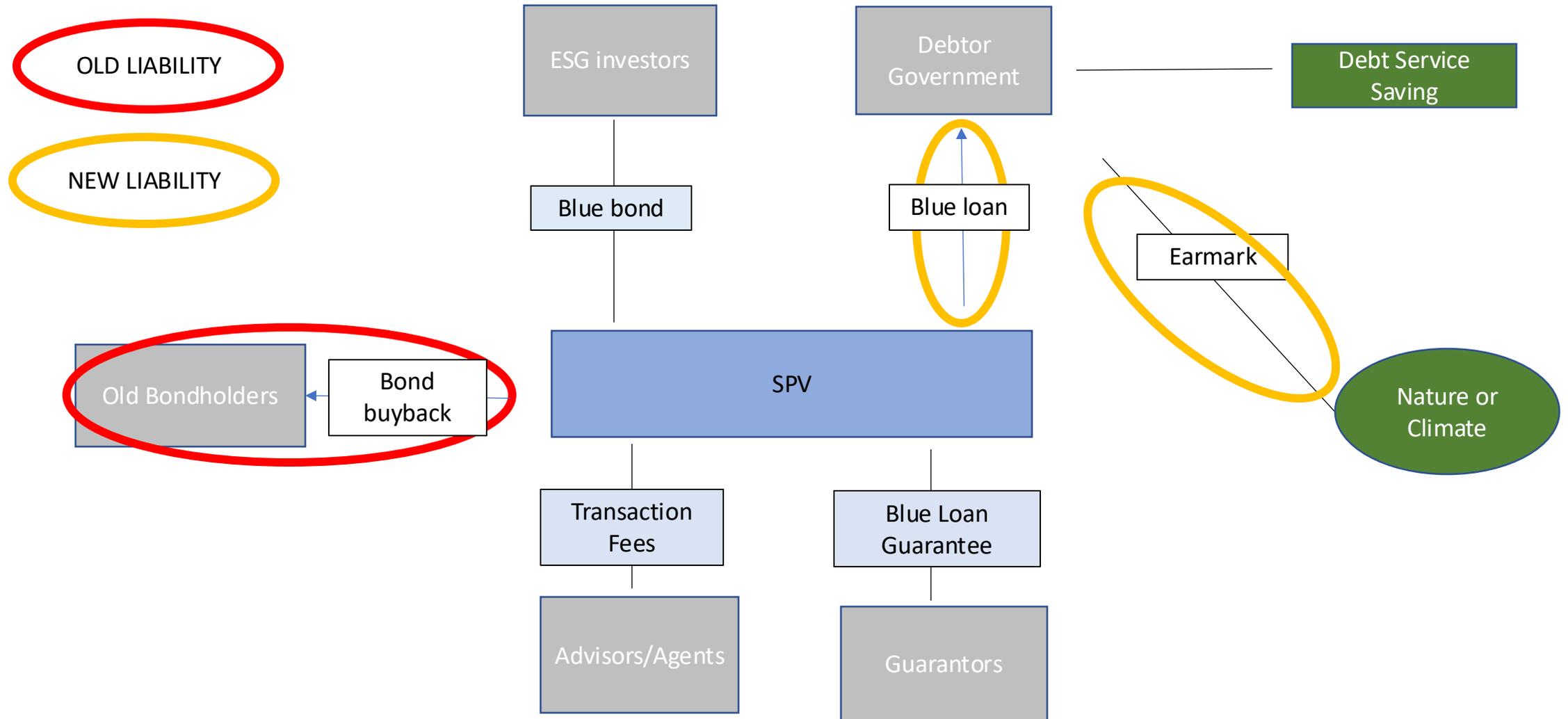
Between 1987 – 2015: 40 + countries, 150+ transactions across the globe, with total face value of the debt treated ~\$US 3 billion. (AfDB, 2022)

Recent high-profile transactions:

- Belize (2021), Barbados (2022), Ecuador (2023), Gabon (2023), El Salvador (2024)
- Large in comparison: U\$3.7 bn in FV across 5 transaction.
- Similar structure, involving buying back bonds at a discount.



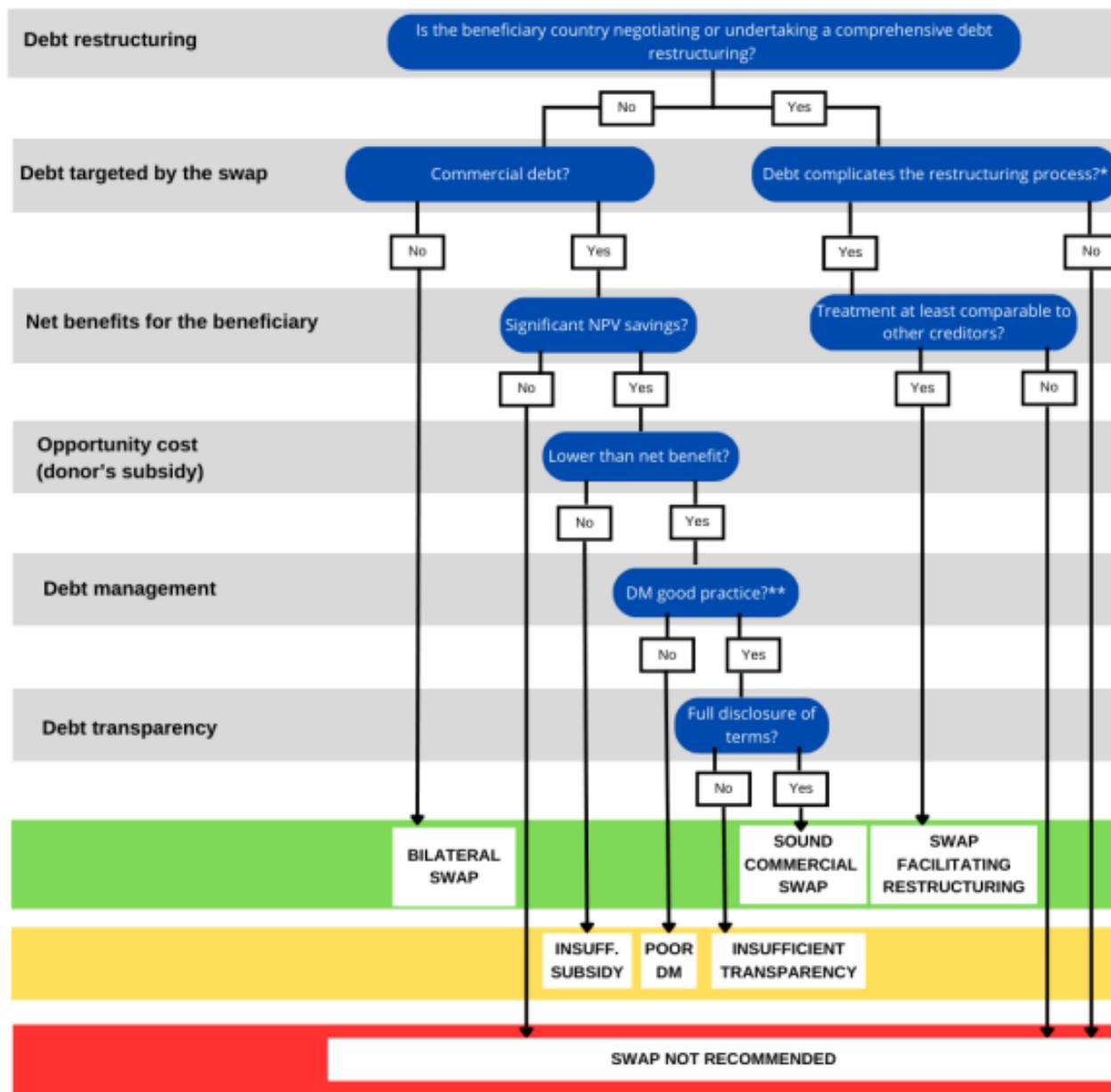
BUYBACK SWAP ILLUSTRATION



KEY BENEFITS/COSTS FOR THE BORROWER

	BENEFITS	COSTS / RISKS
<i>FISCAL</i>	A D4DS can help mobilize financing that may otherwise not be available and create fiscal space	Transaction cost Opportunity cost of the subsidy
<i>DEBT</i>	Depending on size, pricing and type of debt repurchased, it can alleviate liquidity pressures and improve debt sustainability	It does not replace comprehensive debt restructuring (it may complicate it!) Risk of “distressed exchange” by ratings agencies
<i>EXPENDITURES</i>	It delivers on development commitments, thanks to remedies in case of non-compliance	Budget rigidity Remedies can be costly (e.g., default)
<i>GOVERNANCE</i>	Enhanced project monitoring and supervision	New units / strong inter-governmental coordination needed

