Liability Management & Risk Management

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Topics

Liability Management Operations 1

- Main Concepts
- Debt Swaps and Buy-Backs
- Contingent debt
- Debt for Nature Swaps
- Thematic Bonds

Risk Management Operations 2

- Main Concepts
- Interest Rate Swaps
- Currency Swaps
- Commodity prices
- Natural Disasters

Risk & Liability Management Operations:

Context

Key Responsibilities of Debt Managers in the public sector:

- Management of new and outstanding loans, bonds and derivatives.
- Optimization of the debt portfolio, on a recurring and proactive basis.
- Balance the mix of interest rates, currencies, maturities, and other parameters

Key objectives of Liability management:

- ✓ Lower and smooth the debt service payments of the government
- ✓ Reduce the vulnerability of the public debt to unexpected shocks
- ✓ Develop and maintain an efficient domestic market for government securities

Two critical factors have fostered its development and widespread adoption:

Financial Instability

…where a crisis, a war, a natural disaster, or other consequential events have forced debt managers to reassess their debt portfolios and manage exposures/risks.

Creation of new market instruments

…especially true since the mid-1970s, with the introduction of financial derivatives to be used for hedging risks.

- **Today, risk and liability management are deeply intertwined and have been mainstreamed.**
- **Development Institutions have a critical role to play in promoting sound risk and liability management practices and operations.**

Debt Buy-Backs and Debt Swaps

Focus of discussion

Voluntary

Debt Buy-Backs
&
Debt Swaps

Key Concepts:

ALM Strategy
Transparency
Market value
No Credit Event
Sinking Fund vs/ Auction

Not Voluntary

Restructuring / Rescheduling/ Defaults

Key Concepts:

Inability/Unwilling to pay
Credit Event
Distressed Assets
Haircut
Collective Action Clauses
Holdouts
Negotiations
Brady Bonds
Paris Club / London Club

Debt Buy-Backs:

What are they?

Exchange of outstanding debt instruments against cash payment, before bond's maturity date.

- Funded either from own funds or from the proceeds of a new bond issuance.
- Domestic or International bonds.
  - Can affect the size of the government's debt service payments (principal and Interest)
  - Can lower the debt stock by the face value of the Buy-Back

Debt Buy-Back: Illustration

Buy-Backs of closest-to-maturity bonds

Funded with:

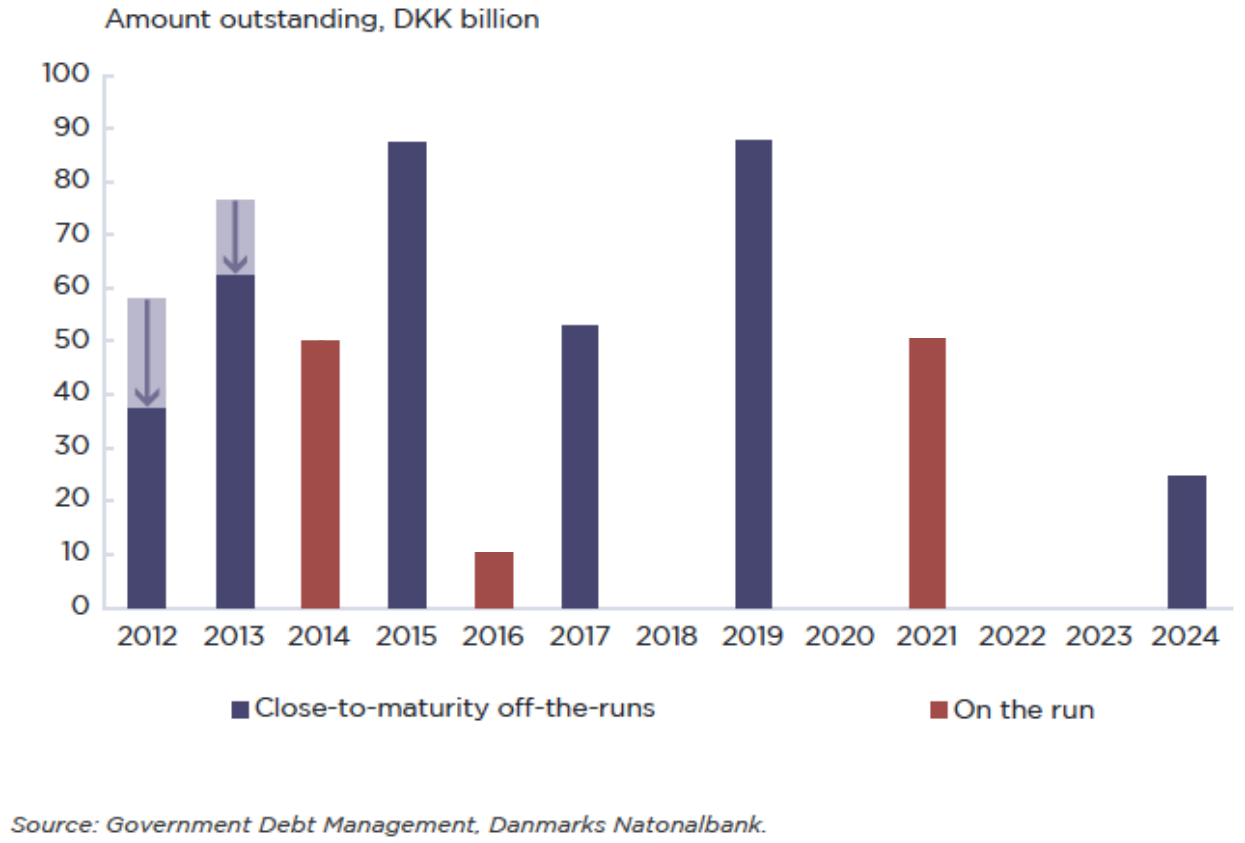
- Existing cash, for example, as a response to unexpected government income

OR

- Increased issuance of on-the-run securities

Buy-Back operations can involve one or multiple bonds.

Buy-Backs combined with increased on-the-run issuance



Source: Government Debt Management, Danmarks Natonalbank.

Note:

***On or Off the run** refers to the status of a security with a specific maturity.*

*For example, a 10-year bond is said to be **on the run** from the time it is issued until a new 10-year bond is issued, at which time the older 10-year bond becomes an **off-the-run** bond, and the newly issued bond becomes the on-the-run security.*

Debt Swaps/ Exchanges:

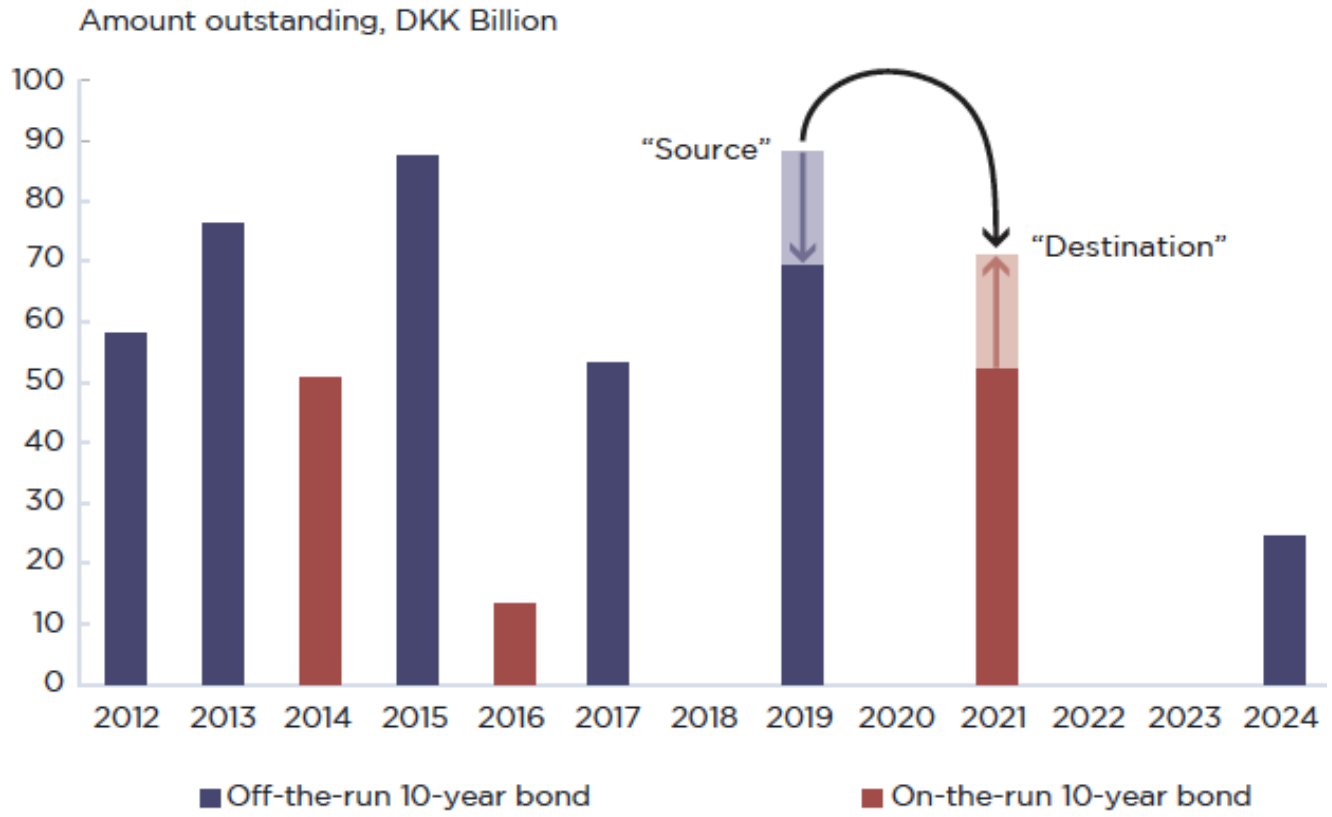
What are they?

Simultaneous exchange of outstanding debt instruments against other debt

- Can be domestic or International (though mainly domestic)
- Are <u>not forced</u> (voluntary) upon creditors and do not constitute a restructuring credit event
  - Note: ISDA's definition: a restructuring constitutes a credit event only if it:
    - (i) occurs as a result of deterioration in the creditworthiness or financial condition of the sovereign, and
    - (ii) is "binding on all holders"—i.e., applies in mandatory form to all bondholders of a series.
- Do not rely on changes in domestic legislation or on the use of collection action clauses (CACs) to coerce non-participating creditors and do not trigger a CDS.

Debt Swap/Exchange: Illustration

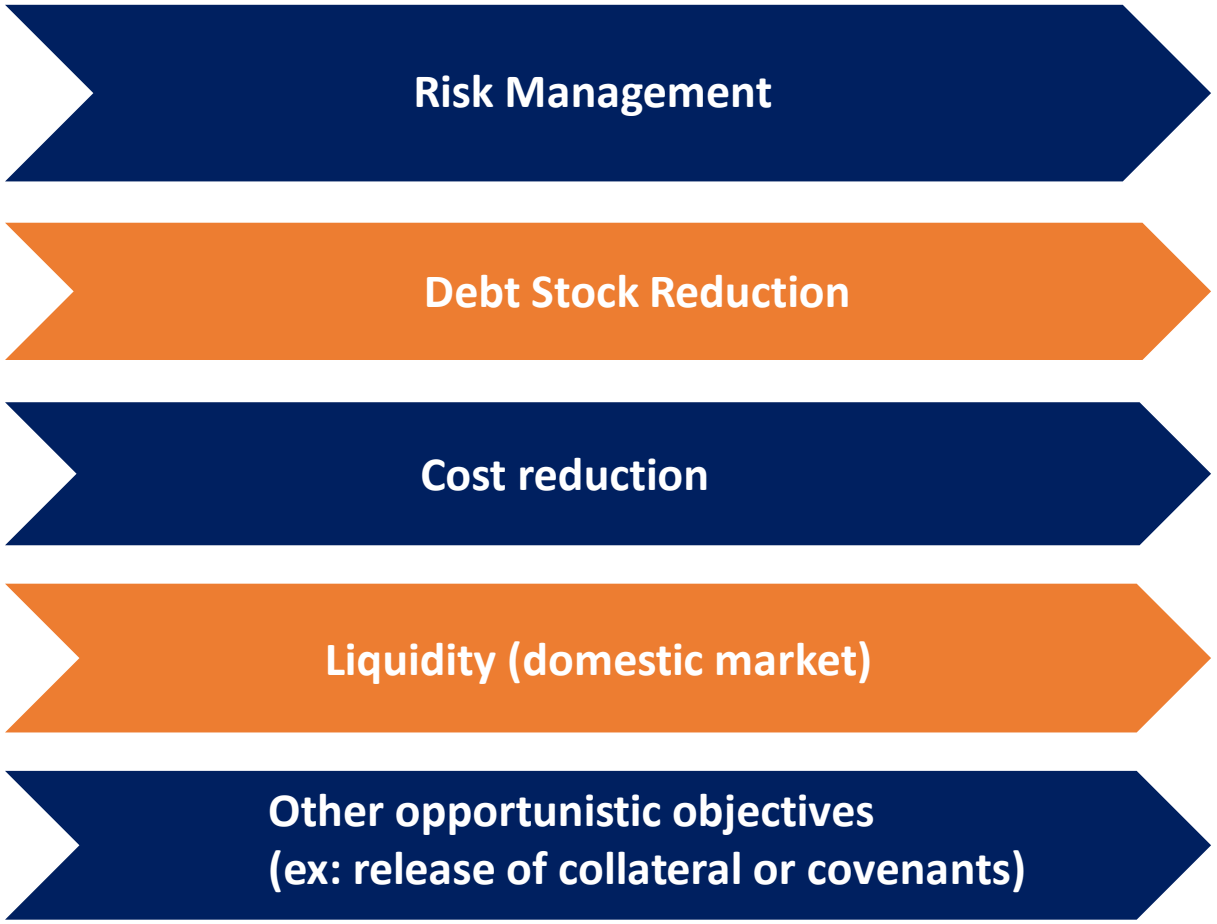
- The stock of ‘off-the-run bonds’ (the ‘source bond’) is being reduced, while (as part of one single operation) the stock of new on-the-run bonds (the ‘destination bond’) is simultaneously increased.
- As a result, the liquidity of the target bond is enhanced.
- A bond exchange operation may be carried out as a simple exchange of a one source bond against another destination bond or as a more complex operation involving multiple source and/or destination bonds.



Source: Government Debt Management, Danmarks Natonalbank.

Objectives:

Why do sovereigns conduct Buy-Backs and Swaps?



Operational Tradeoffs

Objective

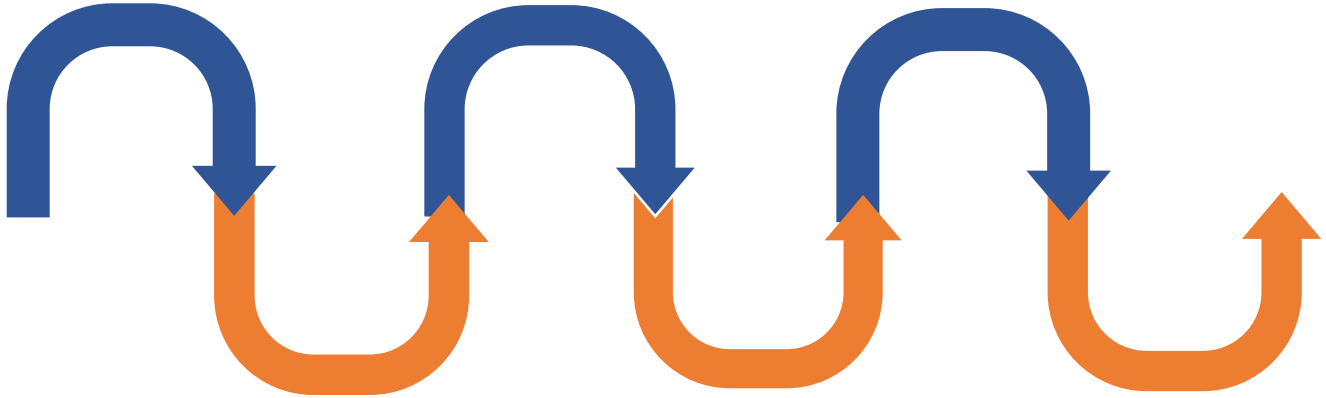
- ❑ Risk management
- ❑ Debt Reduction
- ❑ Cost reduction
- ❑ Capital Market Development (liquidity)

Funding

- ❑ Existing Budget
- ❑ New Issuance
- ❑ Reopen on-the-run Issuance

Procedures

- ❑ Opportunistic
- ❑ Rules-Based



Transaction

- ❑ Buy-Back
- ❑ Swap/Exchange

Market

- ❑ Domestic
- ❑ International

Method

- ❑ Public Announcement
- ❑ Tender / Auction
- ❑ Open Market Operations
- ❑ Sinking Fund

Key Considerations

Debt Swaps and Buy-Backs can be an effective tool of Liability Management
…..but do require preparation

Valuation	Objective	Legal restrictions	Operations	Secondary effects

Technical ability to evaluate cost/benefit	Clarity of objective to be reached	Securities Regulation on buy-backs:
		• Method (tender, open market, auction)
		• Buy-Back size
		• Material information
		• Communication with markets
			• Execution
			• Documentation
			• Settlement
			• Accounting
				• Market Reaction
				• Impact on price and liquidity of other bonds
				• Impact on risks:
				  • Operational/Settlement
				  • Fiscal/Liquidity/Market
				  • Before, during, after operation

Case Study

Evolution of Peru's Buy-Back approach:

From worst
to "best practice"

"Backdoor" Buy-Back
of heavily discounted debt on secondary market

1996


LA NACIÓN

Economía

Ex ministro peruano asume responsabilidad en compra papeles deuda

27 de marzo 2003, 12:00 AM

Public Buy-Back of Paris Club
(bilateral debt) debt from through **prepayment** of debt, financed by new bond issuance

2005

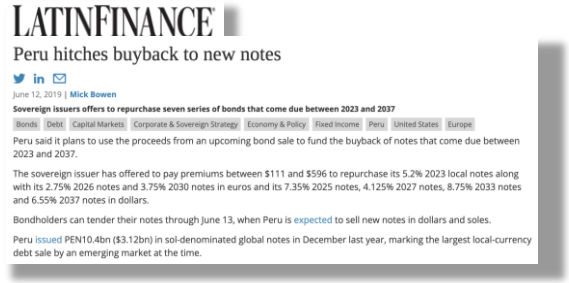

Peru to buy back $2bn from debtors

FINANCIAL TIMES

Päivi Munter JUNE 16 2005

Buy-Back announced
tender to retire old debt at premium,
financed by new PEN bond issuance ("de-Dolarization")

2019


LATINFINANCE

Peru hitches buyback to new notes

June 12, 2019 | Mick Bowen

Sovereign issuers offers to repurchase seven series of bonds that come due between 2023 and 2037

Bonds | Debt | Capital Markets | Corporate & Sovereign Strategy | Economy & Policy | Fixed Income | Peru | United States | Europe

Peru said it plans to use the proceeds from an upcoming bond sale to fund the buyback of notes that come due between 2023 and 2037.

The sovereign issuer has offered to pay premiums between $111 and $596 to repurchase its 5.2% 2023 local notes along with its 2.75% 2026 notes and 3.75% 2030 notes in euros and its 7.35% 2025 notes, 4.125% 2027 notes, 8.75% 2033 notes and 6.55% 2037 notes in dollars.

Bondholders can tender their notes through June 13, when Peru is expected to sell new notes in dollars and soles.

Peru issued PEN10.4bn ($3.12bn) in sol-denominated global notes in December last year, marking the largest local-currency debt sale by an emerging market at the time.

Critical Assessment:

Debt Swaps and Buy-Backs

Can be an integral and effective part of the debt manager's tool kit, to:

- achieve the objectives of the debt strategy and
- the needs of bond investors.

- Fair amount of technical capacity and preparation required (planning, execution and settlement) (upfront investment).
- Sporadic use may lead to market uncertainty and confusion: consistency and transparency are key.
- Highly dependent on global and domestic macro and capital markets conditions.

Contingent Debt Instruments

World Bank Contingent Debt Instruments

Prearranged lines of credit
Immediate liquidity in case of emergency

DPL DDO: immediate liquidity during financial (or other) emergency

Conditions: Appropriate macroeconomic policy framework.
Tenor: 12 years bullet, up to 20-year amortizing
Drawdown: 3 years from signing, renewable 1X
Amortization: can modified at drawdown
Lending Rate: Reference rate + variable spread
Origination fee: 0.25%
Stand-by Fee: 0.50%

CAT DDO: immediate liquidity following a natural/health disaster

Conditions: Macroeconomic policy framework and Risk Management Program.
Country limit: US$500 million or 0.25% of GDP **Drawdown trigger:** pre-specified (i.e. declaration of a state of emergency)
Drawdown period: 3 years, renewable 4X
Revolving feature: Amounts repaid available for subsequent withdrawal
Repayment schedule: up to 35 years final maturity and 20 years Average Repayment
Lending rate: Reference rate + variable spread
Origination Fee: 0.50%
Renewal Fee: 0.25% of the undisbursed balance
Stand-by Fee: none

Case Study:

Indonesia Contingent Debt Facility

Situation:

- The Asian financial crisis of 1997-98 locked many governments out of the Capital Markets.

Solution:

- In the light of this experience, the Government of Indonesia set up back-up financing to send strong positive signal to the markets and boost investor confidence, to continue raising funds from domestic and international markets.

Facility:

- Indonesia set up a US$5.5 billion facility supported by the World Bank, The Asian Development Bank, and the Governments of Australia and Japan
- The World Bank approved a $2Billion DPL DDO (budget support line of credit)

Impact:

- During the 2008 financial crisis, Indonesia raised more than US$6.3 billion through five bond issuances in the capital markets.
- The DPL DDO worked as a backup financing facility, helping to ensure that the Indonesian government had access to resources if, and when, markets failed.

Terms & Conditions

Approval Date	March 3, 2009
Amount and Currency	US$2 billion
Repayment Schedule	24.5 years of final maturity (including a 10 year grace period) with leveled amortization of principal
Interest Rate	6-month LIBOR plus a fixed spread
Disbursement Period	2 years
Fees	0.25% Front-End Fee[1]

Case Study

Costa Rica Natural Disaster Line of Credit

Situation:

- Costa Rica is number 2 in the world among countries most exposed to multiple hazards, with 80% the country's GDP and 78% of Costa Rica's population in high-risk areas

Solution:

- Costa Rica built an efficient disaster response system, building codes, environmental standards, and land use planning to mitigate the impact of natural disasters.
- It has also made substantial progress in strengthening its institutional and legal framework and mainstreaming catastrophe risk management in its national development program.
- In 2008, as part of the program, Costa Rica signed a $68 Million Disaster Contingent Loan (CAT DDO) with the World Bank

Terms & Conditions

Amount	US$65 million
Approval Date	September 16, 2008
Repayment Schedule	29.5 years of final maturity (incl. a 5-year grace period) with level amortization of principal
Interest Rate	Variable: Based on 6-month LIBOR plus a fixed spread
Disbursement Period	3 years; renewable up to 15 years if original program remains in place
Fees	0.25% Front-End Fee[1]

Impact:

In January 2009, just months after securing the Cat DDO, a 6.2 magnitude earthquake struck 20 miles north of San José, affecting more than 120,000 people.

Cost Rica disbursed US$24 million of the Cat DDO to rebuild damaged infrastructure.

Debt for Nature Swaps:

What are they?

Exchange of existing debt (bonds or loans):

- in exchange for new and financially advantageous debt
- and for borrower commitment to allocate part of the savings to environmental projects.

Increasing interest in such swaps as sovereigns face:

- Increasing financial needs for environmental projects and
- High levels of indebtedness from Pandemic

Main development phases of Debt for Nature Swaps

1980's

- Relatively small and sporadic operations, funded by donations or NGO capital.
- Mainly driven by NGOs (The Nature Conservancy, Conservation International, WWF).
- Almost all in Latin America
- Tri-Partite transactions involving creditor and sovereign debtor, and NGO.

Example: Bolivia

1st. DNS transaction, Structured in 1987

Conservation International purchased and canceled USD650,000 of Bolivia's foreign debt with 85% discount in exchange for a $250,000 commitment in biodiversity conservation, setting aside for conservation 3.7 million acres of land adjacent to the Amazon basin

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1990's to 2017

- Larger and more frequent operations
- Mainly bi-lateral swaps, involving a sovereign creditor and sovereign borrower.
- Appearance of the "Trust Fund" as a key feature to ensure compliance with environmental objectives.

Example: US Tropical Forest Conservation Act

US Government law than enabled DNS operations on US Government debt to sovereign governments, generating over $300 million in conservation funds in multiple countries

2018 to date

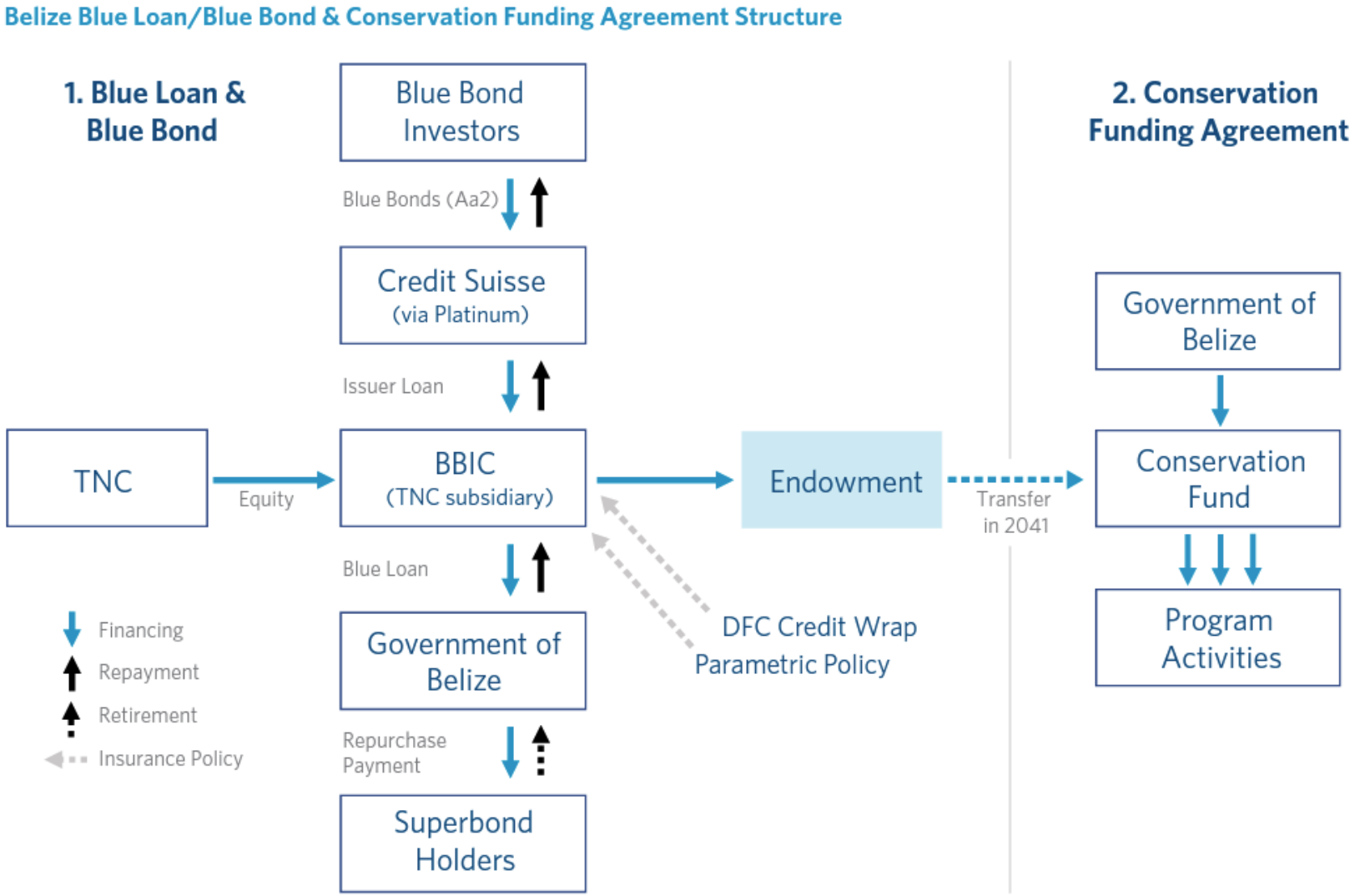
- Larger size of operations
- Rise in sophistication of financial structuring aspects (guarantees, insurance, etc.)
- Choreographed and structured by NGOs
- Involving multiple parties: bond holders, debtor government, Trust Fund(s), development banks, etc.

Example: Belize 2021

Sovereign debt of $553 Million purchased with 45% discount by The Nature Conservancy, generating $200 Million in savings for Belize over 20 years

Allocating $180 Million for conservation projects in the "Conservation Fund".

Case Study: Belize Debt for Nature Swap (2021)



Recent and noteworthy transactions

- Belize exchanged $553 million of its commercial debt for new loans worth $364 million, freeing up funds for marine conservation, reducing its debt burden and securing around $180 million over 20 years to protect its marine areas, including its renowned barrier reef
- Ecuador (2022) swapped $1.6 billion of its debt for $656 million in new loans, with $450 million allocated to marine conservation projects. It is the largest debt-for-nature swap to date, through a bond issued by Credit Suisse. This deal is expected to channel approximately $18 million annually toward conservation efforts for the Galápagos Islands
- Barbados (2022) completed a swap involving $150 million of its debt, replacing it with a $146 million blue bond and committing $50 million to marine conservation, in collaboration with The Nature Conservancy and the Inter-American Development Bank.
- Gabon (2023) debt-for-nature swap converted $500 million of debt into funding for conservation, particularly targeting its forests,
- Cabo Verde (Cape Verde) has also completed a debt-for-nature swap, although the exact date and details were not specified in the search results

- **These swaps have set examples for using financial restructuring to address environmental and biodiversity goals while providing debt relief, particularly for nations facing economic challenges and rich natural ecosystems.**

- **These transactions have provided both debt relief and funding for environmental conservation, demonstrating the growing interest in this financial mechanism as a tool for addressing debt sustainability and climate change mitigation simultaneously.**

Critical Assessment:

Debt for Nature Swaps

- Increased re-allocation of funds to environmental projects.
- Strong demand for well-vetted environmental bonds.
- Potential improvement in financing terms.
- High International visibility of operation.

- **Limited impact on debt relief:** The swaps typically involve only a small fraction of a country's total external debt, so they may not significantly reduce the overall debt burden or improve creditworthiness.
- **Insufficient funding for environmental programs**: The value of swaps is often too small to create meaningful budgetary room for environmental initiatives.
- **Loss of sovereignty and autonomy over debt resolution**. Lenders can impose conditions on how freed-up funds should be invested, potentially privileging lender interests.
- **Complexity and lengthy negotiations:** complex, lengthy negotiations among multiple stakeholders with different agendas (time, resources, expertise, and trust)
- **Lack of evidence of effectiveness:** Some experts argue there's no clear evidence that swaps have worked effectively for nature conservation.
- **Savings:** realized with new debt is dependent on price of bonds in secondary market and /or ability to secure credit enhancement.
- **Valuation:** Ability to valuate entire value, including fees and costs, is critical.
- **Use of Proceeds:** Proper use of funds is needed, as is monitoring, supervision, reporting.

Thematic Bonds:

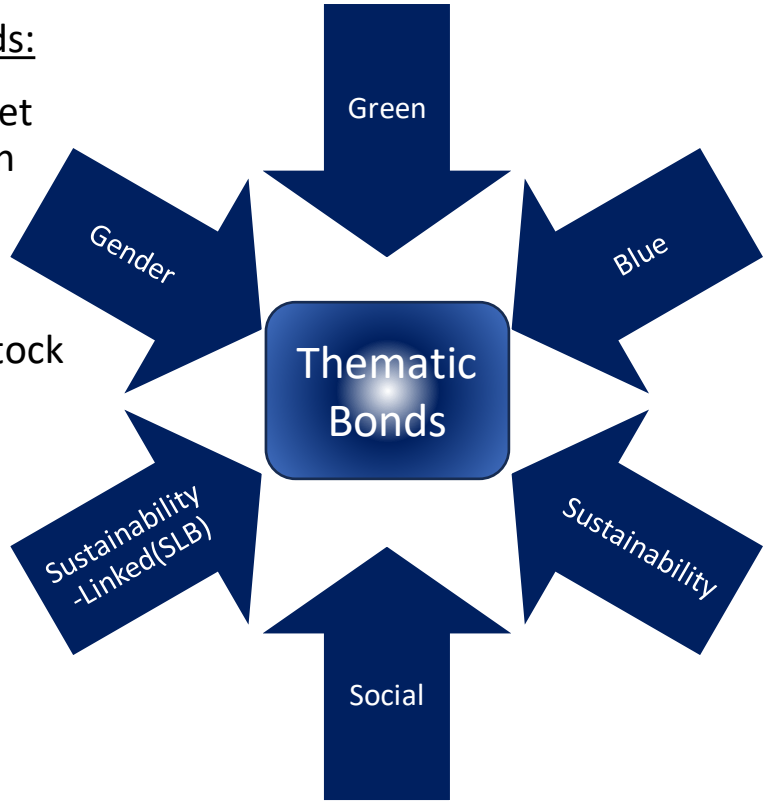
What are they?