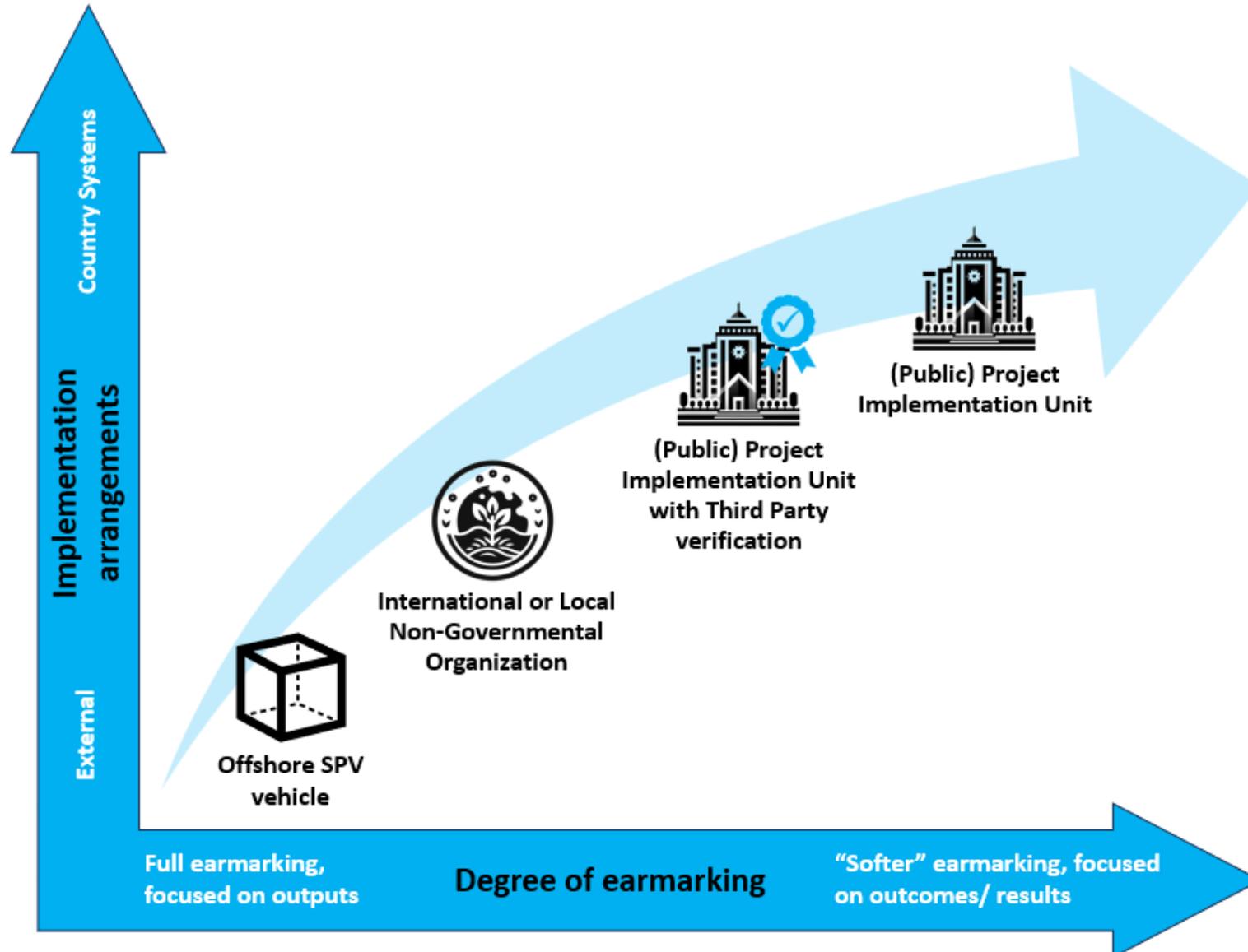
DEBT SWAP DECISION TREE



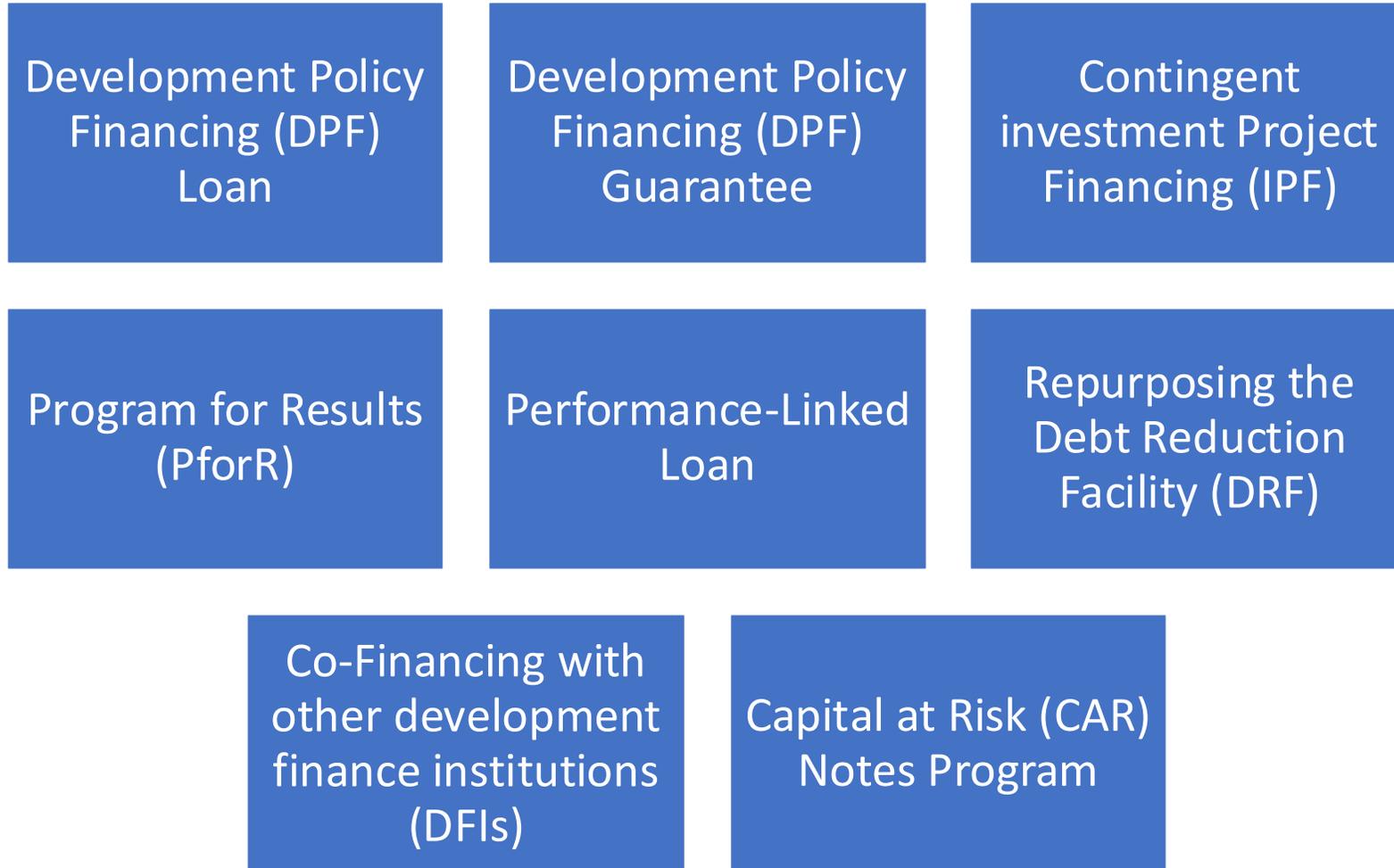
CRITERIA FOR SWAP ELIGIBILITY

CRITERIA	INDICATIVE THRESHOLDS	
	BONDS	LOANS
Meaningful savings from credit-enhanced financing after transaction costs	Spreads above 200 bps	Original interest rate higher than 6% (cost of the new instrument)
Positive impact on probability of default	Preference given to countries closer to rating upgrade	
Transaction alleviating liquidity pressures and improving DSA	Bonds or loans falling due in the coming years	
Minimum size to offset transaction costs	USD [50] million	
Risk of default not too elevated	Spreads below 1000 bps	Rating B- or above
Debt Management Capacity	Swap aligned with the debt strategy objectives; IT systems in place to record and report on the swap; preference given to countries with previous experience in liability management operations	
Transparency	Regular debt data disclosure to the World WB and publication of debt statistics over the last two years	
Governance	To minimize risks of default on the expenditure commitments, solid governance is required as assessed by World Bank and IMF instruments.	

DESIGN OF EXPENDITURE PROGRAM COMMITMENTS

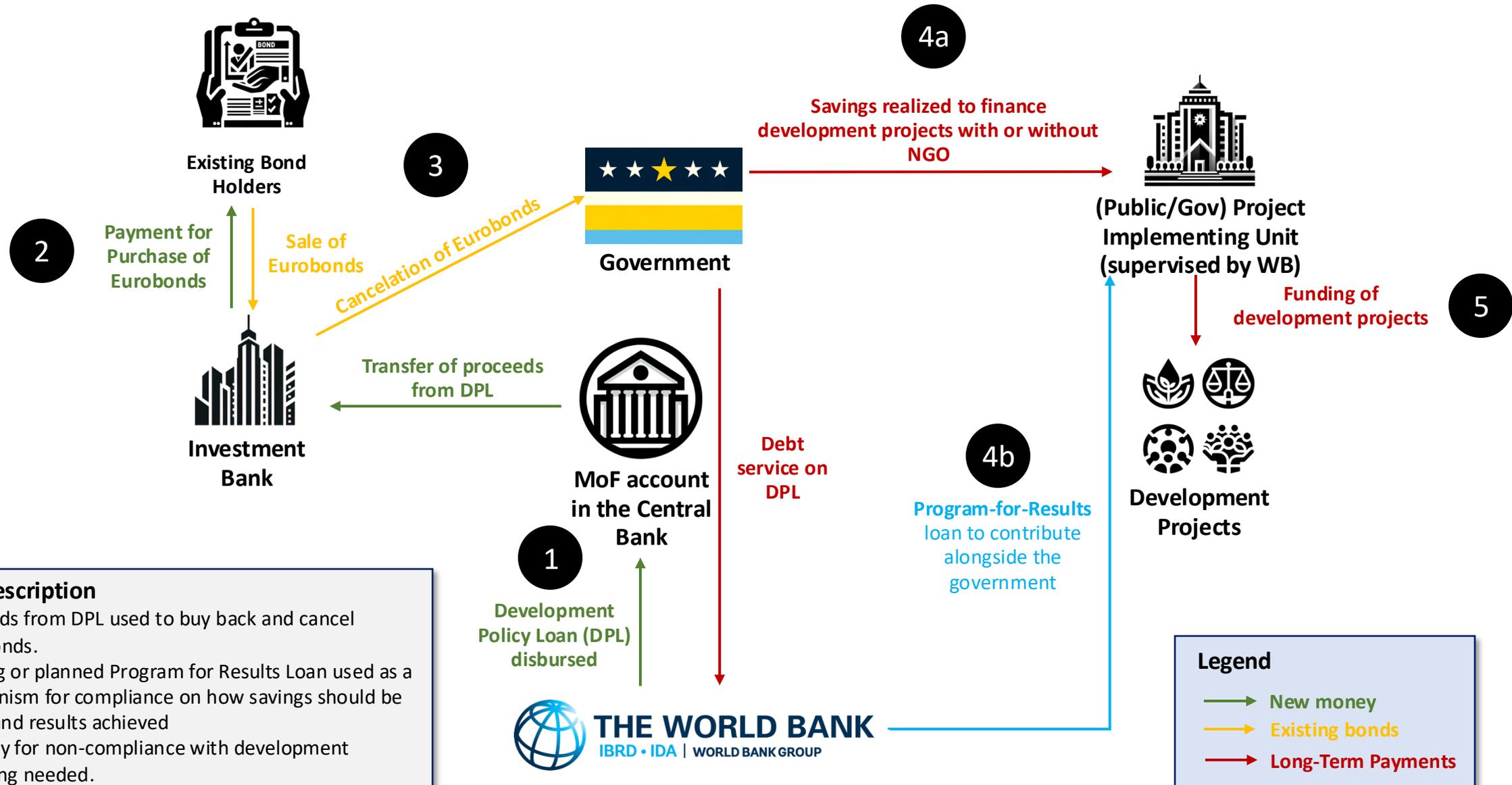


POTENTIAL ROLE OF WBG



Note: The use of all World Bank's instruments will be guided by the requirements specified in their respective policies.