Fixed income securities that:

- aim to meet environmental and social objectives and
- commit funds to programs, projects or assets deemed environmentally / socially beneficial
- Contribute to the issuer's commitment to UN's Sustainable Development Goals (SDG)

Same as plain-vanilla bonds:

- Subject to Capital Market and Financial Regulation
- Reflect Issuer's credit risk/rating
- Same impact on debt stock & sustainability



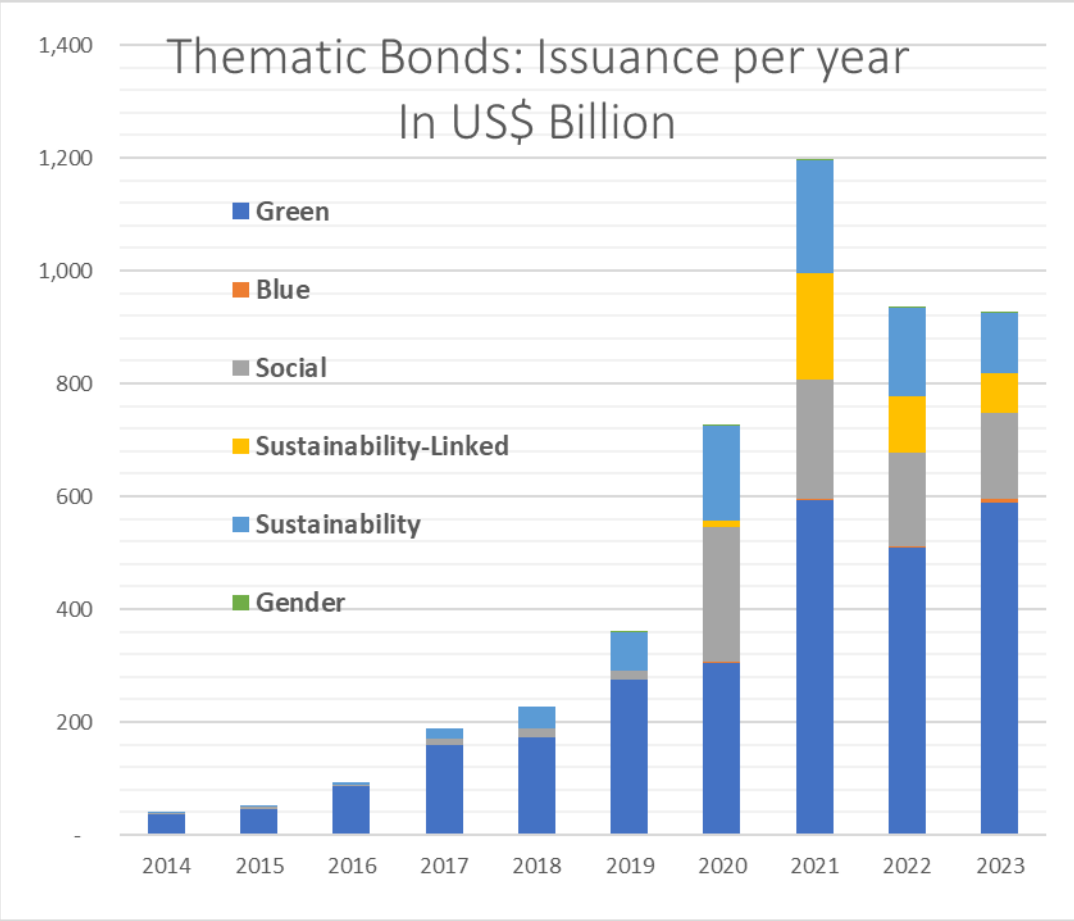
But **different** in that:

- Use-of-Proceeds (except for SLB) is specified in prospectus or offering documentation
- Note: misuse of funds does not trigger a credit event

Evolution of Thematic Bond Market

$1.2 Billion:
Peak Thematic Bond Issuance in 2021

$4.7 Trillion:
issued to date cumulatively until 2023



2022 decline:
Driven by Ukraine conflict, end of Pandemic, global inflation, and rising energy prices and interest rates.

Sources: CBI, Environmental Finance, press releases, and author estimates

What is the process to issue a Thematic Bond?

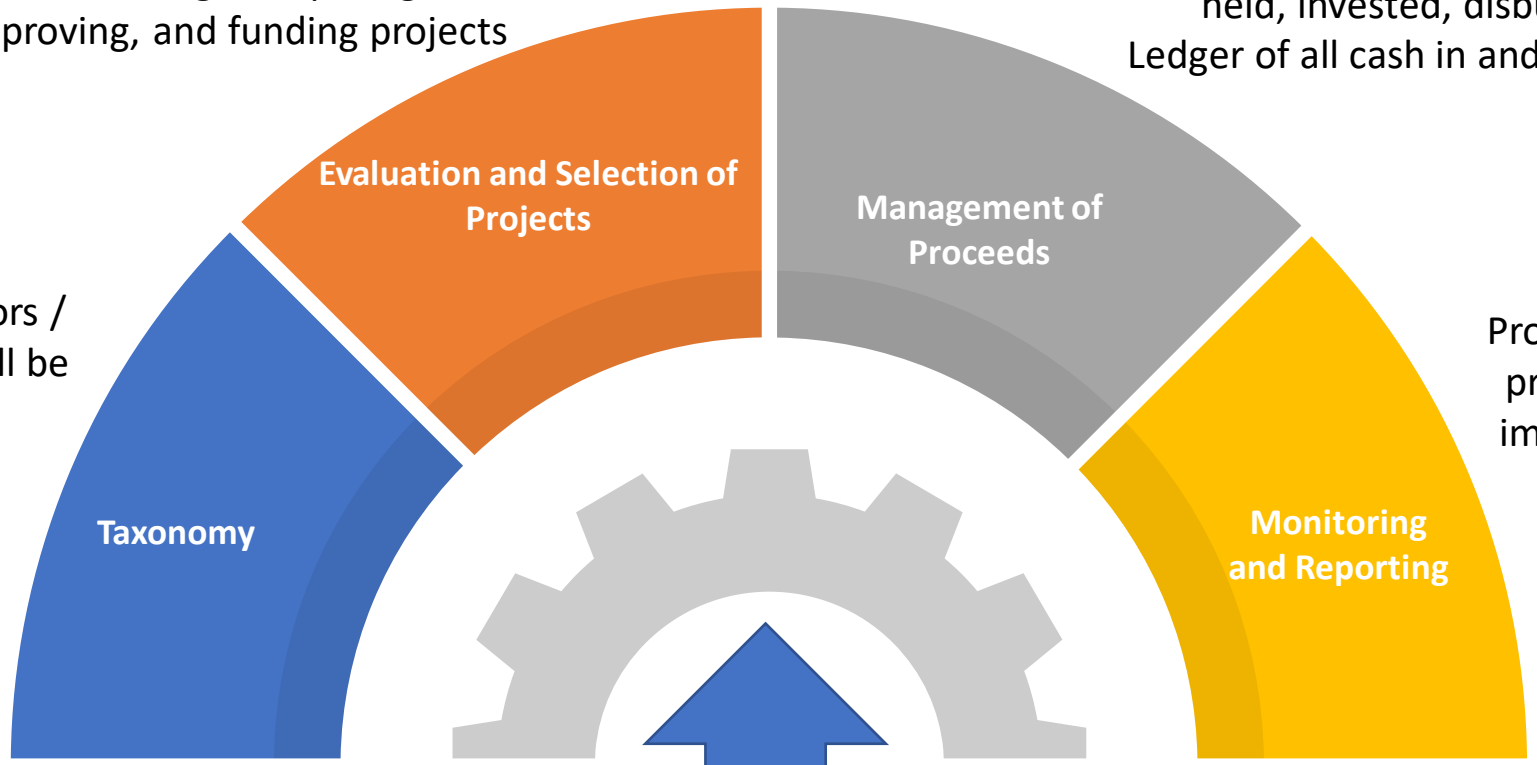
Framework for Thematic bonds

Procedures for selecting, evaluating, comparing, approving, and funding projects

How bonds proceeds will be deposited, held, invested, disbursed
Ledger of all cash in and outflows

Definition of sectors / categories that will be supported

Process for monitoring project progress and impact of investment



External Reviewers:
Second Opinion Providers/
Auditors/Certifiers/ Verifiers/Ratings

Issuers can label their bonds as Thematic. Commissioning external reviewers is necessary to enhance the credibility of the issuer and the project.

Taxonomy: what is it?

Voluntary classification system for identifying activities or investments that will move a country toward meeting specific targets related to priority environmental objectives.

Enables financial actors and others to determine which investments can be labeled Green, Sustainable, Social, etc. for their jurisdictions.

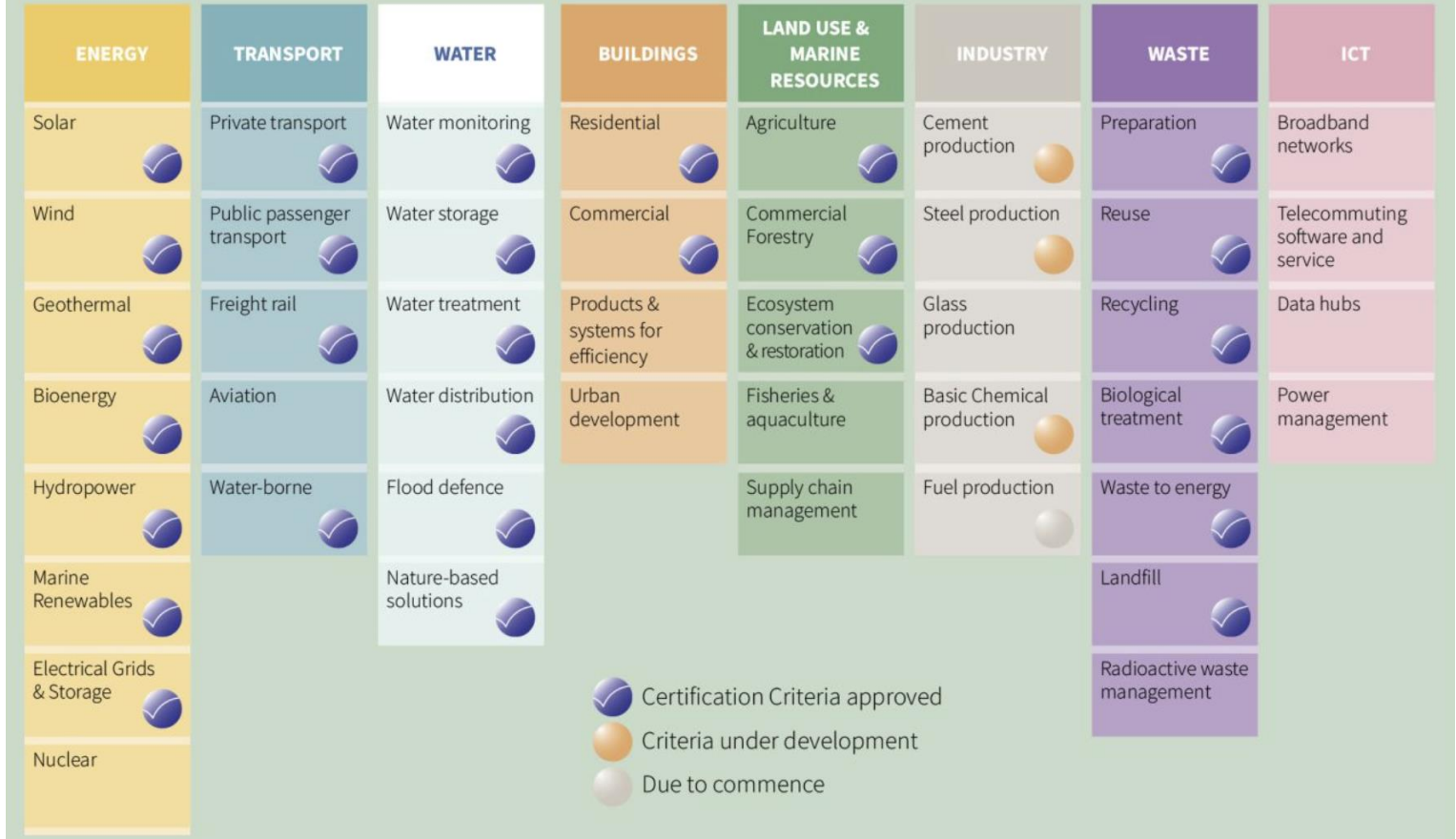
There are global, regional and domestic taxonomies, including:

- EU Sustainable Finance Taxonomy
- China PBOC 2021 Green Project Catalogue
- CBI Climate Bond Taxonomy
- ASEAN Taxonomy

Sample Taxonomy: Climate Bond Initiative

Climate Bonds Taxonomy

The Climate Bonds Taxonomy identifies the assets and projects needed to deliver a low carbon economy and gives GHG emissions screening criteria consistent with the 1.5°C global warming limit set by the COP 21 Paris Agreement. More information is available at https://www.climatebonds.net/standard/taxonomy.



Green Bonds

Definition

A debt security that is issued to raise capital specifically **to support climate related or environmental projects** that foster a net-zero emissions economy and protect the environment.

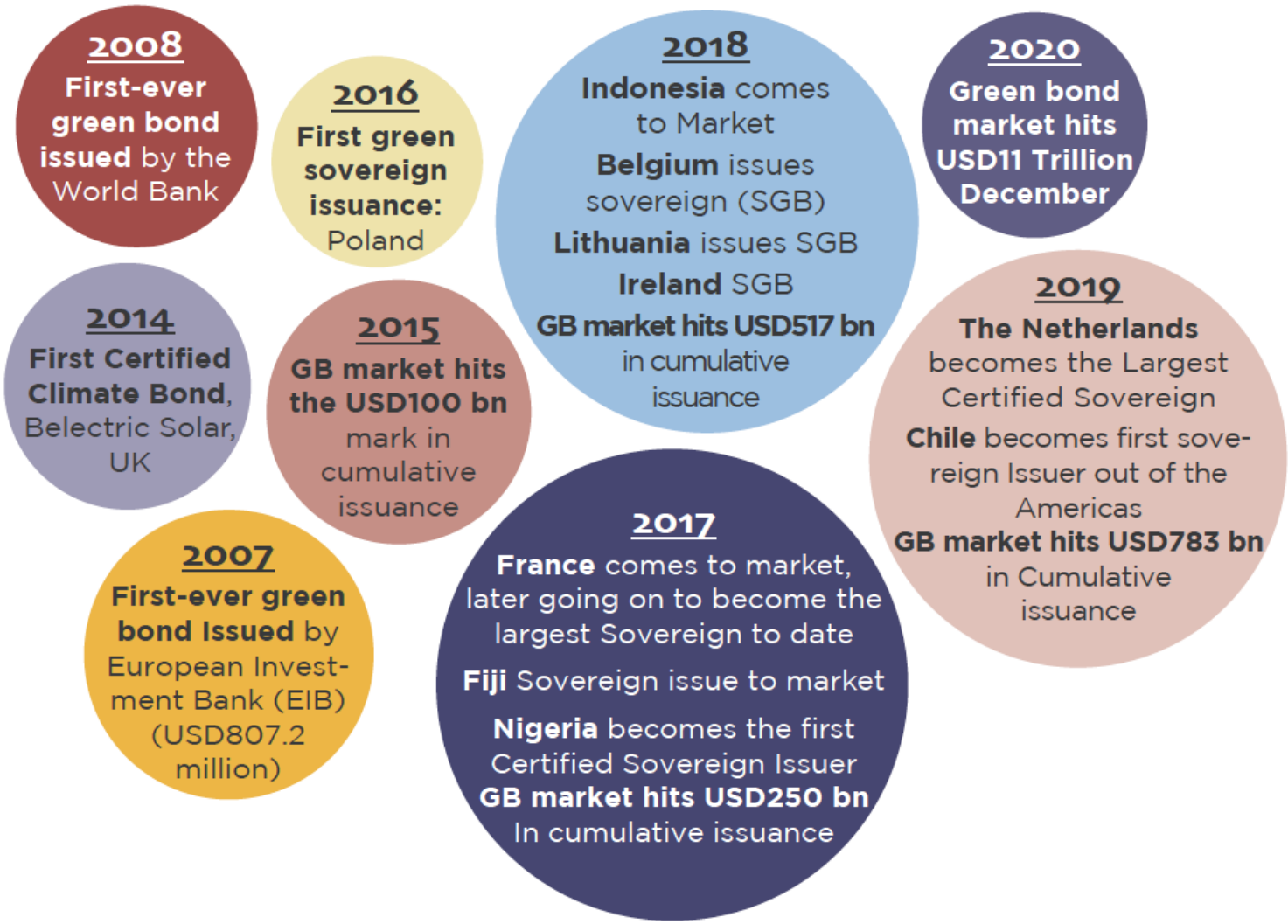
In addition to evaluating the standard to financial characteristics (such as maturity, coupon, price, and credit quality of the issuer), **investors also assess the specific environmental purpose** of the projects that the bonds intend to support.