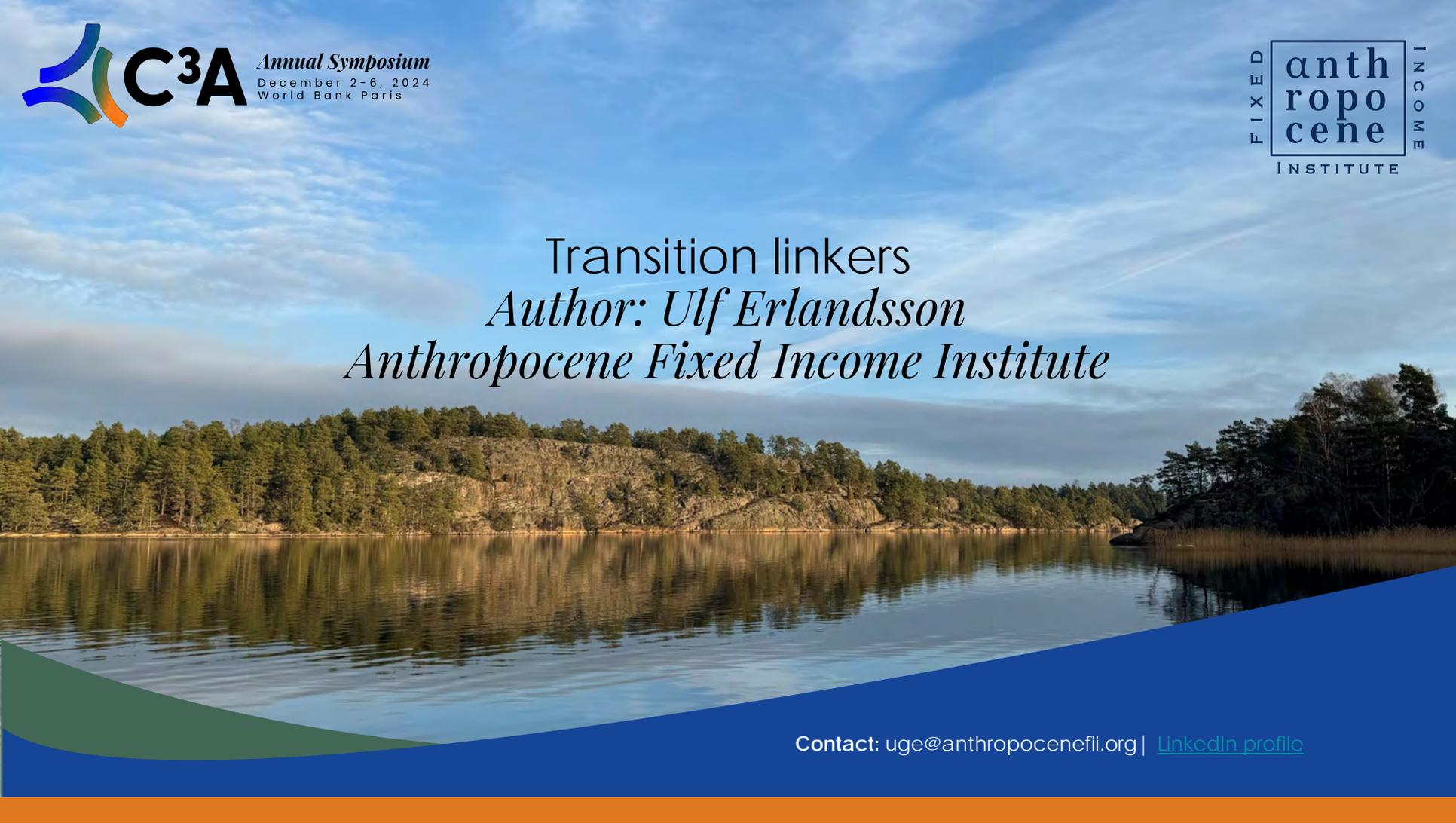
EXAMPLE OF A D4D SWAP WITH WB LOANS



Short Description

- Proceeds from DPL used to buy back and cancel Eurobonds.
- Existing or planned Program for Results Loan used as a mechanism for compliance on how savings should be used, and results achieved
- Remedy for non-compliance with development spending needed.

Thank you



Transition linkers
Author: Ulf Erlandsson
Anthropocene Fixed Income Institute

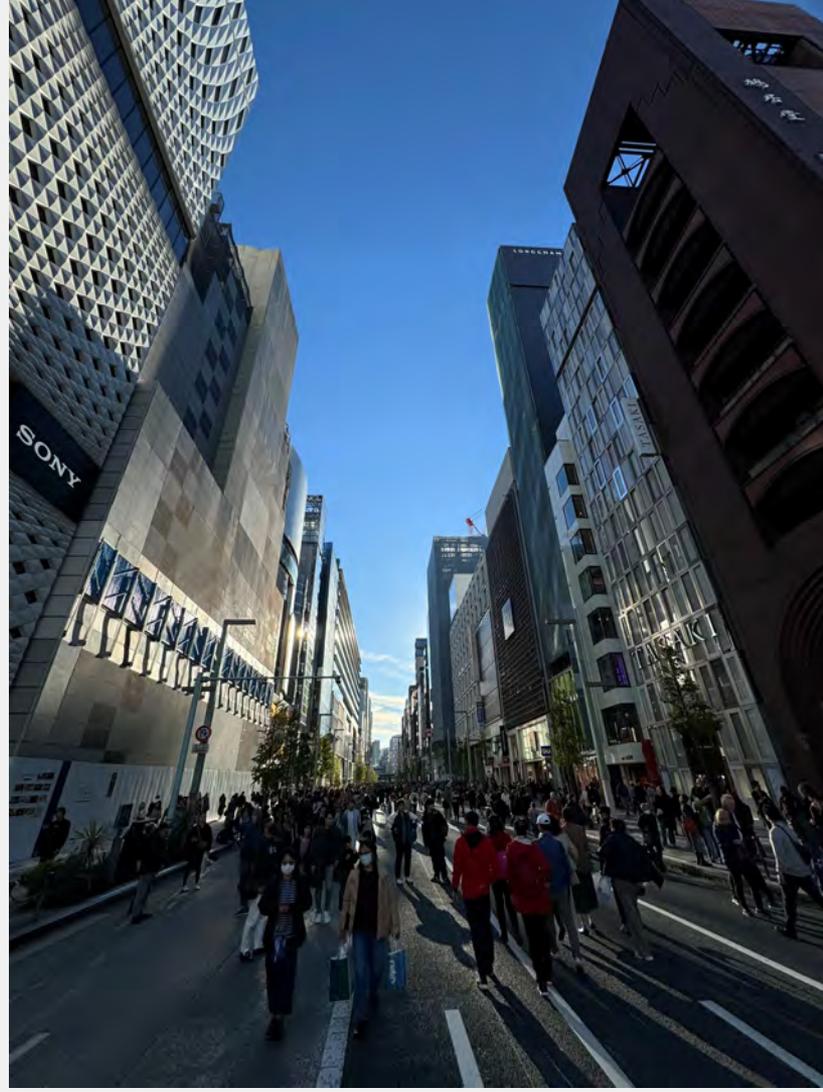
Setting the scene

Transition observations

1. Investors expect long-term lower returns/higher volatility on risky assets if the energy transition is unsuccessful, and have difficulty to hedge for this.
2. Governments seek lower interest rates/cost-of-capital for investments and policies that are ambitious in driving the transition.

Can we simultaneously solve 1+2?

⇒ **Development of new financial products to finance the transition**



Transition linkers

A NEW TYPE OF PERFORMANCE-LINKED BOND

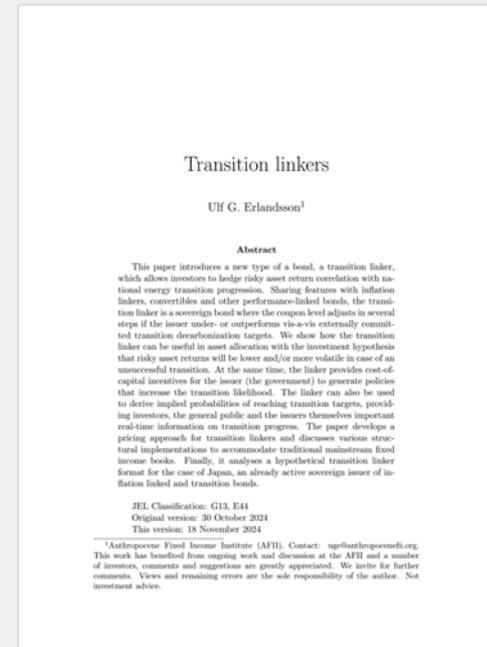


A transition linker is a government bond that has coupon variability based on success of achieving transition on a national level.

Specifically, the transition linker pays a higher/lower coupon based on reaching sovereign decarbonisation commitments, NDCs, as a proxy of transition risk.

Advantages:

- **Governments:** Provides lower cost-of-capital for successful transition
- **Markets:** Can be easily deployed as it is similar to already existing bond formats
- **The public interest:** Provides market implied transition probabilities, giving a gauge of policy effectiveness in real-time
- **Investors:** Solves/reduces investor portfolio problem of transition risk



Research: [Transition linkers](#), Anthropocene Fixed Income Institute, November 2024.