Issuers set the qualifying criteria for these green projects and use the bonds to finance initiatives in fields such as renewable energy, green buildings, wastewater management, energy efficiency and public transportation.

A green bond's return, however, is **backed by the credit of the issuer**.

Issuers should follow the GB Principles, published by ICMA.

Green Bonds: Main Milestones



For Governments and Debt Managers: Why issue Green Bonds?

Benefits for issuers include

- Investor diversification
- Closer engagement with investors
- Raising awareness of issuer activities
- Build a market that mobilizes private sector financing for environmentally friendly projects
- Legitimizes the government's commitment to invest in environmental projects
- Builds the framework for measuring environmental achievements
- Greenium??

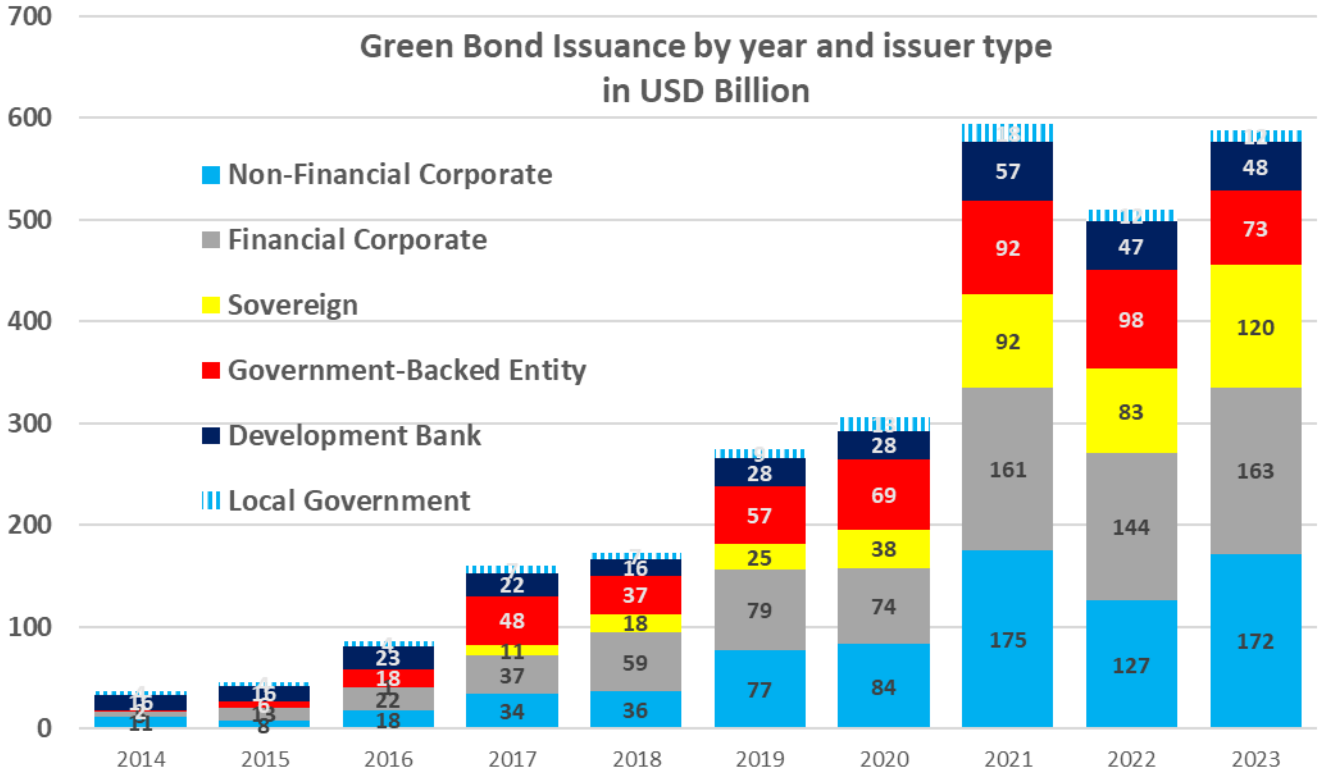
Green bond Issuers

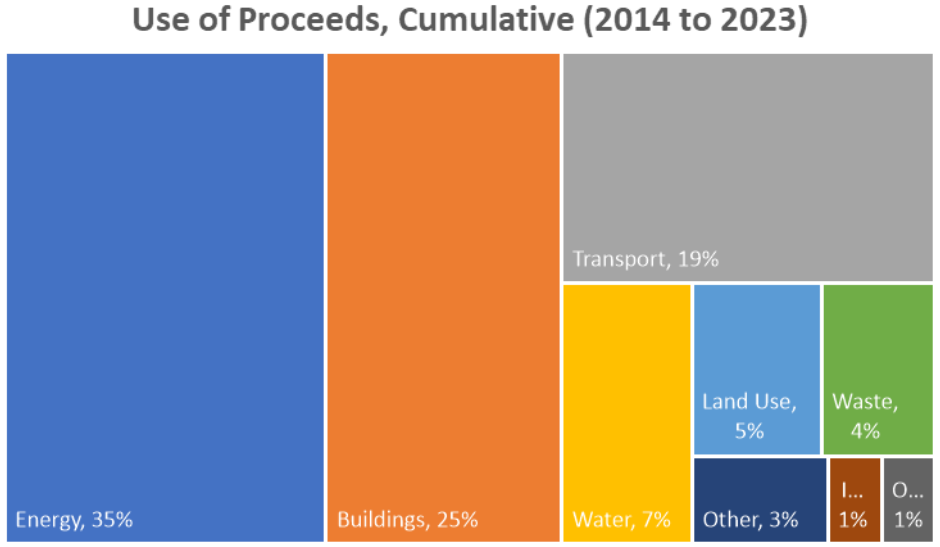
by Issuer type and Sector

Corporates and **Energy**

dominate the market

$2.8 Trillion cumulatively issued from 2014 to 2023 !

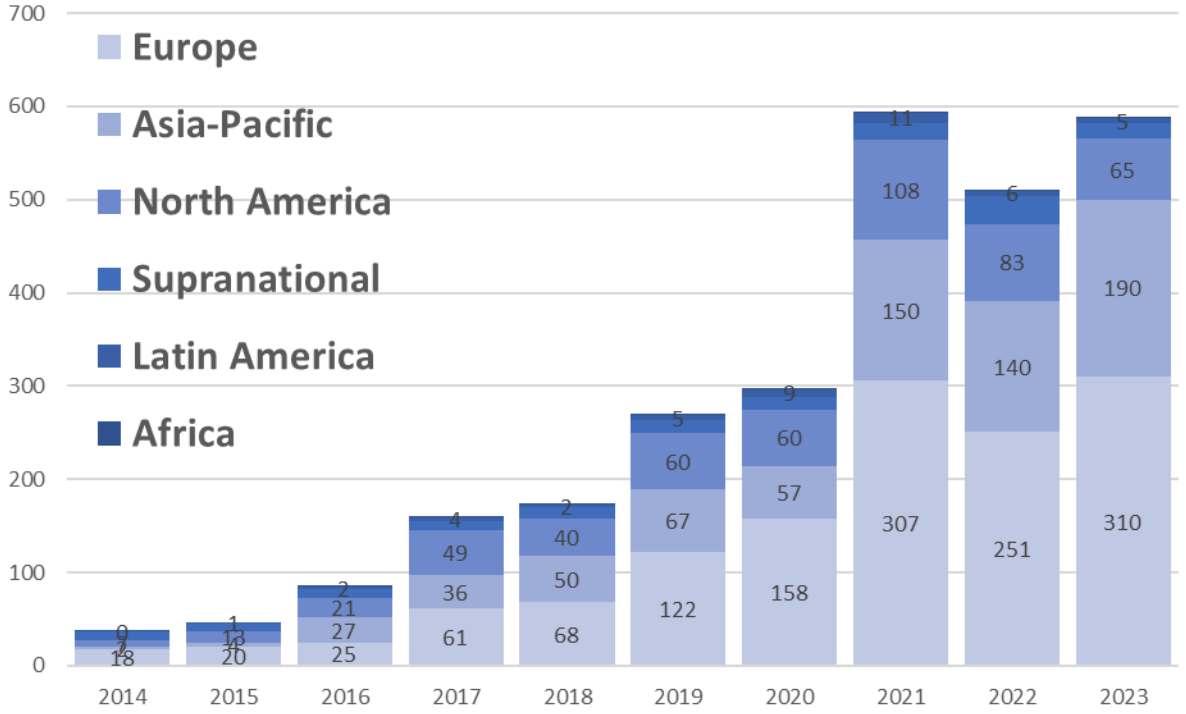




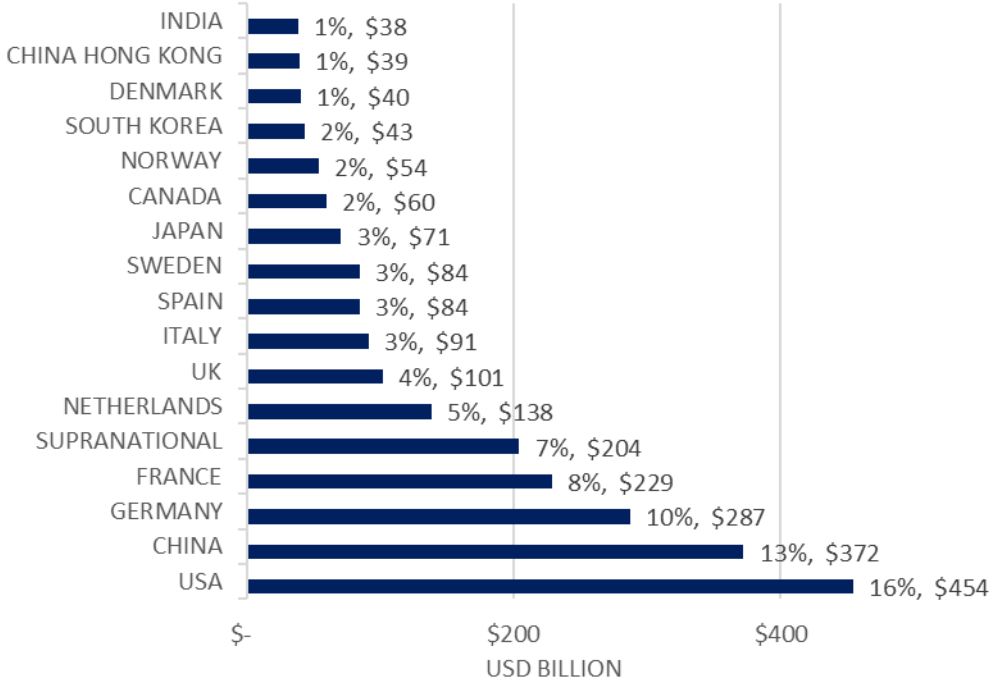
Source: Climate Bond Initiative

Green Bond Issuers

Issuance over time, by region
(% of Total)



Cumulative Issuance to date
top countries



Europe maintains over 50% of the issuance market, but Asia-Pacific reaching 32%, while Supranational share falling at 3%.

$2.8 Trillion Issued cumulatively (2014 to 2023)
China issues the largest volume in 2023 (USD85.4bn)

Source: Climate Bond Initiative

What about Pricing? Is there a “Greenium”

Greenium is the price differential between a conventional (”vanilla”) bond and a Green Bond, with the exact same characteristics.

- Credit Risk is still the main underlying risk !
- But demand from large institutional investors is high
- And supply is lagging (time needed to ramp up)
- Hence the Greenium!

The Premium on green bonds, also referred to as the "greenium," is evident globally and is particularly strong for U.S. dollar debt. Savings for borrowers range ***between 1 basis point and 10 bps*** *on a global basis (****S&P****, Sept 2020, based on Climate Bond Initiative research)*

*• EUR: Average oversubscription was 2.9x for green bonds, and 2.6x for vanilla equivalents. (****S&P)***

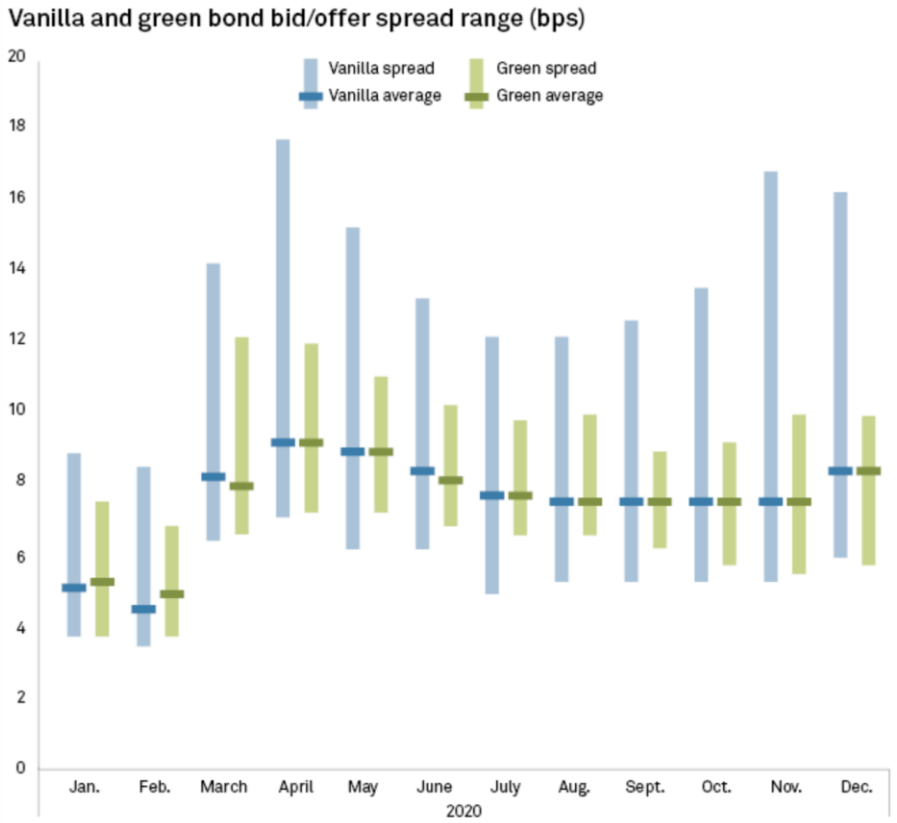
*• USD: Average oversubscription was 4.7x for green bonds and 2.5x for vanilla equivalents. (****CBI****, Jan to Jun 2021 Pricing Analysis)*

Investor demand for green bonds has continued to drive pricing perks for KfW from its green note programme. Greenium on its green bonds when first issued stood at around ***1 basis points*** *compared with its conventional bonds. For 2021, however, primary market 'greenium' was heading towards two basis points. (****KFW****)*

Greenium Analysis

CBI analysis: Vanilla vs. Green Bond Spreads in secondary market:

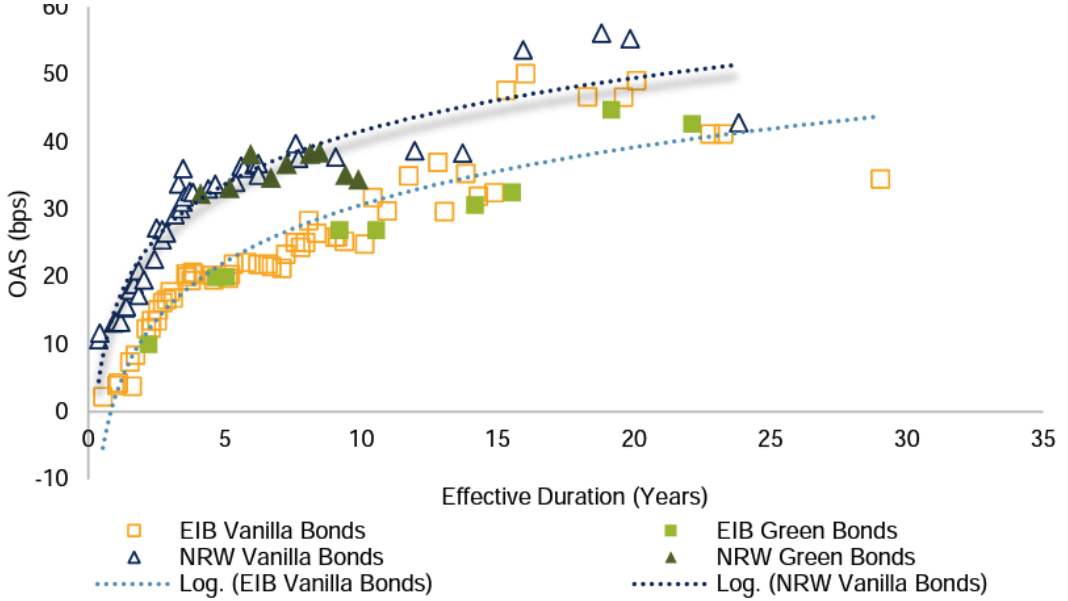
Significantly tighter spreads for Green bonds!



Data published Sept. 15, 2021.
Research sample includes 17 green and 29 vanilla euro-denominated utility bonds sold in 2019.
Source: Climate Bonds Initiative

S&P study: yield curve of three AAA issuers:

1 to 4 bps difference (Greenium)

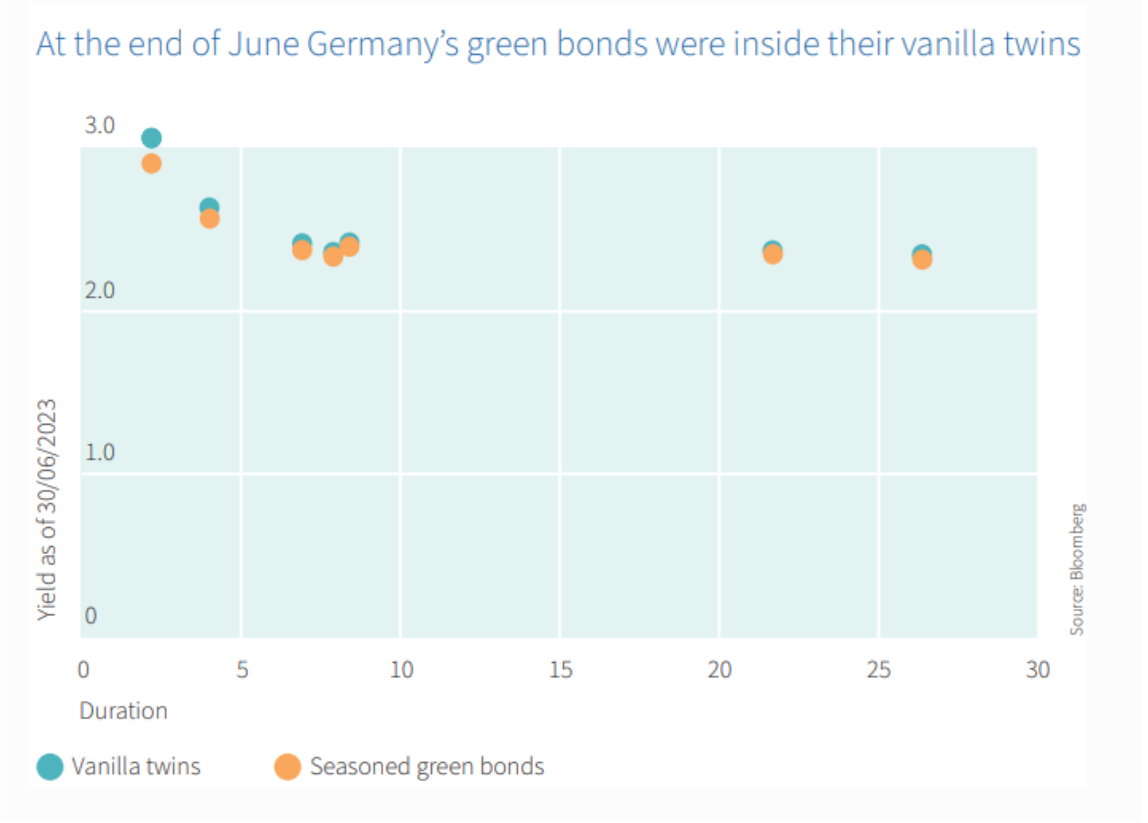


YEAR	KFW		NRW		EIB	
	NUMBER OF BONDS	AVERAGE GREENIUM	NUMBER OF BONDS	AVERAGE GREENIUM	NUMBER OF BONDS	AVERAGE GREENIUM
2021	6	0	9	-1	9	-2
2020	5	-1	7	0	8	-3
2019	5	-3	5	1	8	-4

Greenium Analysis

CBI analysis/Bloomberg:

Secondary Market yields of German Twin bonds



Twin Bonds:

Bonds issued simultaneously with identical characteristics, one Green, one Vanilla

Social Bonds

Definition

- **A debt security** that raises investor capital to finance projects that directly aim **to address or mitigate specific social issues** and/or seek to achieve **positive social outcomes**, especially but not exclusively for a **target population**(s).

- Social Project categories include providing and/or promoting affordable basic infrastructure, access to essential services, affordable housing, employment generation, food security, or socioeconomic advancement and empowerment.

- Issuers should follow the SB Principles, published by ICMA.

Social Bonds:
use of proceeds

To finance WHAT?

Projects providing and/or promoting:

- **Basic infrastructure** (e.g. water, sewers, transport, energy)
- **Access to essential services** (e.g. health, education, financial services)
- **Affordable housing**
- **Employment** generation, and programs designed to prevent and/or alleviate unemployment stemming from socioeconomic crises
- **Food security** (e.g. access to food; resilient agricultural practices; reduction of food loss and waste; and improved productivity of small-scale producers)
- **Socioeconomic advancement and empowerment** (e.g. equitable access to and control over assets, services, resources, and opportunities; equitable participation and integration into the market and society)

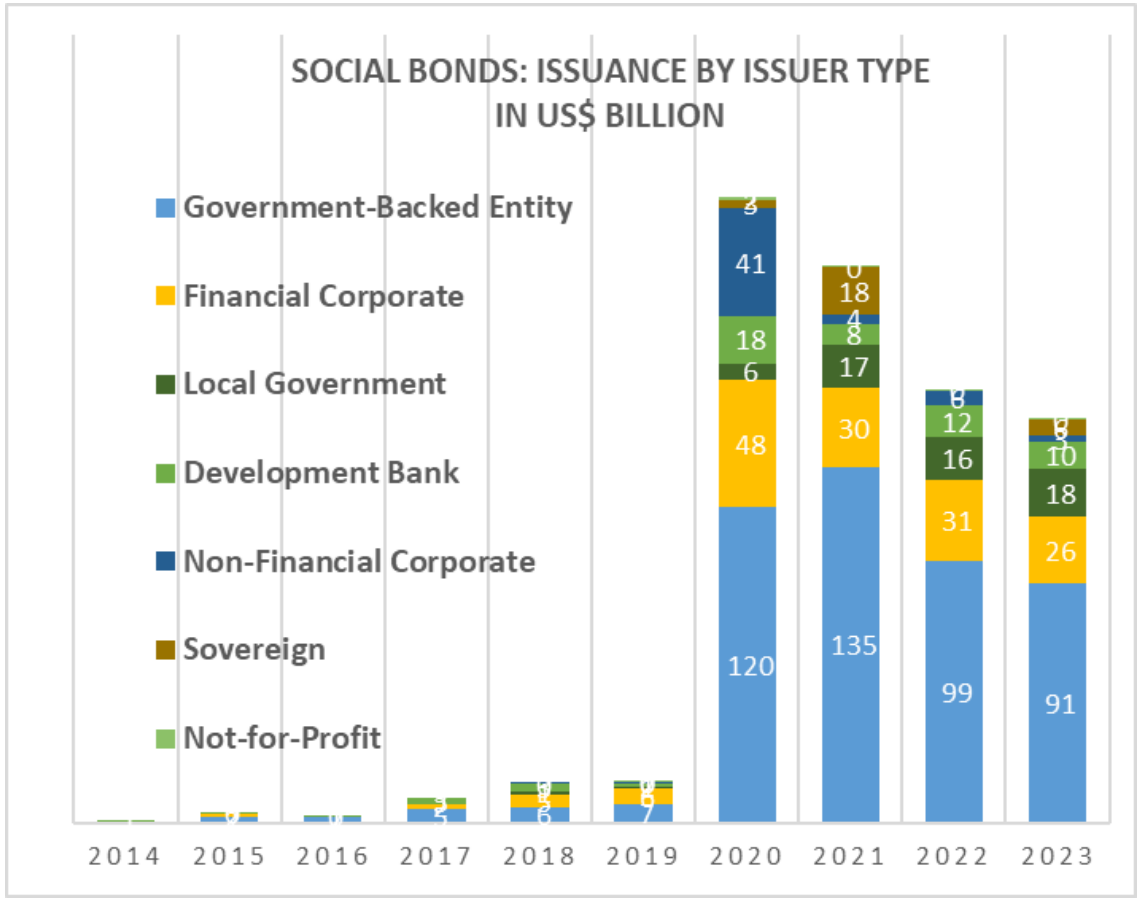
For the benefit of WHOM?

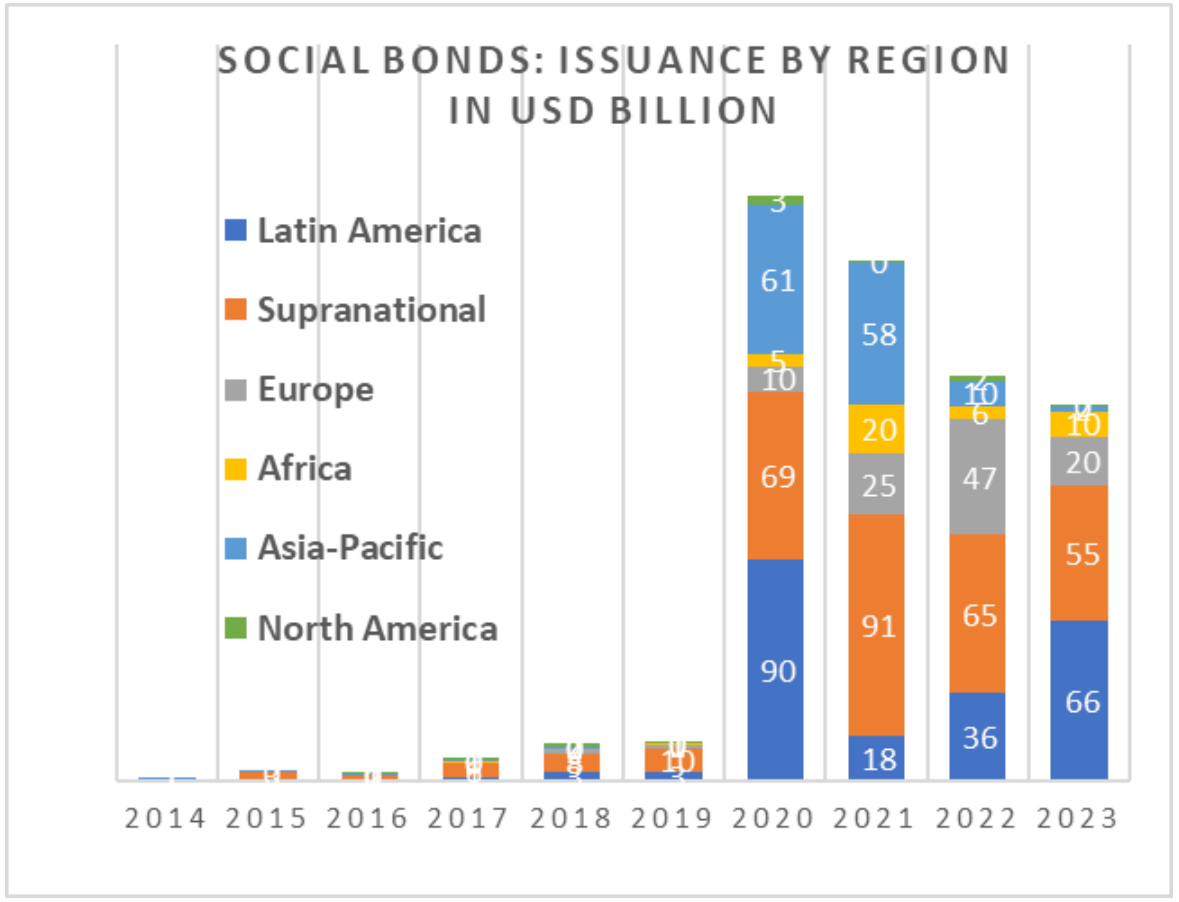
Target populations include those that are:

- Living below the poverty line
- Excluded and/or marginalized populations and/or communities
- People with disabilities
- Migrants and/or displaced persons
- Undereducated
- Underserved, owing to a lack of quality access to essential goods and services
- Unemployed
- Women and/or sexual and gender minorities
- Aging populations and vulnerable youth
- Other vulnerable groups, including as a result of natural disasters

Social Bonds take flight in 2020
…but slide off in 2021 - 2023

Social Bonds reached $768 Billion in cumulative issuance (2014 to 2023)

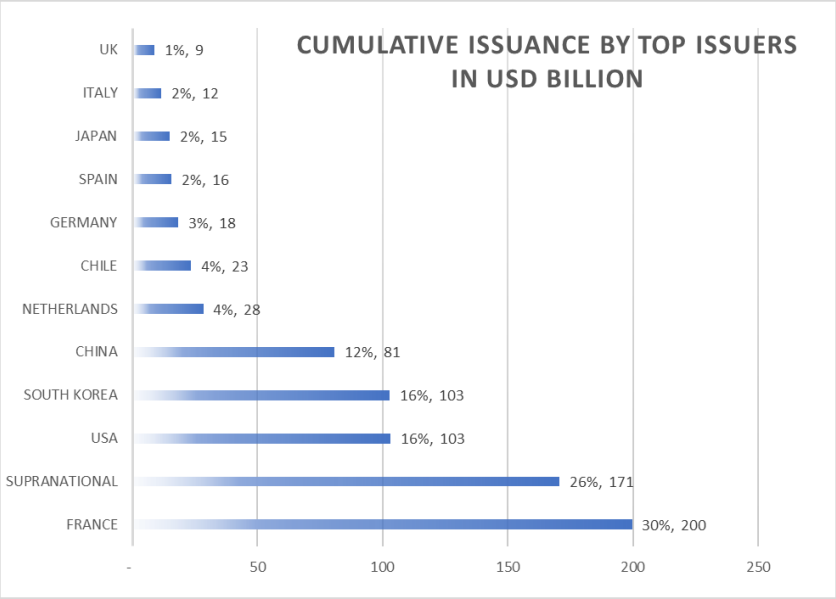




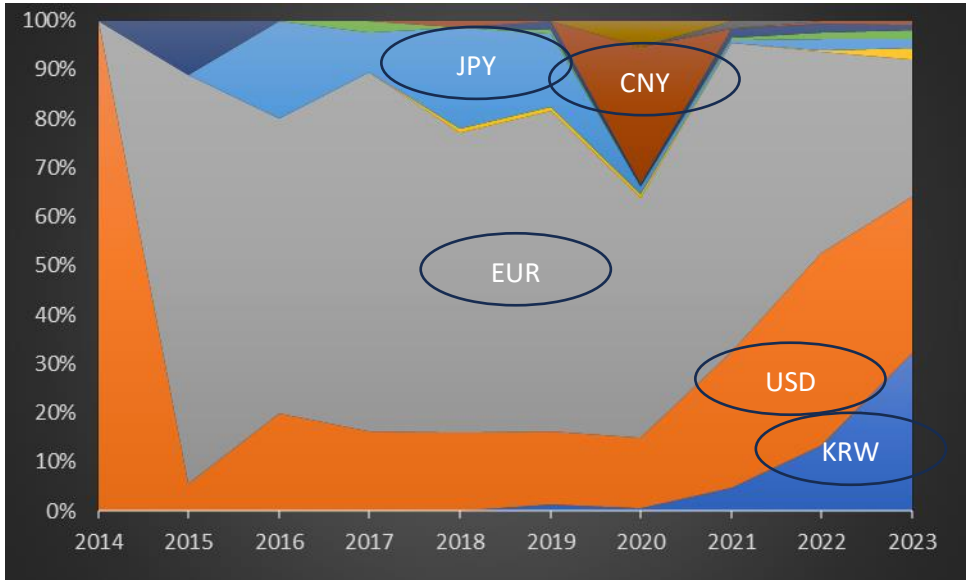
Source: Climate Bond Initiative

Social Bonds

- France dominates the Social Bond issuance, driven by CADES, the largest issuer in the space.
- The EUR accounts for 50% to 60% of issuance in last 3 years