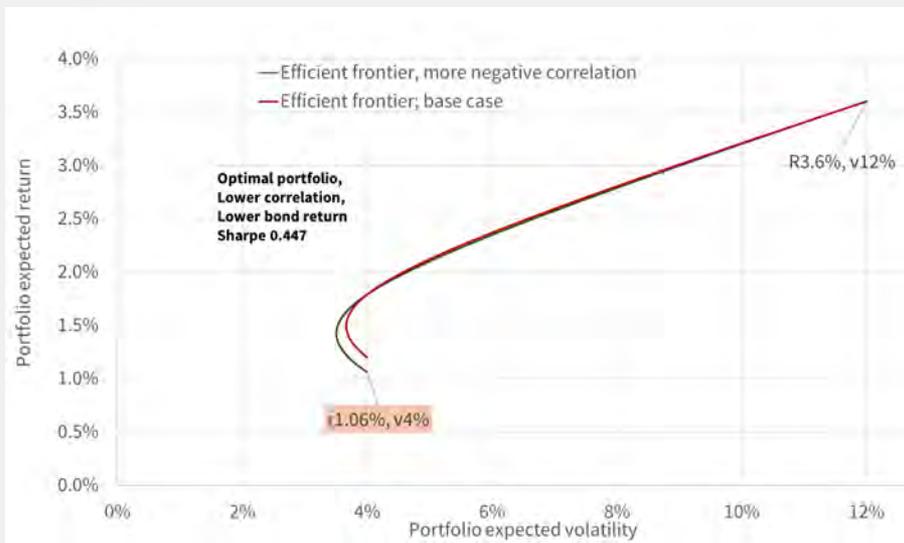
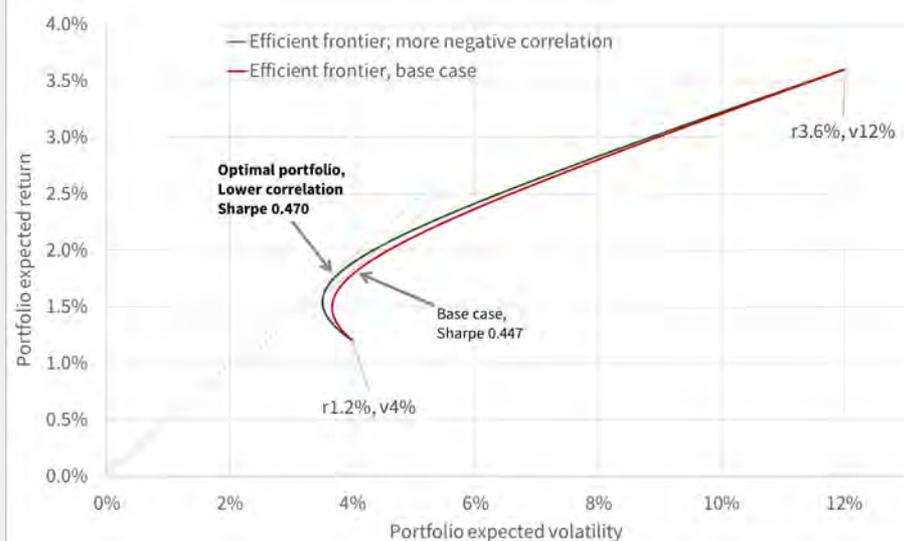


Allocation problem

Under transition investment hypothesis

Assume two assets, an equity and a government bond. They have negative correlation of -0.1. Then assume that the government bond get an element such that it is more negatively correlated to the equity market conditional on energy transition (bond/equity pays more/less in case of a successful energy transition). The new correlation is -0.2.

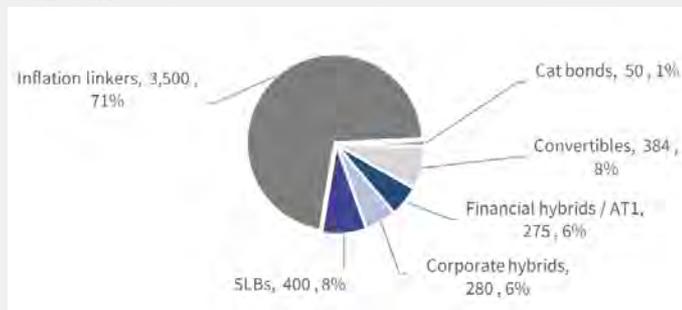
Investors are willing to pay for more negative correlation: (linker) bonds that provide more negative correlation are valuable to investors!



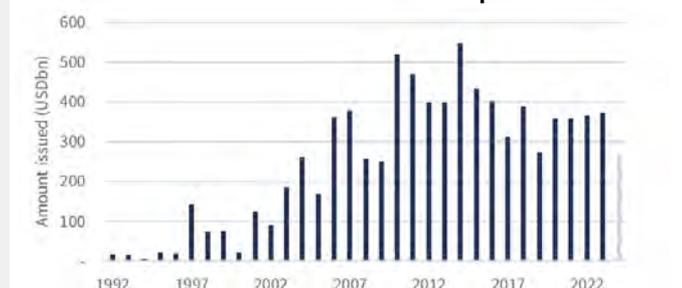
Creating negative correlation

Performance linked bonds in the market

Total amount of performance-linked debt =>
USD5trn



400bn of inflation linker issuance per annum

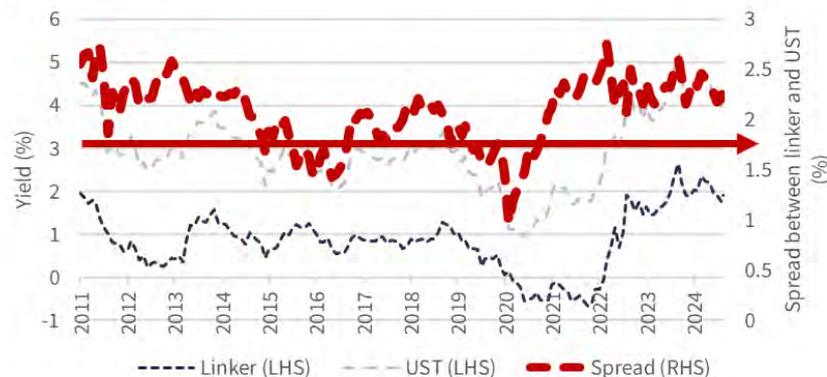


Significant issuers of inflation linkers

Table 1: Significant issuers of inflation linkers, in USD bn.

Country	Nominal bonds	Linker bonds	Linkers %	GDP (% global)	Emissions (% global)
United States	19,258	1,629	8.5%	25.3%	12.6%
United Kingdom	2,559	595	23.2%	3.0%	0.9%
Brazil	1,129	291	25.8%	1.9%	1.2%
France	2,658	267	10.0%	2.7%	0.8%
Italy	2,481	256	10.3%	2.0%	0.8%
Japan	9,614	93	0.9%	4.2%	2.8%
Spain	1,345	91	6.7%	1.4%	0.7%
Germany	1,389	80	5.8%	4.0%	1.8%
Argentina	128	76	58.9%	0.6%	0.5%
Israel	103	64	62.6%	0.5%	0.2%
SUM	32,186	3,729		45.9%	22.2%

UST linkers trade a 1.5-2% lower yield than nominals.



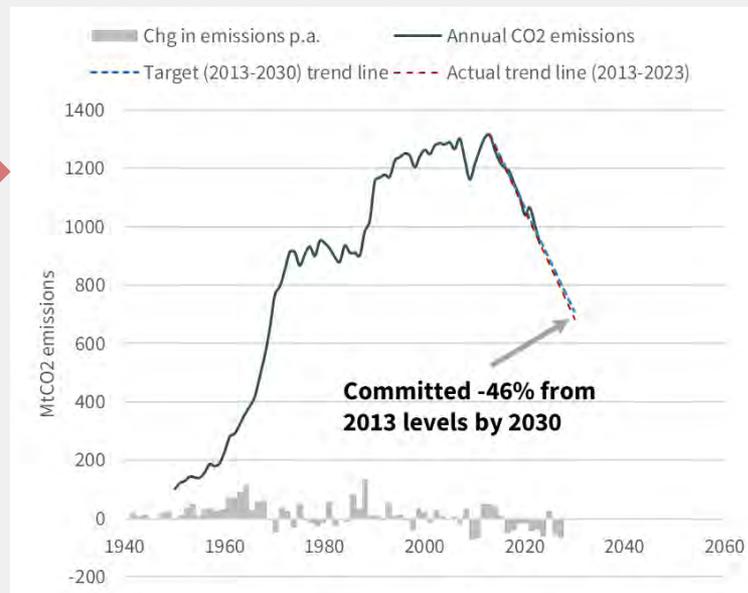
A Japan government transition linker

2034 MATURITIES OF NOMINAL, LINKERS AND TRANSITION BONDS; CLEAR TRANSITION TARGETS

Matching of liquid short-10yr point of the curve with actual NDC commitments seems reasonable.

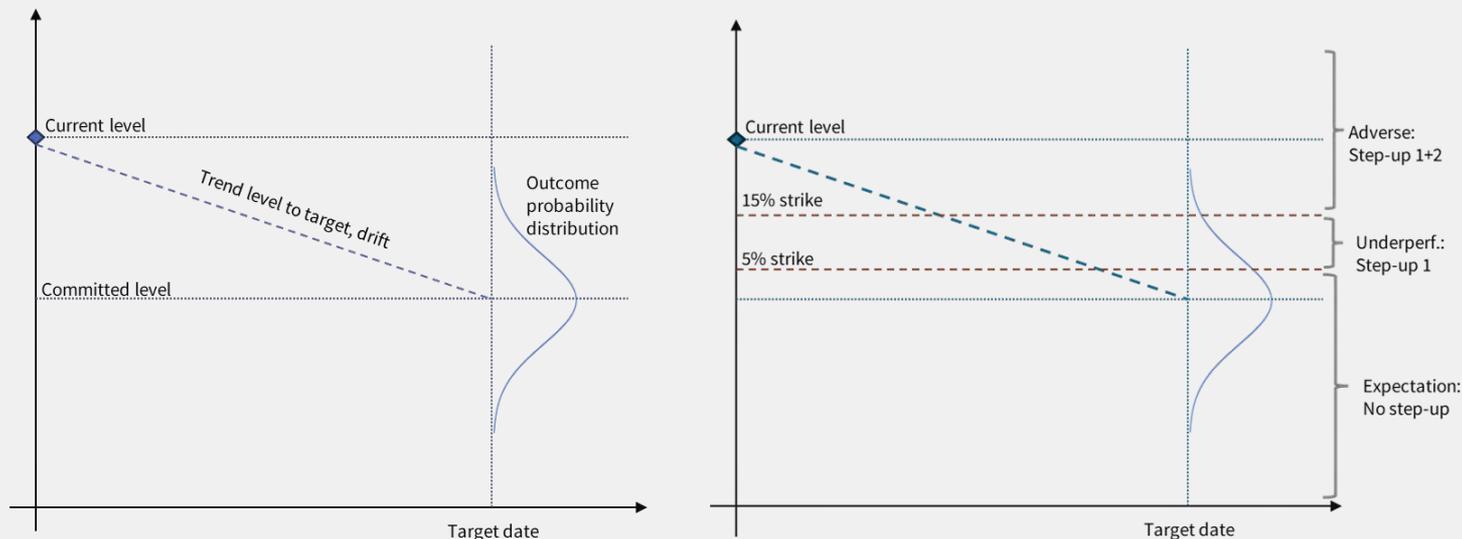
Table 7: Japan inflation-linked, transition and nominal bonds. Pricing as of 20 Oct 2024. Proposed transition linkers based on +/-0.4% adjustments per strike in the final two rows.