Over time, EUR loses its share as South Korean Won and USD pick up in 2021 onwards



Source: Climate Bond Initiative

Sustainability Bonds

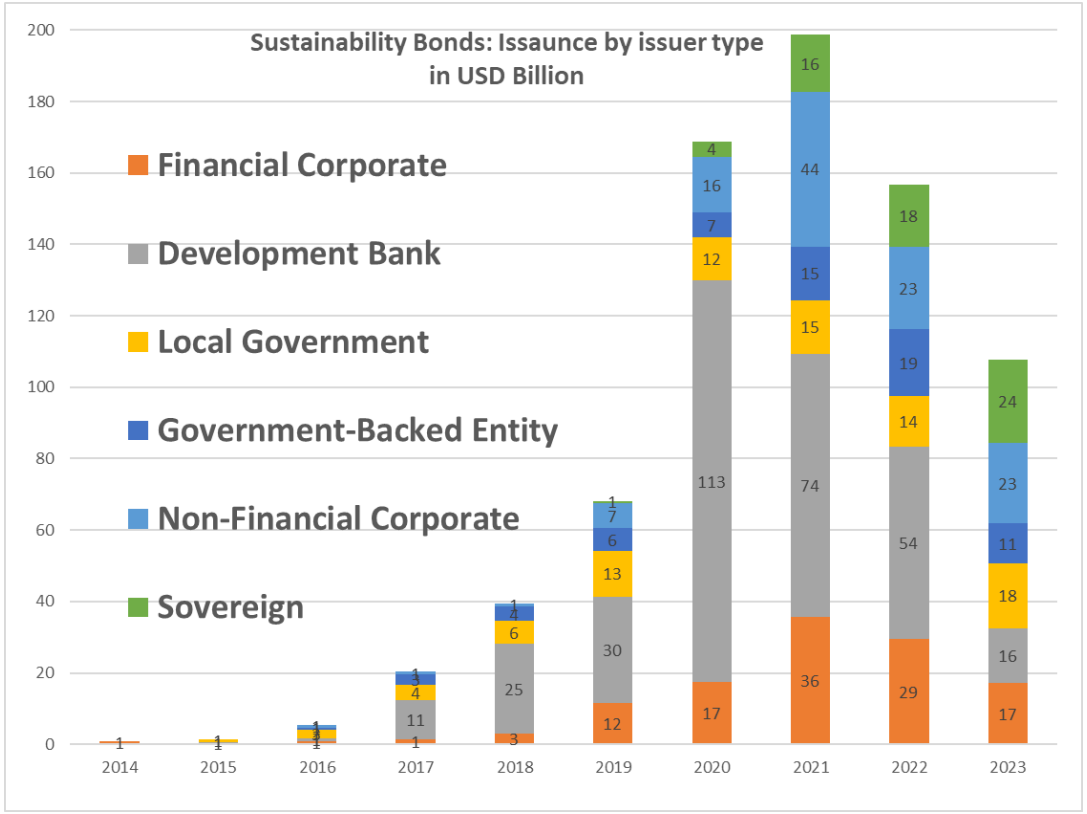
Definition

Debt instrument where the proceeds or an equivalent amount will be exclusively applied to finance or re-finance a combination of both:

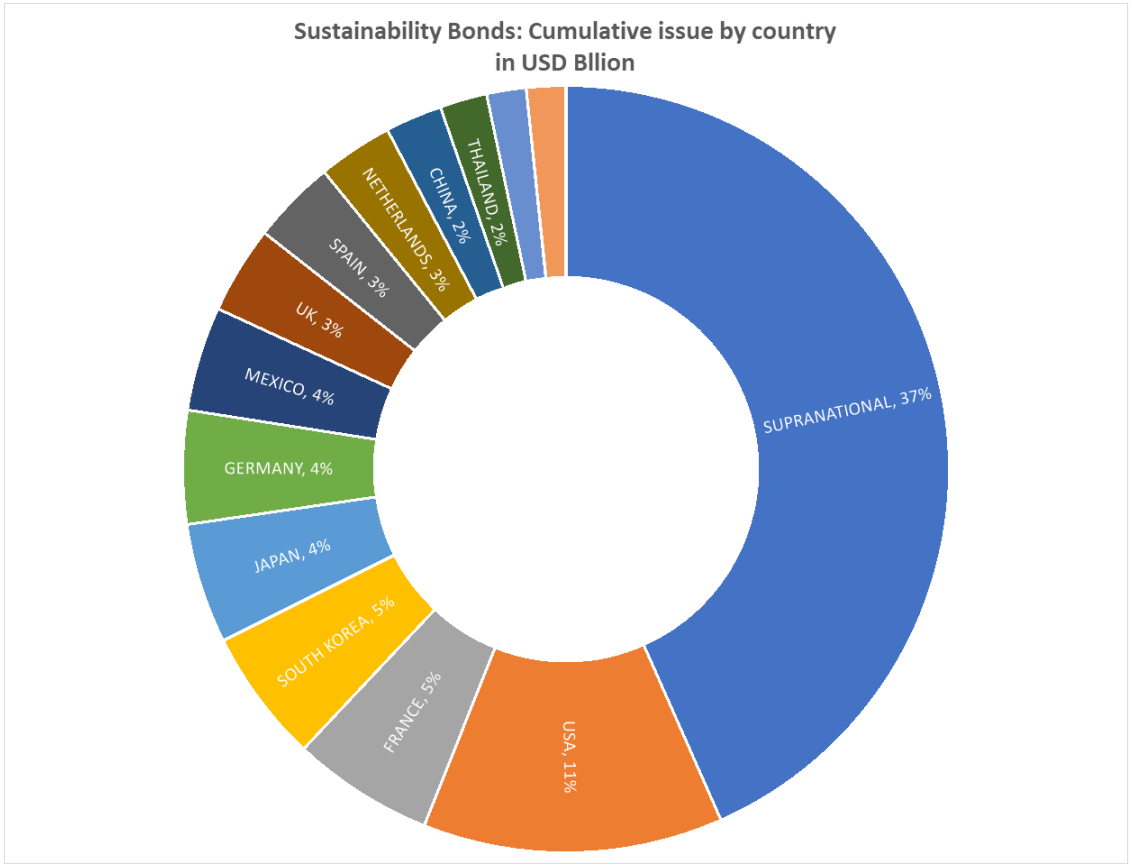
Green **and** Social Projects.

Sustainability Bonds nearly doubled in 2020 then peaked in 2021

Development Banks pull back in 2023, but issuance is spread somewhat evenly.



On a cumulative (historical) basis, Development Banks remain the largest issuers



Source: Climate Bond Initiative

Sustainability Bonds

Ten largest issuers of aligned social bonds H1 2023

Issuer name	Country	Volume	Aligned bonds
CADES	France	USD19.9bn	5
BNG Bank NV	Netherlands	USD4.8bn	4
Korea Housing Finance Corp	South Korea	USD4.2bn	15
Chile	Chile	USD3.4bn	1
NWB	Netherlands	USD2.5bn	3
Council of Europe Development Bank	Supernational	USD2.2bn	3
Central American Bank for Economic Integration	Supernational	USD1.8bn	6
Region Wallonne Belgium	Belgium	USD1.6bn	2
La Banque Postale Home Loan SFH SA	France	USD1.4bn	1
UNEDIC ASSEO	France	USD1.1bn	1

Source: Climate Bond Initiative

Sustainability-Linked Bonds

Definition

SLBs are any type of bond instrument for which the **financial and/or structural characteristics can change** (most commonly the coupon) depending on whether the issuer achieves predefined Sustainability/ ESG objectives.

Those objectives are

i. measured through predefined **Key Performance Indicators** (KPIs) and

ii. assessed against predefined **Sustainability Performance Targets** (SPTs).

Key differences with thematic bonds:

- Issuers **commit explicitly, including in the bond documentation** to future improvements in sustainability outcomes within a predefined timeline.
- SLBs are a forward-looking performance-based instrument.
- Proceeds are for General Funding : not "Use of Proceeds" bonds
- Financial terms are affected by sustainability performance

4 Core components (ICMA) Sustainability-Linked Bond Principles (SLBP) Selection of Key Performance Indicators (KPIs)

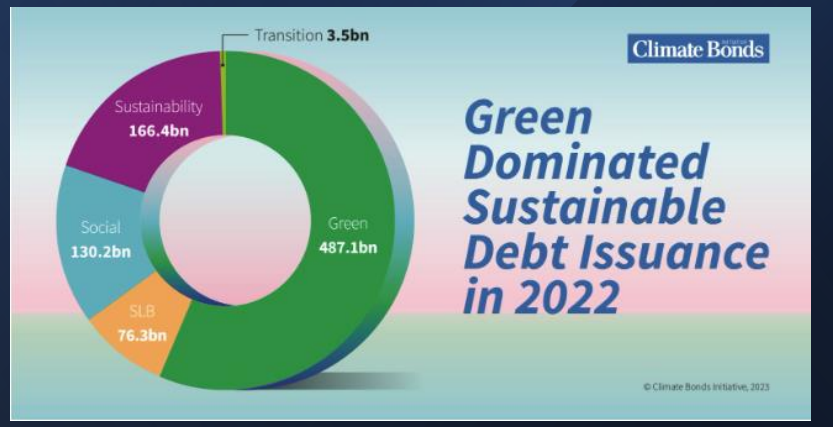
1. Calibration of Sustainability Performance Targets (SPTs)
2. Bond characteristics
3. Reporting
4. **Verification**

Required, unlike other thematic bonds, given the performance-based coupon

SLB Market is its infancy, but rapid growth:

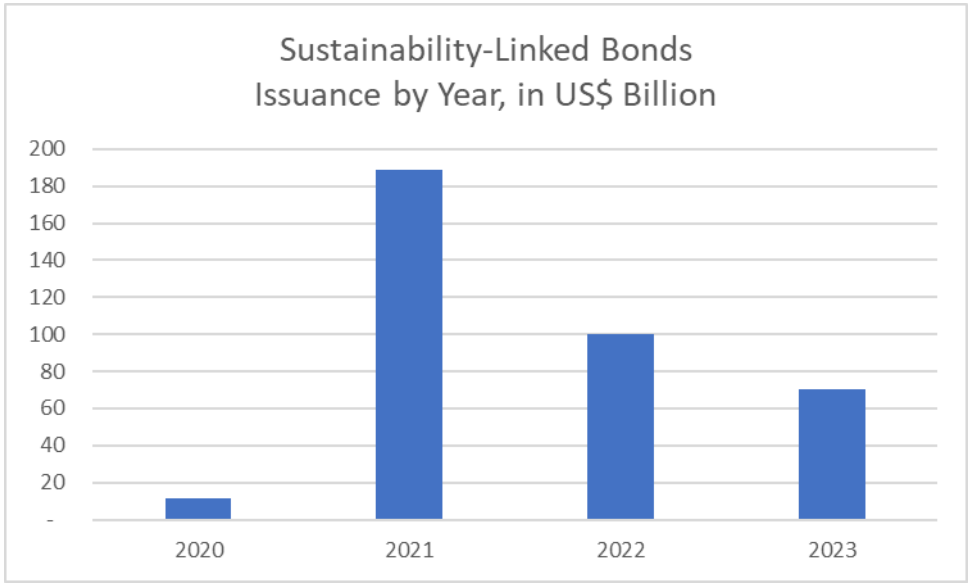
$180 Billion in 2021

…but 25% fall in 2022 …and in 2023



Recent Milestones:

- Jan 2021, **ECB** starts buying SLBs, pushing the market considerably.
- ICMA's publication of SLB Principles (2020) helps boost the market.
- 2022: Chile becomes first Sovereign to issue an SLB (and underlying SLB Framework.



Source: Climate Bond Initiative, author research

SLB: Financial incentives / penalties

If the issuer fails to meet its predetermined sustainability targets by the target observation date:

- **Coupon step-up**: subsequent interest payments will be increased by a pre-determined penalty amount (usually quoted in basis points).
- **Coupon step-down**: subsequent interest payments will be decreased by a pre-determined amount (usually quoted in basis points).
- **Redemption premium**: the issuer will have to pay a pre-determined premium on its redemption price at the time of redemption (usually quoted in percentage).
- **Donation**: an amount equal to a predetermined percentage of the bond's issuance will be donated to a foundation or organization of the issuer's choice.
- **Early redemption**: the bond will be redeemed early at a pre-determined redemption price.
- **Purchase carbon emission credits**: the issuer will purchase carbon offsets for an amount equivalent to a pre-determined percentage of the aggregate principal amount of the bonds.

Case Study: Chile SLB

Deal highlights:

***Issuer*: Republic of Chile**

Size: $2 billion

***Maturity*: 7** March 2042

Coupon: 4.34%

KPIs: Emissions reductions and renewable energy

***External reviewer*: Moody's ESG, Sustainalytics**

Lead manager: BNP Paribas, Credit Agricole CIB, Société Générale
Credit rating: A (S&P), A2 (Moody's), A- (Fitch)

Highlights:

March 2022: Republic of Chile issued a $2 billion, 20-year sustainability-linked bond (SLB). First SLB for Chile

First SLB issued by a sovereign.

- **Sustainability Performance Targets (SPTs)**: reducing absolute greenhouse gas emissions and achieving half of its electric power generation from Non-Conventional Renewable Energy sources (NCRE) over the next 6 years, increasing to 60% by 2032
- **Coupon Step-Up**: If all SPTs are met, the coupon price is unchanged at maturity. If either the emissions or electric power generation SPTs are missed, a 12.5 bps coupon step-up will incur. If both targets are missed, a 25bps coupon step-up will take place.
- **Underlying framework**: SPTs are aligned with the Sustainability-Linked Bond Principles and Chile's Long-Term Climate Strategy (LTCS).

Chile becomes the first government to link its official Nationally Determined Contribution (NDC) commitment on climate change to a bond issuance, and one of only 11 countries to make unconditional commitments to the United Nations to reduce emissions over the next decade and beyond.