Maturity	ISIN	Type	Coupon(%)	Maturity	Size(bn)	Yield (%)	EVB Sprd(%)
10/03/2034	JP1120291Q59	ILB	0.01	10/03/2034	482.0	-0.362	-1.261
20/03/2034	JP1480021Q54	GX	1.00	20/03/2034	349.6	0.897	-0.002
20/03/2034	JP1103741Q44	EVB	0.80	20/03/2034	8229.8	0.899	
20/03/2034	Premium TL		0.80	20/03/2034	n.a.	0.793	-0.106
20/03/2034	Zero cost TL		0.80	20/03/2034	n.a.	0.897	-0.002



A premium transition linker: general structure

COUPON STEP-UPS IF THE NDC COMMITTED TARGET IS NOT ACHIEVED



EXAMPLE STEP-UPS AND TARGETS

Table 2: Strike structure for premium transition linker. Source: AFII.

Scenario	Strike level versus target	Coupon effect
Expectation	$[-100\%, 0\%]$	No coupon adjustment
Underperformance	$(0\%, 15\%]$	Step-up
Adverse	$(15\%, \dots)$	Additional step-up

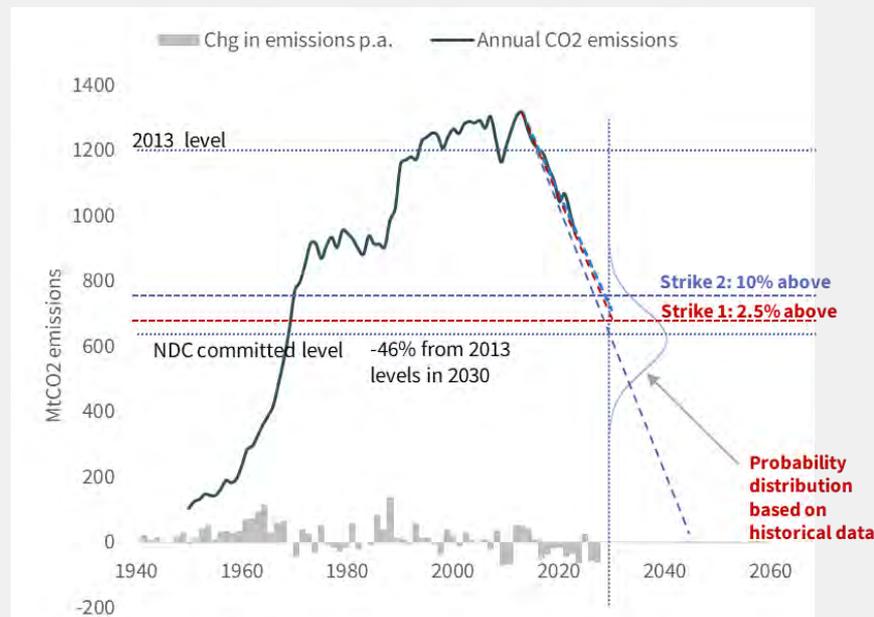
A premium transition linker for Japan sovereign

MATCHING NDC COMMITMENTS TO LIQUID ILB, GX, AND NOMINAL BOND CURVE

We calibrate a ¥ premium transition linker to price 10-11bps inside the traditional JGB curve, with a coupon of 0.79% versus a standard JGB at 0.90%.

Table 8: Japan premium transition linker proposed structure. +0.625% coupon step for each target.

JGB premium transition linker		
Start date: 18 Oct 2024	First accrual date: 20 Mar 2031	Final maturity: 20 Mar 2034
Probability for target 1 (+2.5%): 37.7%	Value of strike 1: 75.2bps upfront, 8.3bps running	
Probability for target 2 (+10%): 10%	Value of strike 2: 20.1bps upfront, 2.2bps running	
Total value of transition strikes: 95.3bps upfront, 10.6bps running		



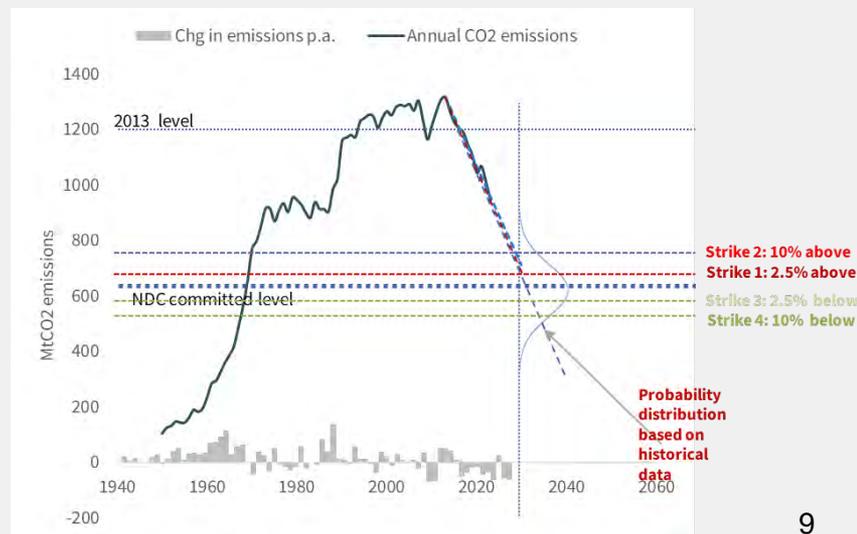
Alternative: a zero-cost transition linker

ALLOWS FOR BOTH COUPON STEP-UPS AND STEP-DOWNS

The zero-cost transition linker would be issued (almost) flat to the JGB curve and offer investors protection on missed targets, and lower coupons for government on outperforming targets.

Table 9: Japan zero cost transition linker proposed structure. +/-0.4% coupon step for each target.

JGB zero cost linker		
Start date:	First accrual date:	Final maturity:
18 Oct 2024	20 Mar 2031	20 Mar 2034
Probability for target 1 (+2.5%): 37.7%	Value 1: 48.6bps upfront, 5.4bps running	
Probability for target 2 (+10%): 10.1%	Value 2: 13bps upfront, 1.4bps running	
Probability for target 3 (-2.5%): 38.3%	Value 3: -49.4bps upfront, -5.4bps running	
Probability for target 4 (-10%): 8.3%	Value 4: -10.7bps upfront, -1.1bps running	
Total value of transition strikes: 1.6bps upfront, 0.2bps running		



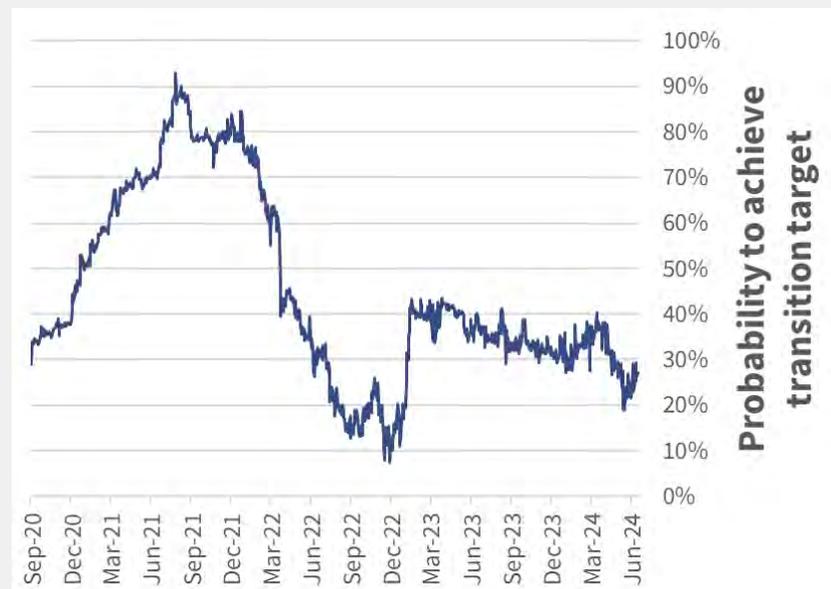
Conclusions

Transition linkers could benefit a multitude of stakeholders

- **Governments:** an incentive to drive transition policy, through providing lower cost-of-capital in case of success.
- **Investors:** to hedge transition risk existing in their risky asset portfolio.
- **Markets:** The linker could easily be issued within current frameworks and would circumvent the asset focus in use-of-proceed instruments. Commitments and data generation (NDCs and standardized carbon emissions) are given exogenously and there is no need for extra work on behalf of the issuer.
- **The public interest:** Extraction of market implied transition probabilities.



Hypothetical market implied probability from unnamed sovereign that they will hit their 2030 decarbonization target.



4. Financing Instruments and Strategies in the Transition

Madina Aitpysheva and Katie Kedward

Time and location

The Financial Sector Mitigation and Adaptation Tool
*Sebastian Valdecantos, Etienne Espagne, Matias Torchinsky,
Hannah Engljaehringer, Eric Kemp-Benedict,
Thu-Ha Thi Nguyen, Francisco Amsler,
Antoine Godin and Devrim Yilmaz*

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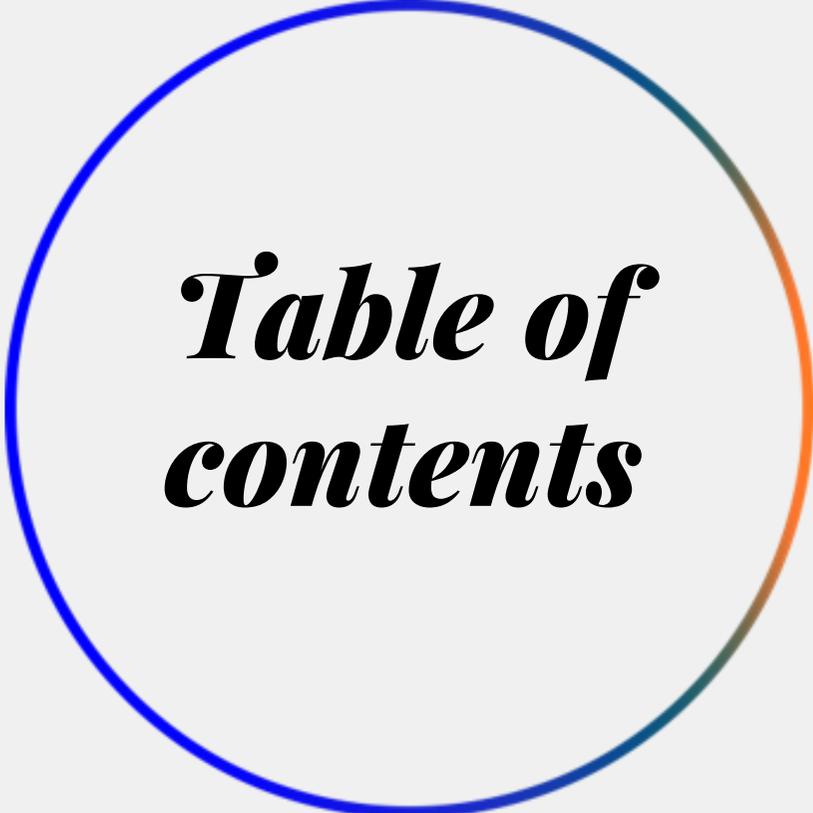


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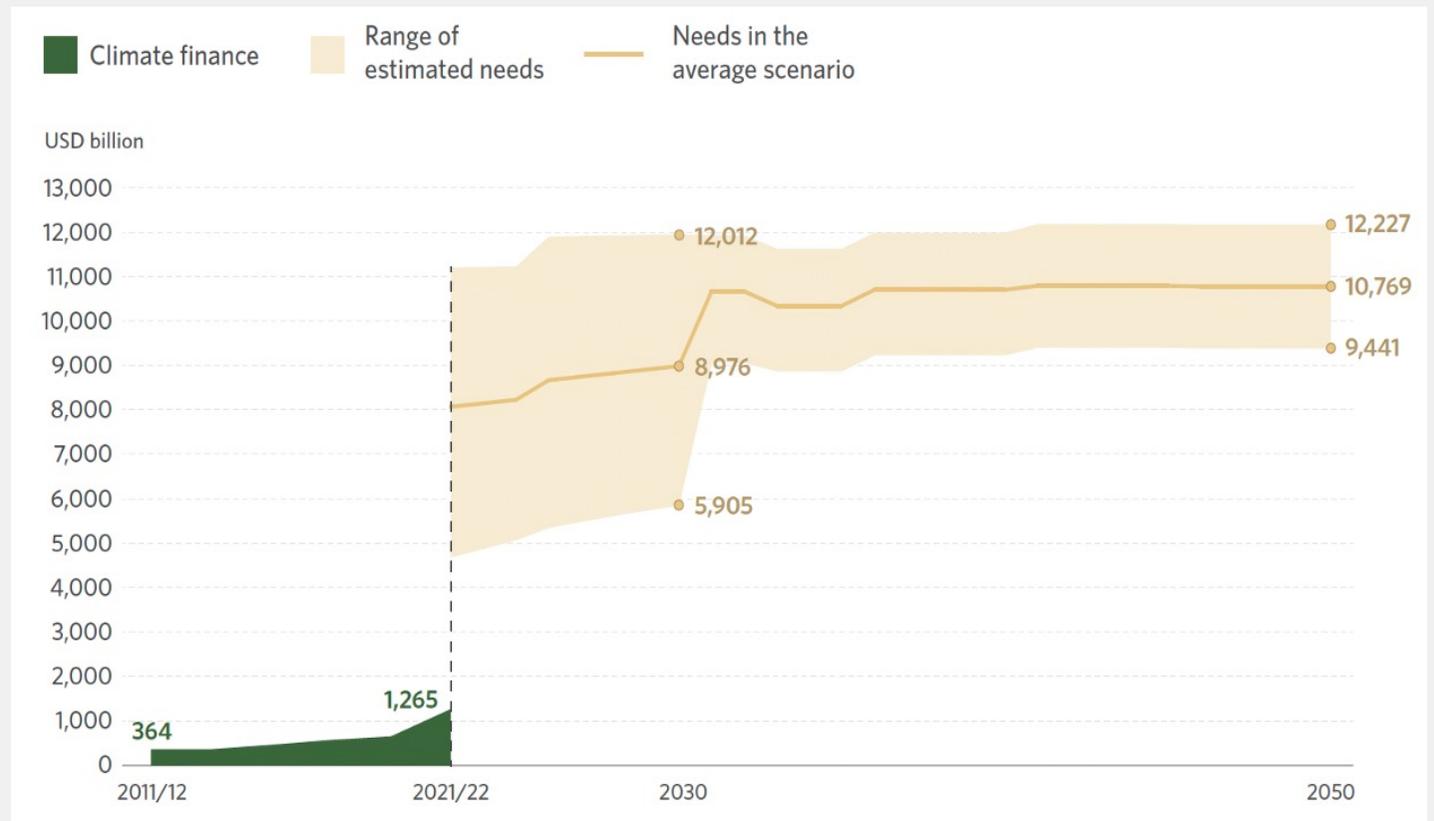
The Climate Finance Gap



Urgent need to ramp up climate finance to speed up emission reductions.

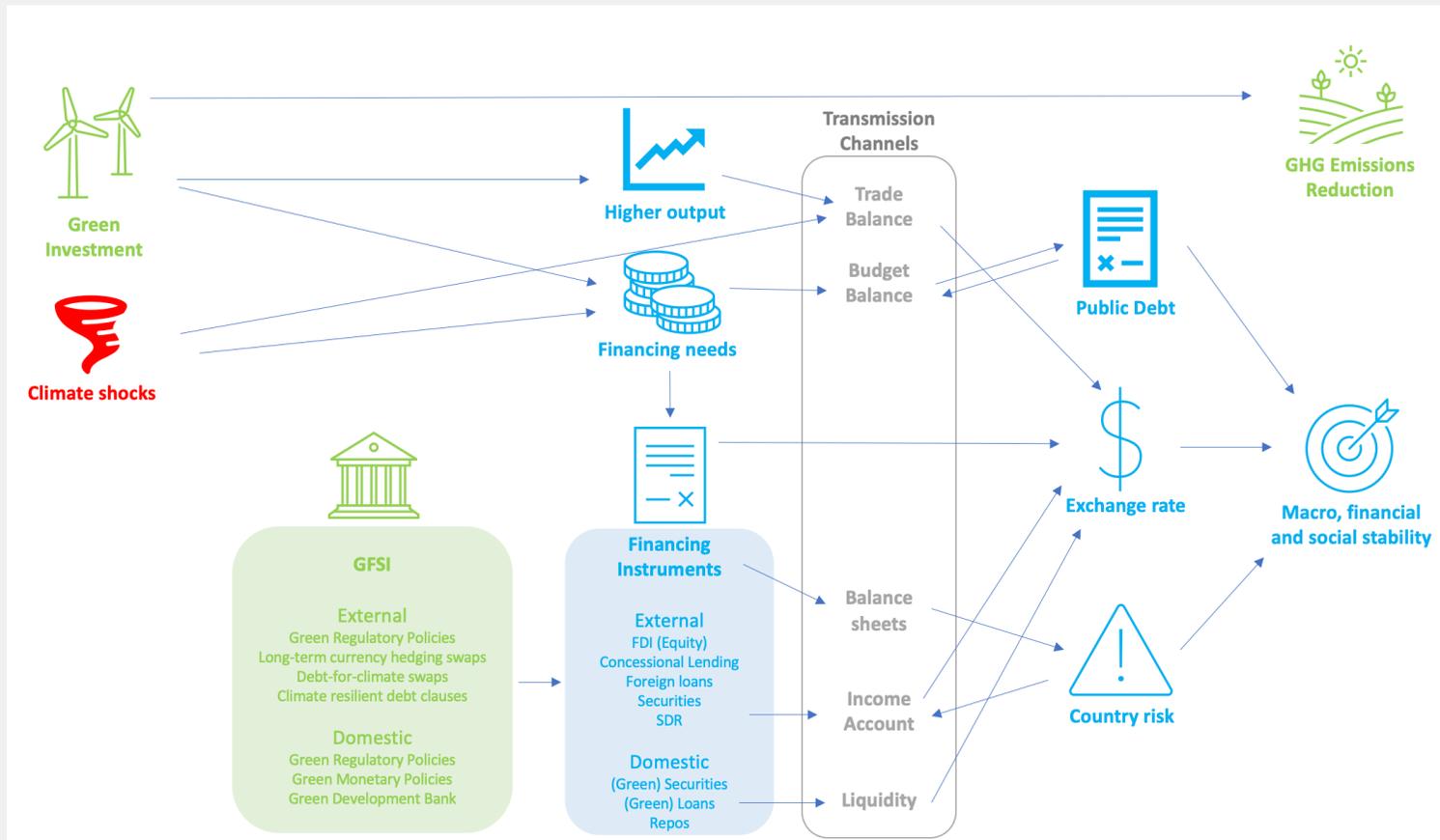


Financing falling short of 6.5 trillion USD yearly to make all the required investments consistent with NZE.



Source: Climate Policy Initiative (2023). Global Landscape of Climate Finance 2023.