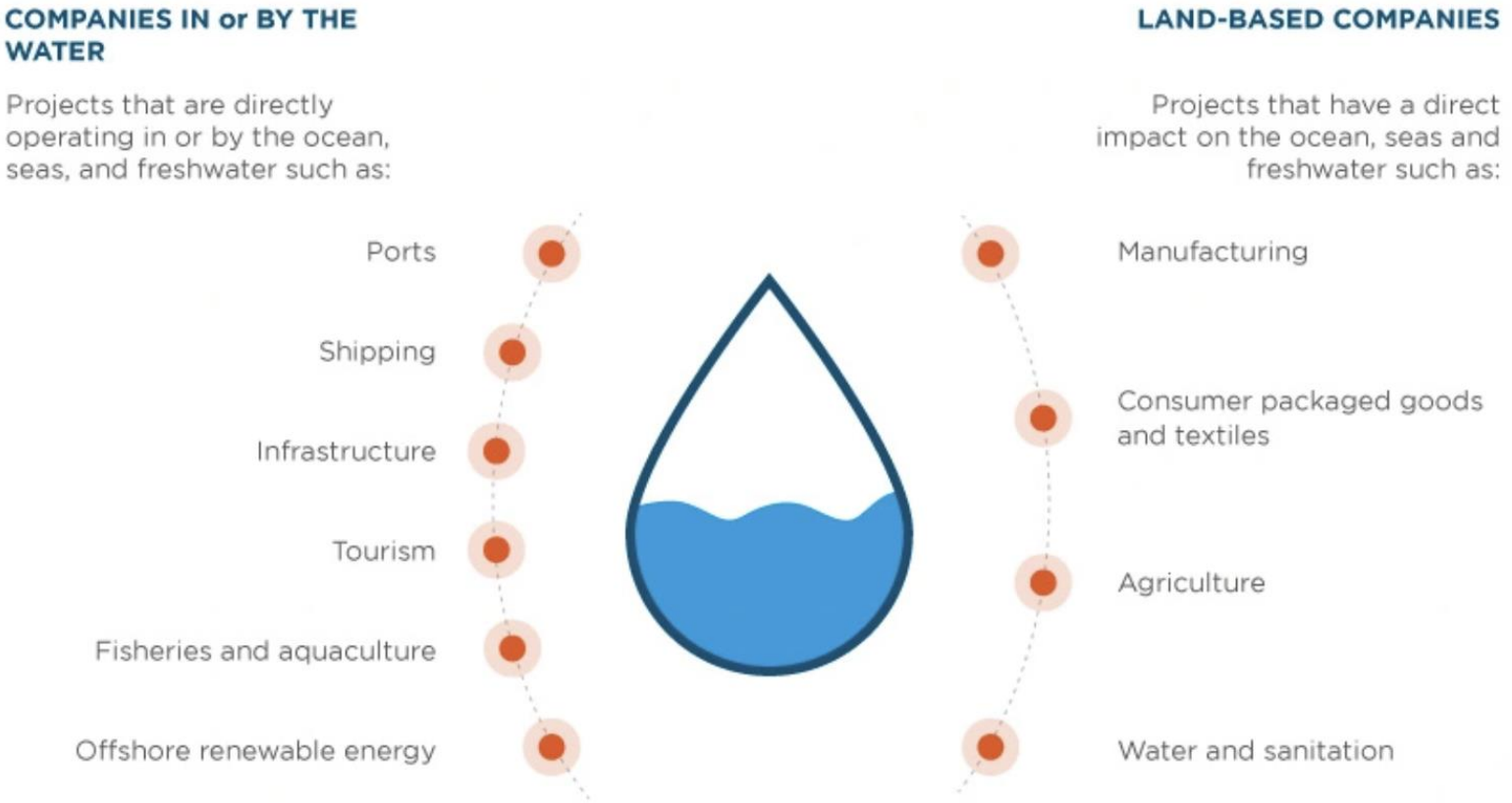
Chile was the first country in the Americas to issue Green Bonds in 2019, followed by its first Social Bond in 2020, and its inaugural Sustainable Bond in 2021.

Blue Bonds

Debt instrument to raise capital from impact investors to finance:

- **marine and ocean-based projects** that have positive environmental, economic and climate benefits
- **the implementation of the SDGs related to the ocean**, the seas and marine resources, as well as the transition towards a sustainable ocean economy
- **maintenance of the coastal** ecosystem,

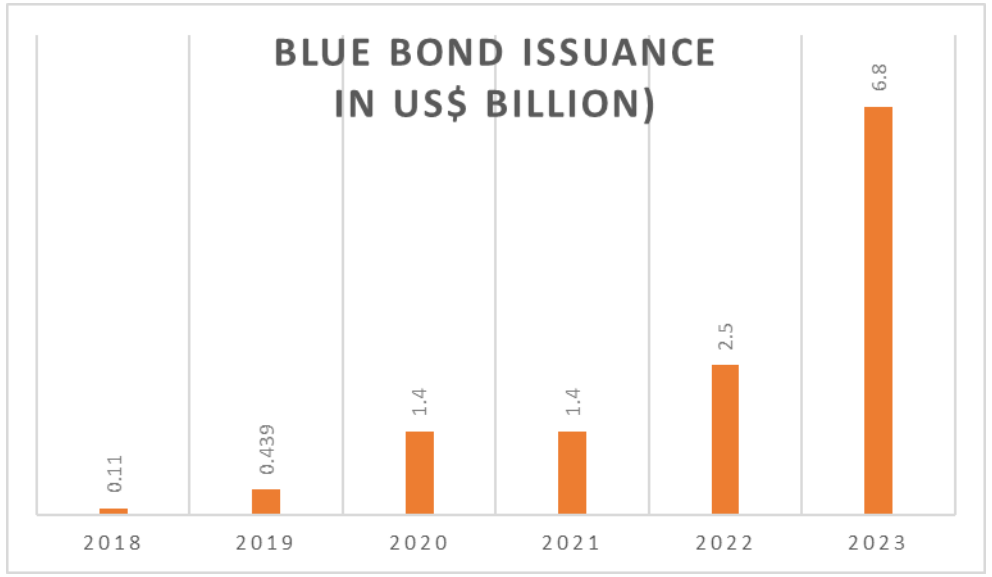
Projects and Companies that can benefit from Blue Bonds



Blue bonds are emerging as a new asset class that helps to solve water-related challenges, create sustainable ocean business opportunities, and signal responsible ocean stewardship.

Date	Issuer	Blue Bond
2018	Republic of Seychelles	World's first sovereign blue bond, raised $15 million to finance the sustainable use of marine resources.
2019	Nordic Investment Bank	A 5-year SEK 2 billion NIB Nordic–Baltic Blue Bond to support banks that are lending to selected water management and protection projects in the Baltic Sea.
2020	NIB	New SEK 1.5 billion Nordic-Baltic Blue bond due in October 2025.
2019	World Bank	Callable step-up fixed rate bond raised $10 Million, to draw attention to plastic waste pollution in oceans.
2020	Bank of China	Dual currency bond raised $942 million towards protecting the oceans. 1st. from the private sector, 1st. from a commercial bank and 1st. from Asia.
2021	Asian Development Bank	First ever dual-tranche blue bond in Australian Dollar (10-year, $151 million) and New Zealand Dollar (15-year, $151 million) to finance ocean-related projects in Asia and the Pacific. Issued under ADB's expanded Green and Blue Bond Framework.
2022	European Investment Bank	€100 million blue to reduce pollution and support sustainable fisheries in the Baltic Sea .
2023	Indonesia	First publicly offered sovereign blue bond, $150 million issued in collaboration with the United Nations Development Programme (UNDP). Its proceeds are allocated toward coastal protection, sustainable fisheries, marine biodiversity conservation, and mangrove restoration.
2023	BKR Ambiental in Brazil	$365 million bond to enhance water access and sanitation, benefiting around 1.5 million people, and to reduce water waste by 25% over20 years.
2023	Ørsted Danish energy co.	World's first corporate blue bond, a €100 million, 5-year bond focused on financing biodiversity projects and sustainable shipping innovations.
2023	Korean KEXIM Bank	$1 billion in 10-year global bonds, Korea's first blue bond, or a special-purpose bond limited to use in marine ecosystem-friendly projects.

Blue Bond Market: Evolution and Issuers



Source: Barrons, S&P, author research

Blue bonds issued, by actor, 2018-2022

	# of bonds issued	Value of bonds issued, $M USD	Average value, $M USD
World Bank	6	339	$56
Inter-American Development Bank	4	481	$120
International Finance Corporation	3	229	$76
The Nature Conservancy	2	512	$256
Nordic Investment Bank	2	370	$185
Bank of China	1	943	$943
Seaspan Corporation	1	750	$750
BRK Ambiental	1	380	$380
Asian Development Bank	1	352	$352
Mowi	1	220	$220
Hainan Province	1	167	$167
Grieg Seafood	1	150	$150
CABEI	1	93	$93
Maruha Nichiro	1	36	

Source: Journal of Risk and Financial Management, Pieter Bosmans

Gender Bonds

Definition

- **Gender bonds** are **a type of social bonds**, aiming to finance projects and strategies that advance gender equality objectives.

  A distinctive feature of gender bonds is that they provide funding for companies that focus specifically on gender issues.

- These include companies that:
  - are headed or owned by women;
  - promote gender equality at the workplace;
  - develop products and services that improve the quality of life for women.

To date, issuances of Gender Bonds have primarily been undertaken by multilateral development banks and corporations.

Issuers should follow the Social Bond Principles, published by ICMA.

Case Study

March 2021, IDB Invest issued a Gender Bond to finance projects aimed at promoting gender equality and the empowerment of women in the region and helping to advance the United Nations Sustainable Development Goal Number 5, "Gender Equality".

The proceeds aim to close the financing gap for more than 1,200 women-led MSME in Mexico. According to the national survey on financial inclusion, 46% of women do not have any credit.

- First gender bond issued by a multilateral development bank in Latin America and the Caribbean.
- 2,500 million Mexican pesos (approximately $122 million) with a 3-year maturity, issued in Mexico.
- Second issuance by IDB Invest under its sustainable debt framework, complying with the Green Bond Principles and Social Bond Principles (ICMA).
- Second-party opinion confirmed by Vigeo Eiris
- Received a local credit rating of mxAAA by S&P and Moody's
- The transaction was 1.5 times oversubscribed
- Investor allocation: Investment funds (64%), government institutions (22%), bank treasuries (8%)

Case Study

Republic of Iceland
First Sovereign Blue Bond
EUR50 million, June 2024

- The bond bears a 3.4% fixed rate coupon and a 3-year maturity, and the transaction was a private placement issued to Franklin Templeton, arranged solely by BNP Paribas.

Eligible projects:

- provision of decent living standards for women and gender minorities,
- increasing the supply of affordable housing that benefits low-income women,
- increase maximum payments during parental leave

A world leader in gender equality

- In April 2023 Iceland issued an annex to its **Sustainable Financing Framework** (The Financing for Gender Equality Annex), which sets out how the country intends to mobilise finance to achieve world-leading gender equality targets.
- Iceland ranks as one of the most gender equal countries in the world and has topped the World Economic Forum's Global Gender Gap Index for the past 14 years.

Thematic Bonds
Critical Assessment:

Thematic bonds put the **spotlight** on issuer's commitment to invest in certain areas.

Greenium: Strong evidence of a discount (vs plain vanilla) driven by demand.

Can help raise the **visibility** in the capital markets of smaller or less frequent issuers

- Potential for "**Greenwashing**", pushback on ESG-themed bonds, especially in US-market
- Uncertain **additionality**
- **Additional upfront cost** and burden (Framework/Taxonomy)
- **Additional transaction costs** (legal fees, third party verifiers, monitoring, reporting, etc.)
- **Greenium likely to fade away** as Demand/Supply imbalance ends
- Some public criticism of:
  - **Market fragmentation** (from other bonds)
  - Lower secondary **market liquidity** (higher hold-to-maturity by institutional investors)

Climate Finance

The financial flows that support efforts to mitigate and adapt to climate change.

Key Aspects

1. Mitigation and Adaptation: two main objectives:

• Mitigation • Adaptation

2. Sources of Climate Finance:

• Public Sector • Private Sector • Carbon Markets

3. Financial Instruments:

• Grants and Concessional Loans

• Green Bonds • Blended Finance

4. Regulatory and Policy Frameworks:

Regulatory policies and frameworks set by governments and international bodies, like carbon pricing and emission caps, that incentivize investments in sustainable projects.

5. Challenges and Opportunities:

Ensuring sufficient funding, equitable distribution, monitoring the use of funds, and scaling projects to have a real impact on climate goals. However, it also presents economic opportunities, such as job creation in the renewable energy sector and the development of resilient infrastructure.

Sustainable Finance

An investment approach focused on funding economic activities, companies, and projects that have positive environmental, social, and governance (ESG) impacts while still achieving financial returns.

Key Aspects

1. **Environmental, Social, and Governance (ESG) Criteria:**

• Environmental • Social • Governance

2. Types of Sustainable Finance Products:

• Green Bonds: **• Social Bonds**: **• Sustainability Bonds**: **• ESG Investment Funds**:

3. Investment Strategies:

• Impact Investing • Negative Screening • Positive Screening

4. Regulation and Reporting:

Governments and international organizations are increasingly requiring companies and financial institutions to disclose their ESG practices and climate-related risks.

5. Challenges and Benefits:

• **Challenges**: Potential for "greenwashing" (misleading claims about sustainability), the need for standardized ESG metrics, and balancing financial performance with sustainability goals.

• **Benefits**: Sustainable finance can drive long-term economic stability, help manage risks related to climate change, and improve companies' reputations, employee satisfaction, and customer loyalty.

Blended Finance

A financing approach that combines public and private capital to support projects with social, environmental, or economic development goals.

Key Aspects:

1. **Structure:**

Blended finance structures are designed to distribute risks and returns between public, philanthropic, and private investors.

2**. Financial Instruments:**

• Grants: **• Concessional Loans**: **• Guarantees**: **• Equity Investments**:

3. Risk Mitigation:

By blending public or philanthropic funds with private capital, the structure reduces the perceived risks for private investors, particularly in developing countries where political or economic instability may deter investment.

4. Types of Blended Finance Approaches:

• Catalytic Capital • Layered Financing •Public-Private Partnerships (PPPs):

5. **Applications**:

Blended finance is widely used in sectors crucial for sustainable development:

• Climate Change and Renewable Energy • Infrastructure and Public Services • Social Services

6. Challenges and Considerations:

• Ensuring Additionality • Balancing Objectives • Complexity in Measurement

Topics

Liability Management Operations 1

- Main Concepts
- Debt Swaps and Buy-Backs
- Contingent debt
- Debt for Nature Swaps
- Thematic Bonds

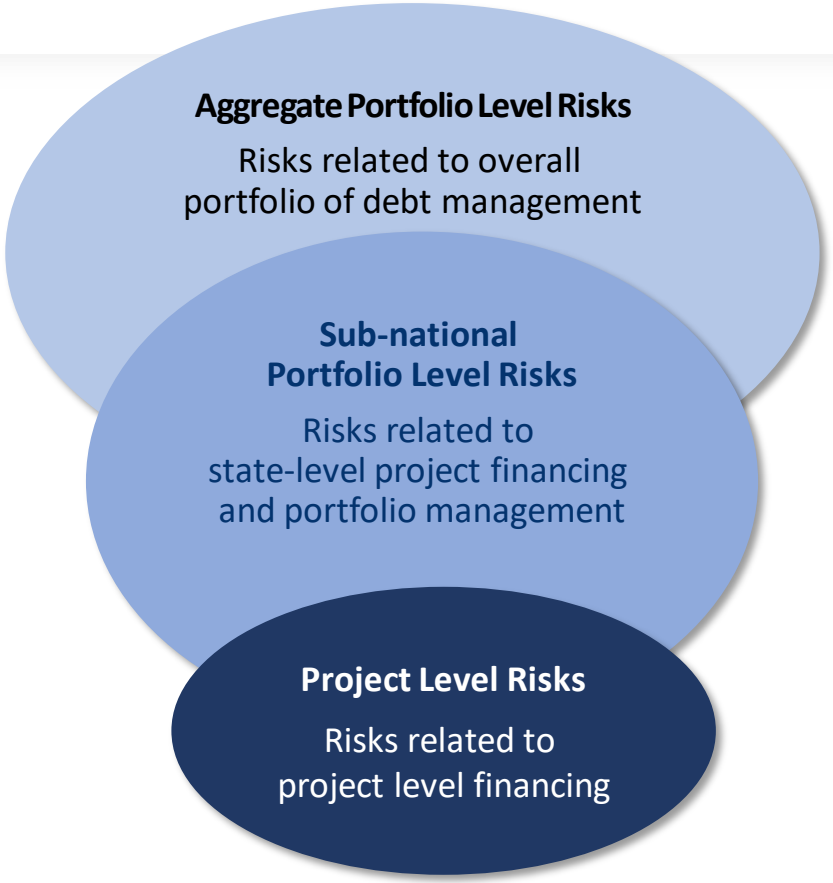
Risk Management Operations 2

- Main Concepts
- Interest Rate Swaps
- Currency Swaps
- Commodity prices
- Natural Disasters

Risk Management
A Very Simple Definition

- ✓ In the financial world, risk management is the process of **identification, analysis**, and **acceptance or mitigation** of uncertainty in investment decisions
- ✓ Risk management occurs when an investor (e.g., lender) **analyzes** and attempts to **quantify** the potential for losses in an investment and then takes the appropriate action (or inaction) given the investor's **objectives** and **risk tolerance**
- ✓ **Risk** is inseparable from **return**. Every investment involves some degree of risk, which is considered close to zero in the case of a U.S. T-bill or very high for something such as emerging-market equities or real estate in highly inflationary markets
- ✓ Risk is quantifiable both in **absolute** and in **relative terms**. A solid understanding of risk in its different forms can help investors to better understand the opportunities, trade-offs, and costs involved with different investment approaches.