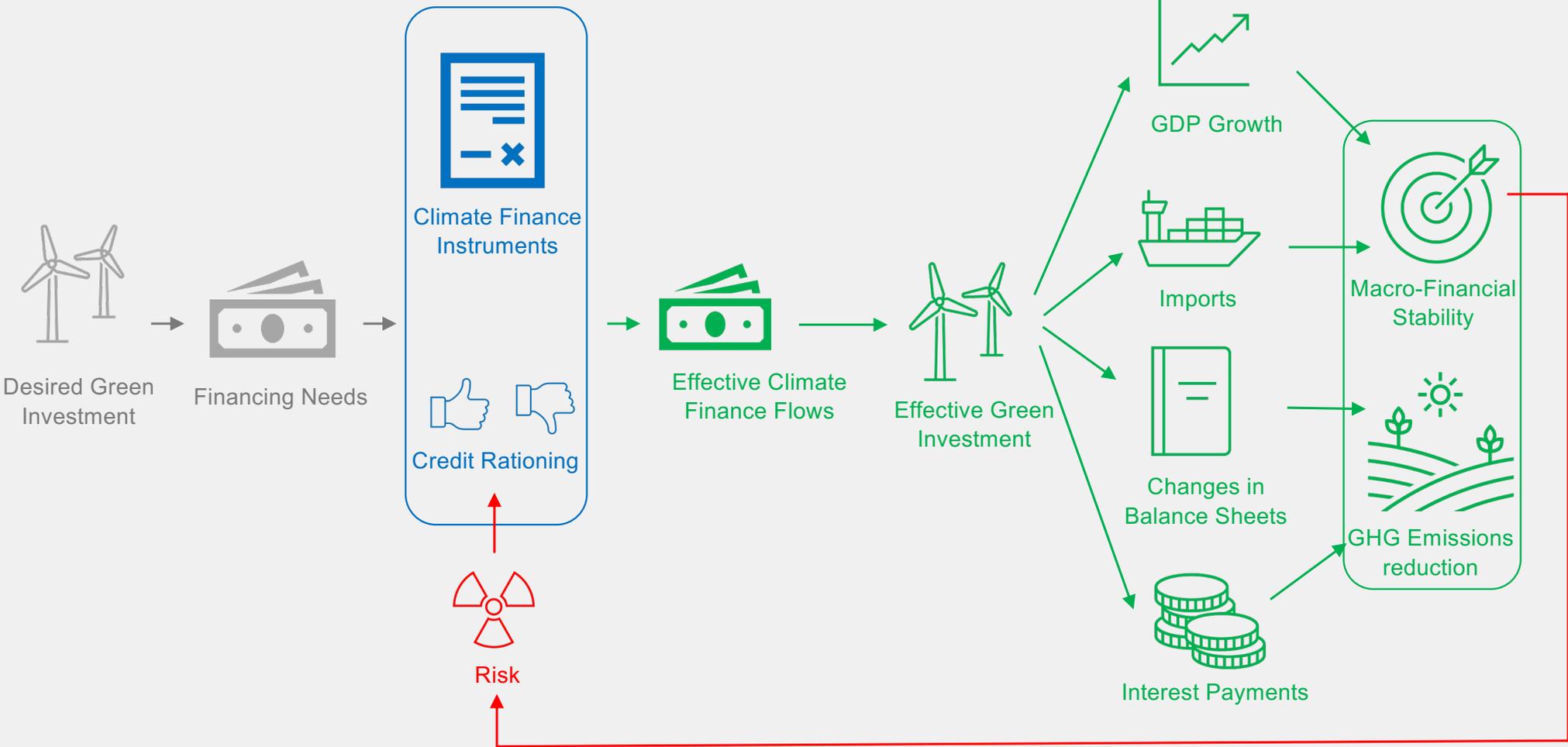
Key Transmission Mechanisms for EMDEs



Climate Finance Instruments in FSMAT

		Investing Agent	
		Private Sector	Public Sector
Funding Agent	Domestic Sector	Green Bonds	Green Bonds
		Green Loans	
	External Sector	Green Bonds	Green Bonds
		Green FDI	Green concessional lending
		Debt-for-Nature swaps	

The Climate Finance-Investment nexus in FSMAT



Climate Finance scenarios

	Transition Intensity	Private Sector Investment				Public Sector Investment			
		Green Loans in LCU	Green Bonds in LCU	Green Bonds in FX	Green FDI	Green Bonds in LCU	Green Bonds in FX	Green Concessional Lending	Debt-for-Nature swaps
Baseline	0%	-	-	-	-	-	-	-	-
Scenario 1	100%	40%	40%	0%	20%	80%	0%	20%	0%
Scenario 2	100%	0%	0%	80%	20%	0%	80%	20%	0%
Scenario 3	100%	25%	25%	0%	50%	40%	20%	20%	20%
Scenario 4	50%	40%	40%	0%	20%	80%	0%	20%	0%
Scenario 5	50%	0%	0%	80%	20%	0%	80%	20%	0%
Scenario 6	50%	25%	25%	0%	50%	40%	20%	20%	20%

Transition intensity measures the percentage of the required investments until 2030 estimated by the CCDR. A 100% can be considered consistent with a net zero by 2050.

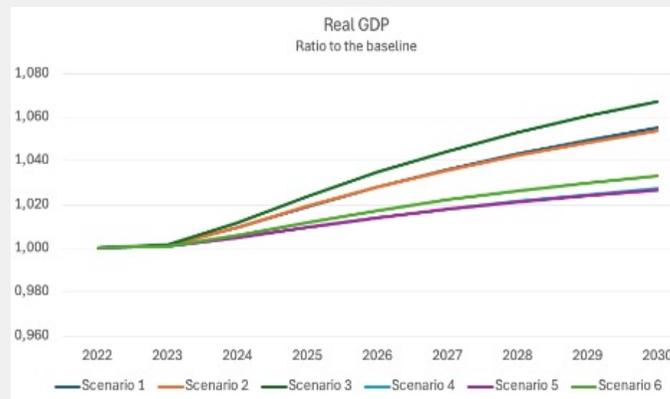
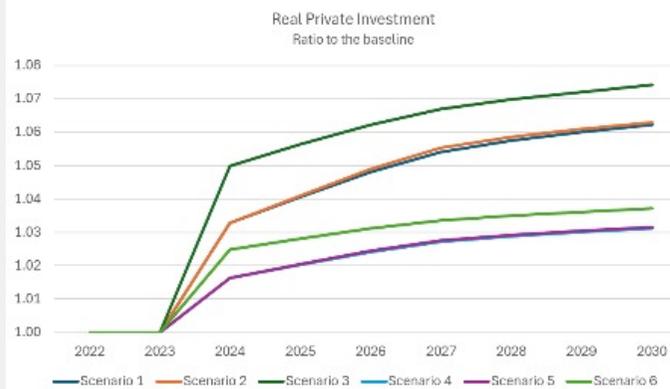
Transition speed measures how the given investment flow is distributed across time.

The shares of private and public investment are taken from the CCDR.

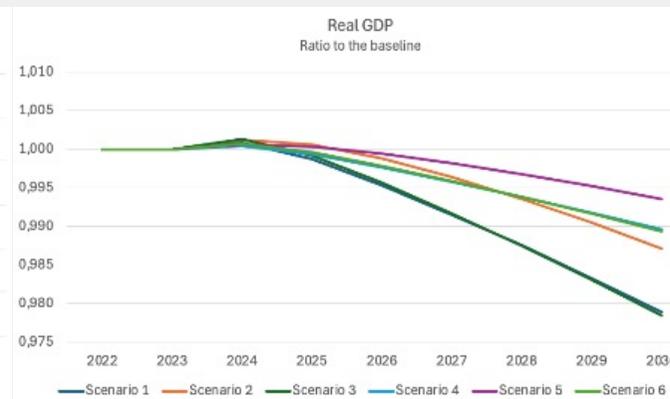
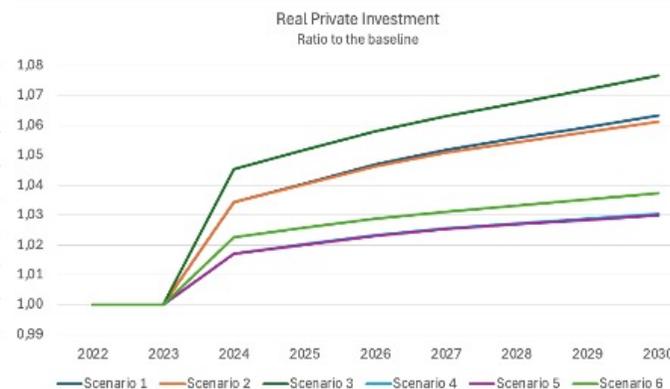
The percentages in the financial instruments columns represent the share of the sectoral low-carbon transition financing needs covered through each instrument for each sector.

Results

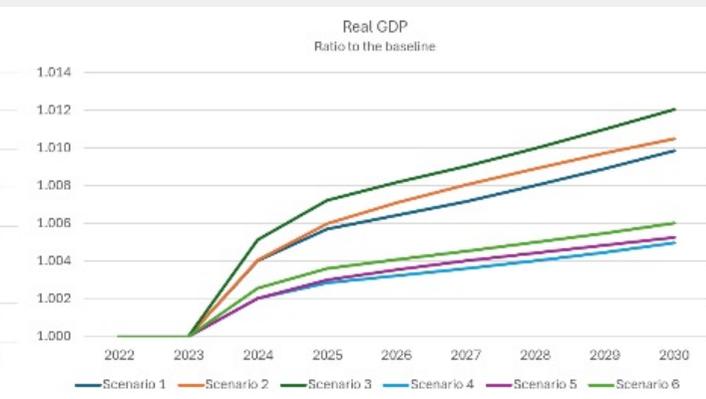
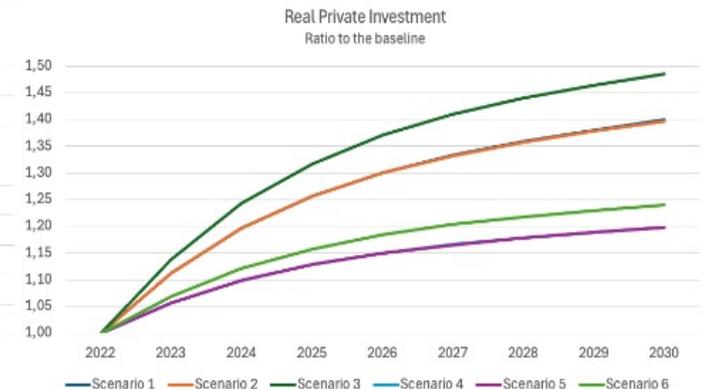
Morocco



Brazil

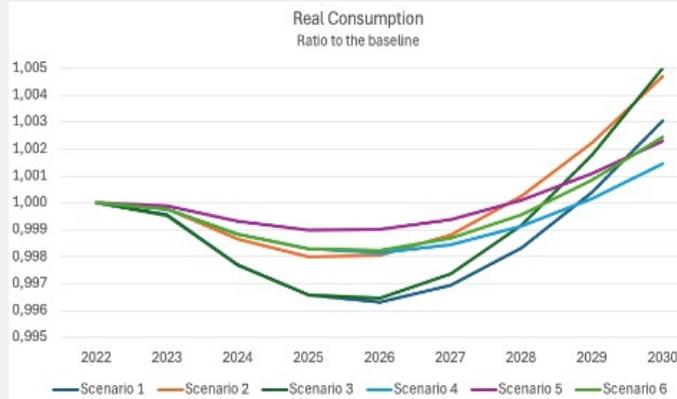
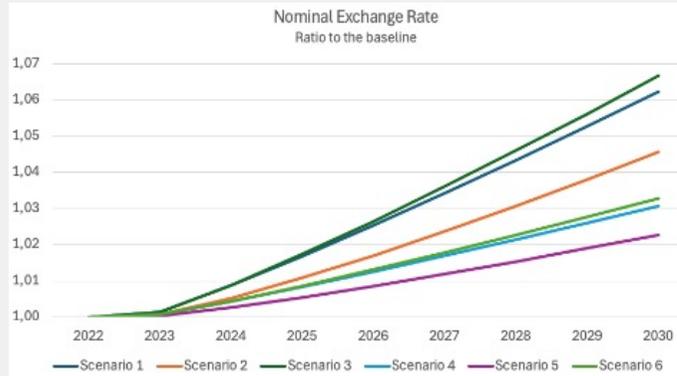


Azerbaijan

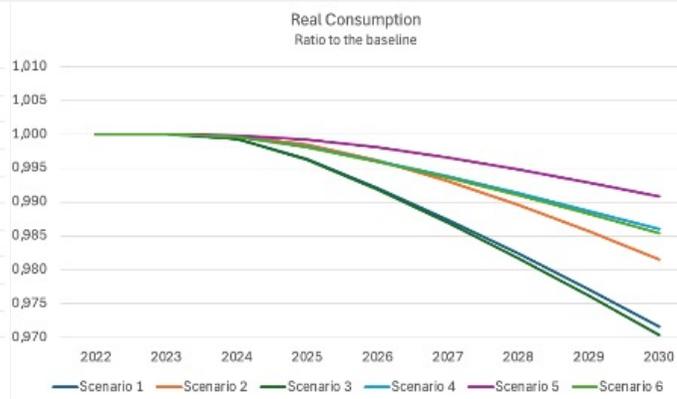
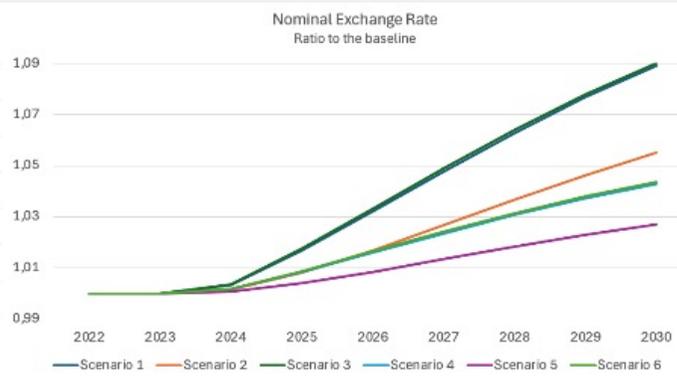


Results

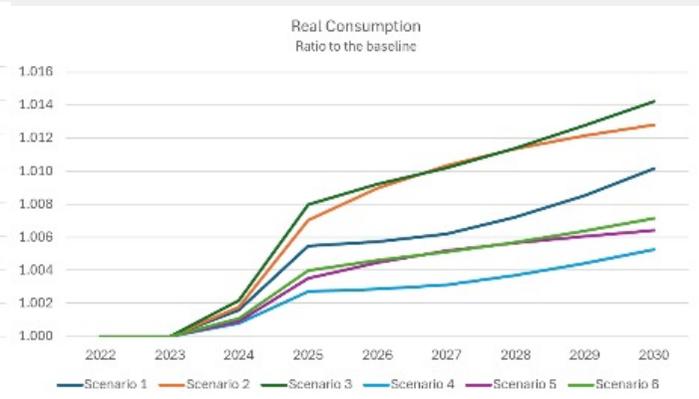
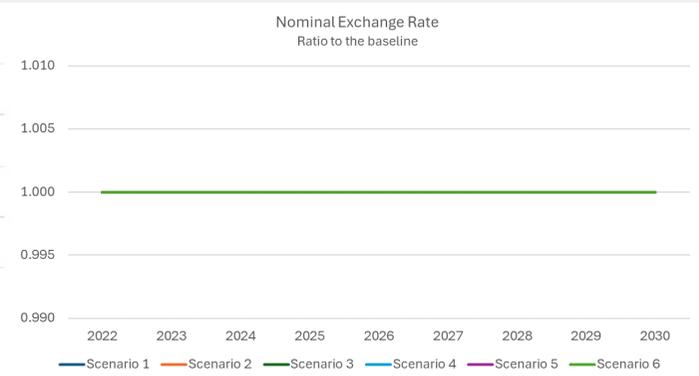
Morocco



Brazil



Azerbaijan

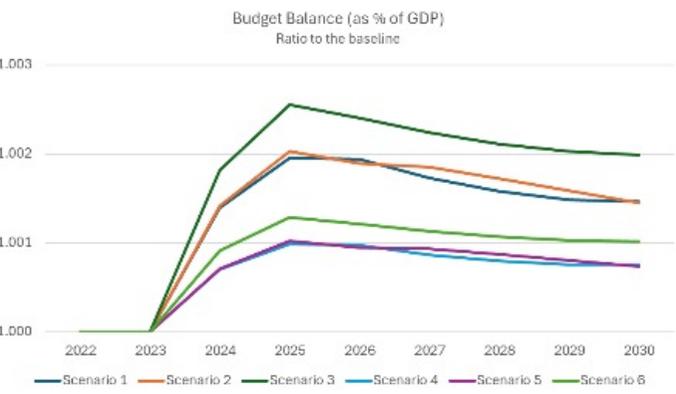
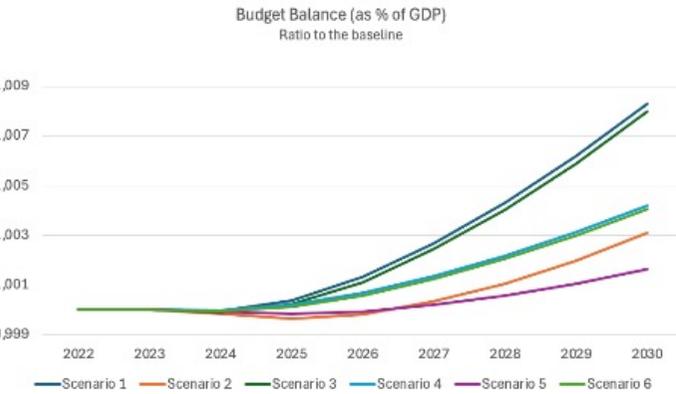
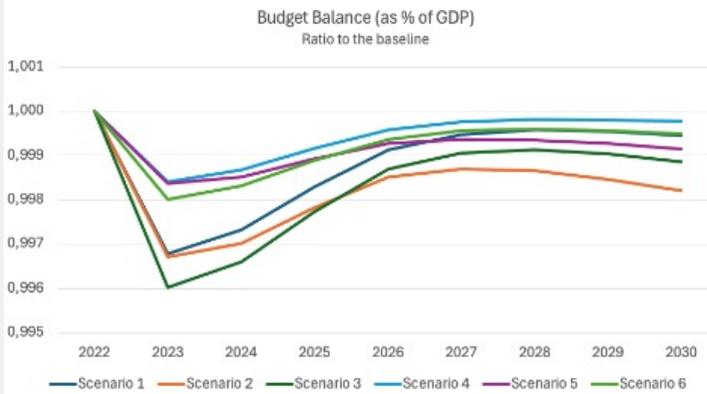
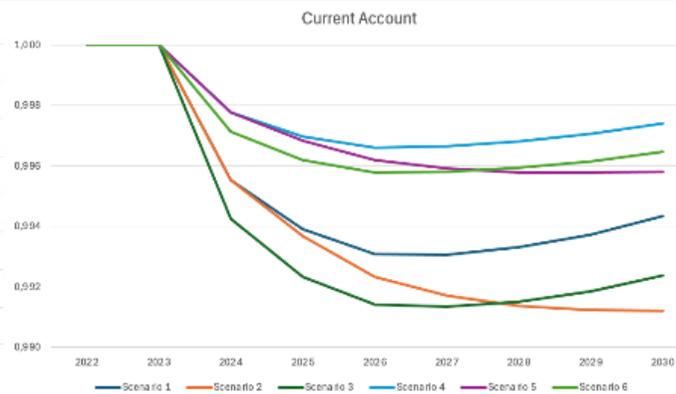
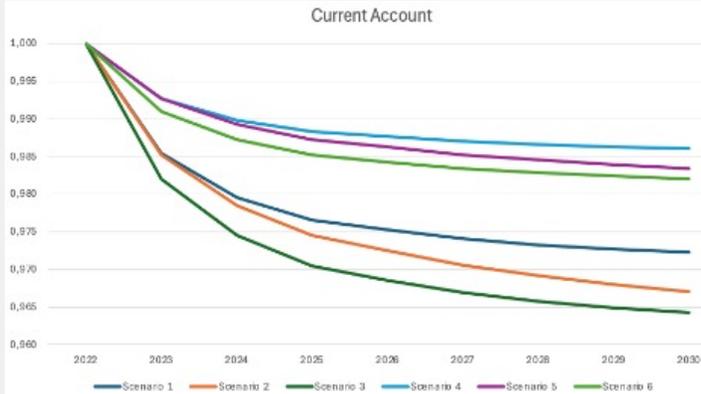


Results

Morocco

Brazil

Azerbaijan



Conclusions and next steps

- There is no single NZE pathway for each country.
- Critical role of climate finance:
 - Enabler
 - Constraint
 - Shaper of macro-financial dynamics
- Empirical dynamic models built on the stock-flow consistent approach can help assess which climate finance instrument combination best suits country's needs and macroeconomic situation.
- It is critical to account for the multiple sources of risk.
 - Physical risks
 - Transition risks
 - Risks blocking climate finance flows



Thank you

Q&A + Thank you