Risk Management
Risk can appear at different levels



Risk Management

Mapping your client needs to financial solutions

- Natural Disasters and Pandemics:
  - ✓ Contingent credit line
  - ✓ Insurance pools
  - ✓ Catastrophe bonds
  - ✓ Derivatives
  - ✓ Insurance

- Loans
- Guarantees

- Interest Rates:
  - ✓ Swaps
  - ✓ Caps and Collars

- Currency:
  - ✓ Swaps
  - ✓ Local Currency Financing

- Commodity:
  - ✓ Swaps
  - ✓ Options

- Contingent Credit Lines

Risk Management Why Is It Important?

Value in broader risk management for sovereigns & sub-sovereigns

- ✓ Improve debt management capacity; supports country creditworthiness
- ✓ Improve transparency and public accountability
- ✓ Reduce volatility of inflows and outflows
- ✓ Strengthening resiliency against commodity shocks
- ✓ Strengthening resiliency against natural disasters

Relying solely on “in-crisis” response can be costly, inefficient, and difficult to finance and implement

Risk Management for Emerging & Developing Economies Issues

- **Exogenous shocks** (caused by interest rate, currency, commodity, disaster risks, etc.) can have a substantial fiscal risk in the form of contingent liabilities for emerging & developing economies

- If such shocks are not anticipated and financially planned for, there can be:
  - Considerable delays in post-shock response
  - Substantial drawings on budgets intended for development purposes
  - Adverse consequences for long-term growth and development
  - Negative impact on debt sustainability and downward pressure on credit ratings
  - Increased financial servicing charges

- **Risk management is vital for emerging & developing economies in order to achieve long term sustainability**

Risk Management for Emerging & Developing Economies Constraints

- **Why are emerging & developing economies NOT more actively involved in risk management techniques?**

- **Demand Constraints:**
  - Inadequate institutional frameworks & capacity
  - Incomplete debt management strategies
  - Unsatisfactory Legal & Regulatory Frameworks
  - Imperfect Procurement Frameworks
  - Lack of Political Will
- **Supply Constraints:**
  - Concerns about inadequate institutional frameworks & capacity
  - Credit considerations
  - Reputational risk

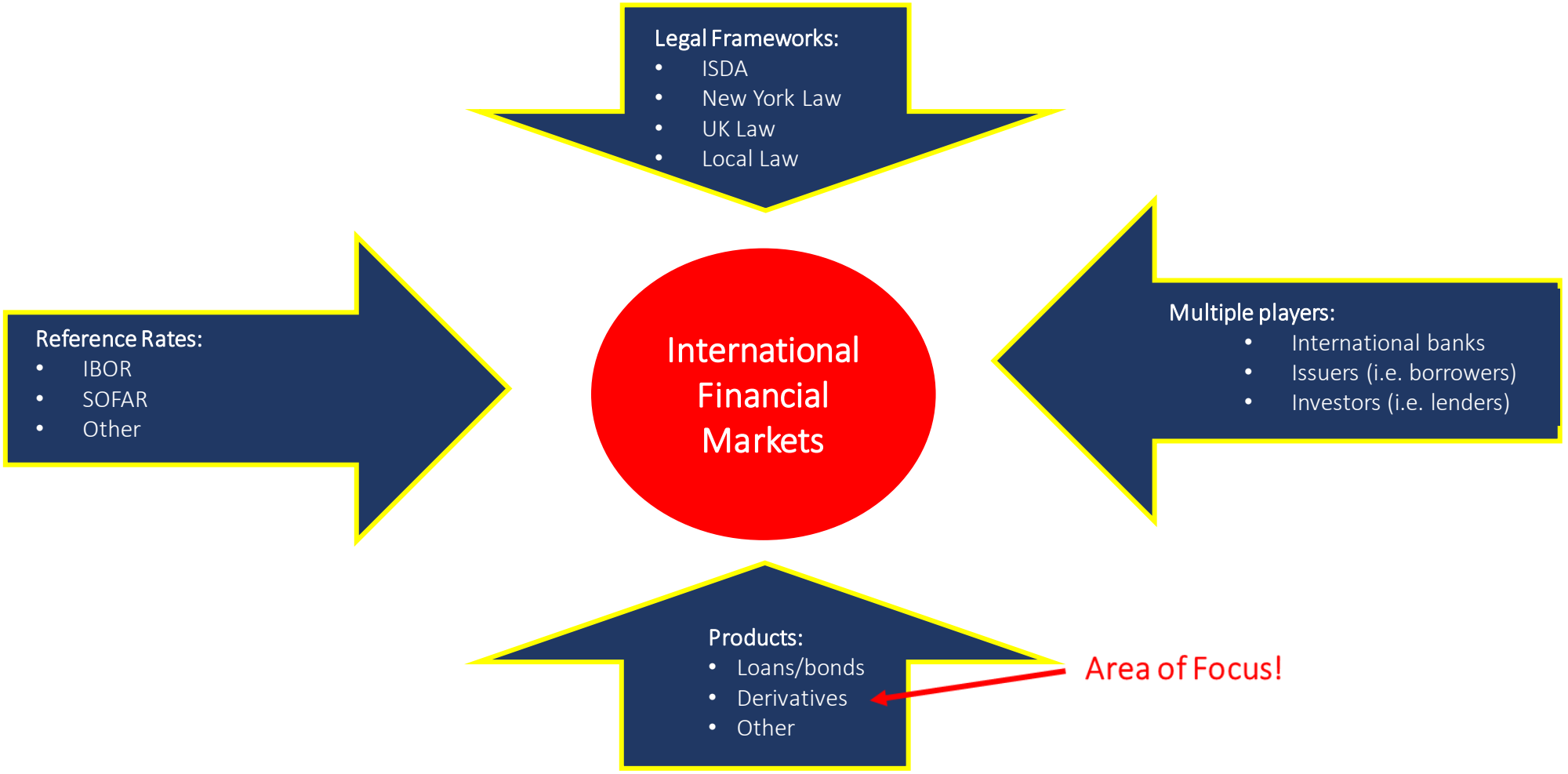
Risk Management for Emerging & Developing Economies The Role of Development Banks?

DBs are uniquely positioned to assist emerging & developing economies broaden their use of risk management tools

- ✓ Superior credit quality and access to markets
- ✓ Convening power and their ability to bring all parties to the table in a manner that is perceived by all to be “safe” and fair
- ✓ Not-for-profit and “honest broker” status
- ✓ Centralized execution capabilities
- ✓ Significant financial expertise that can be transferred to its client members
  - Product & market knowledge
  - Well-developed network of connections among international banks, investors, insurance and re-insurance companies, etc.
- ✓ Mandate to ensure knowledge sharing (both “north-south” as well as “south-south”) and capacity building, as a mechanism towards uniform and best-practice risk management among their constituents

Risk Management

The International Financial Architecture



What Are Derivatives?

- The term **derivative** refers to a type of financial contract whose value is dependent on an **underlying asset**, group of assets, or benchmark.

✓ Is set between two or more parties that can trade on an exchange or **over-the-counter** (OTC).

✓ Can be used to trade any number of assets and carry their own risks.

✓ Prices derive from fluctuations in the underlying asset.

✓ Commonly used to access certain markets and may be traded to **hedge** against risk.

✓ Include **futures, forwards, options, and swaps.**

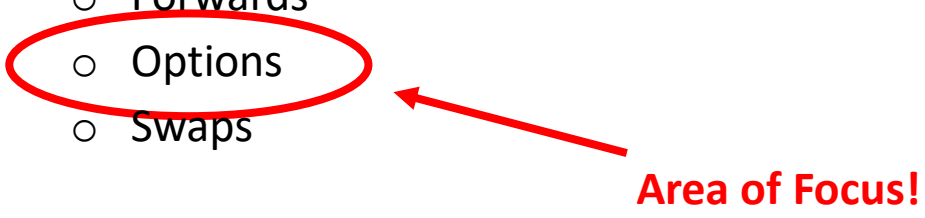
Types of Derivatives

- Derivatives are now based on a wide variety of transactions and have many more uses. There are even derivatives based on weather or geological data

- There are many different types of derivatives that can be used for risk management, speculation, and leveraging a position.

- The derivatives market is one that continues to grow, offering products to fit nearly any need or risk tolerance.

- The most common types of derivatives are:
  - Futures
  - Forwards
  - Options
  - Swaps



Types of Derivatives

Some Definitions

Futures

- Agreement between two parties for the purchase and delivery of an asset at an agreed-upon price at a future date.
- Futures are standardized contracts that trade on an exchange.
- Traders use a futures contract to hedge their risk or speculate on the price of an underlying asset.
- The parties involved are obligated to fulfill a commitment to buy or sell the underlying asset.

Options

- Similar to a futures contract in that it is an agreement between two parties to buy ("call option") or sell ("put option") an asset at a predetermined future date for a specific price.
- The key difference between options and futures is that with an option, the buyer is not obliged to exercise their agreement to buy or sell. It is an opportunity only, not an obligation, as futures are.
- As with futures, options may be used to hedge or speculate on the price of the underlying asset.

Forwards

- Similar to futures, but they do not trade on an exchange. These contracts only trade over-the-counter.
- When a forward contract is created, the buyer and seller may customize the terms, size, and settlement process.
- As OTC products, forward contracts carry a greater degree of counterparty risk for both parties.

Swaps

Area of Focus!

- A contract to exchange streams of cash flows based on certain events
  - Interest rates
  - Currencies
  - Commodity Prices
  - Natural Disasters
  - Credit event

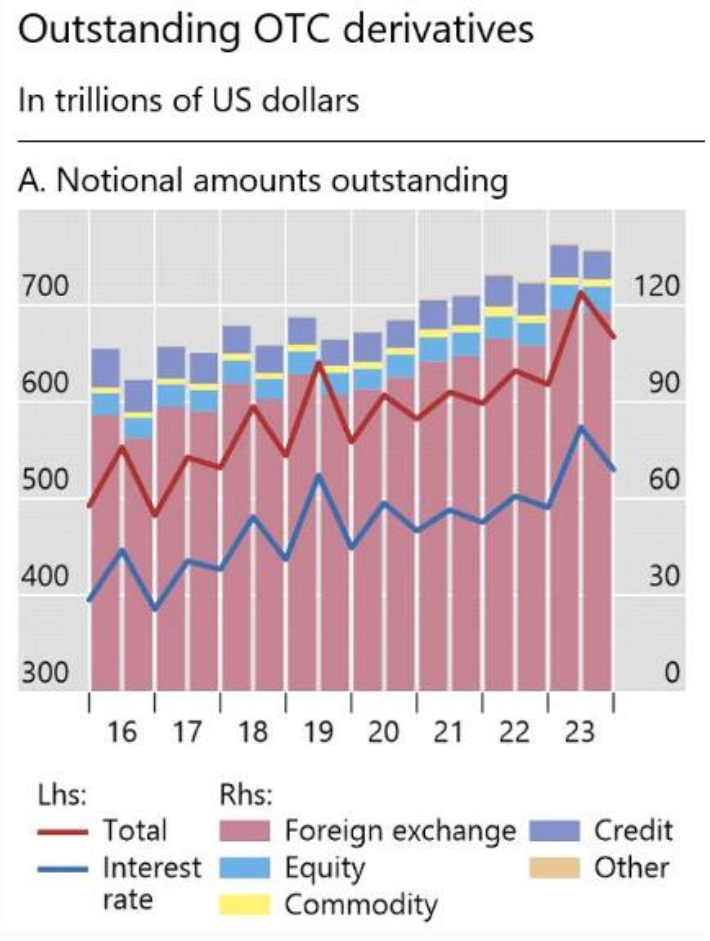
What Are Swaps?

- A swap is a derivative contract in which one party exchanges or “swaps” the values or cash flows of one asset for another.
- Of the two cash flows, one value is fixed and one is variable and based on an index price, interest rate, or currency exchange rate.
- Swaps are customized contracts traded in the over-the-counter (OTC) market privately, versus options and futures traded on a public exchange.
- The **interest rate, currency** and **commodity** swaps are the most common and basic types of swaps.

The Swap Market

Derivatives market is huge: $600-$700 Trillion!

- **Swaps are not exchange-traded instruments**, unlike most standardized options and futures contracts.
- **Instead, swaps are customized contracts** that are traded in the over-the-counter (OTC) market between private parties.
- Firms and financial institutions dominate the swaps market, with few (if any) individuals ever participating. Because swaps occur on the OTC market, there is always the risk of a counterparty defaulting on the swap.
- The first interest rate swap occurred between IBM and the World Bank in 1981. However, despite their relative youth, swaps have exploded in popularity.
- By H1 2022, the outstanding notional amount of transacted swaps reached $600 trillion

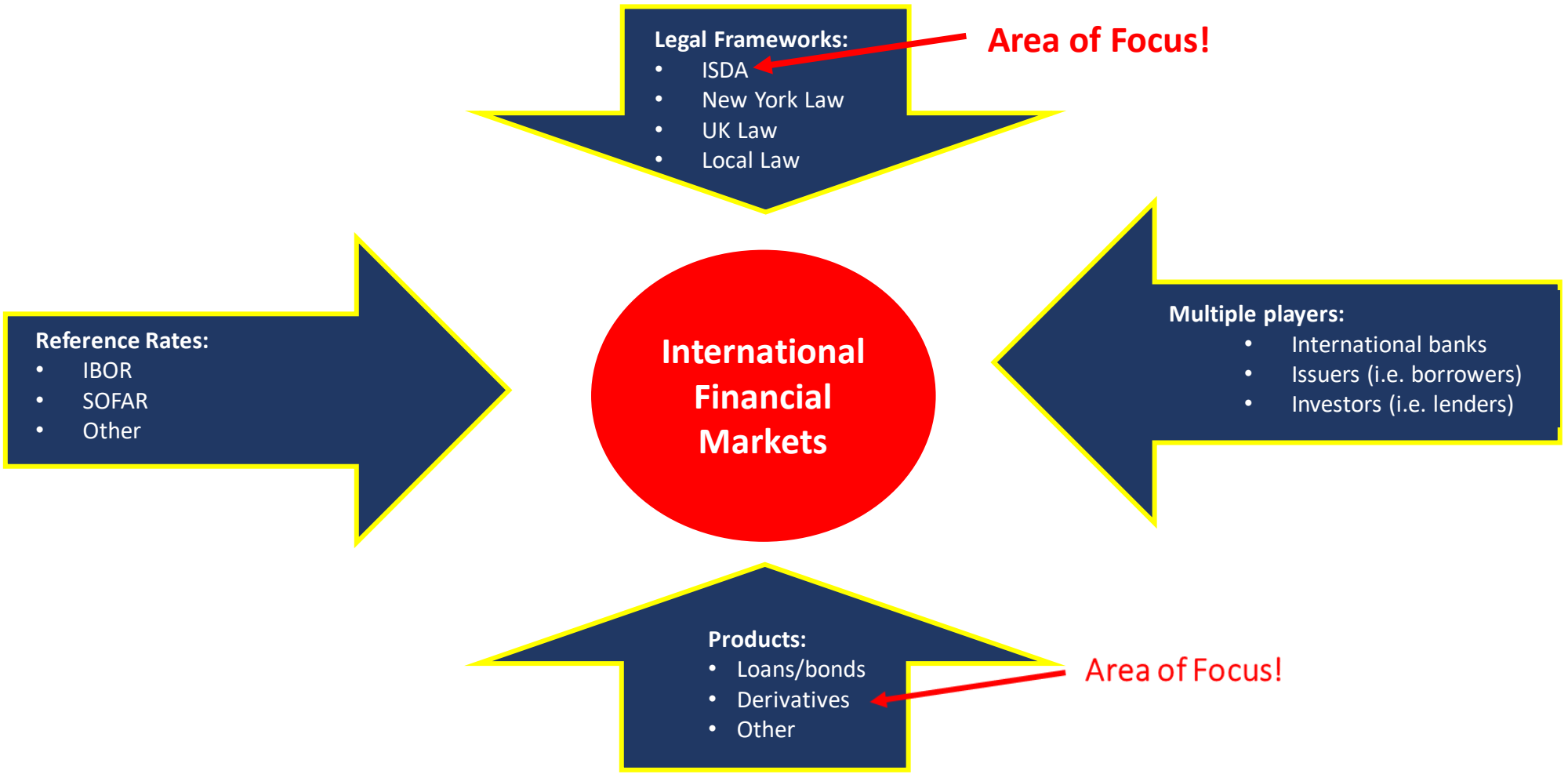


Source: BIS, ISDA

Derivatives are predominately used for interest rate risk management.

Risk Management

The International Financial Architecture



ISDA Master Agreement Definition & Benefits

- An ISDA Master Agreement is the standard document regularly used to govern over-the-counter derivatives transactions.
- The agreement, which is published by the International Swaps and Derivatives Association (ISDA), outlines the terms to be applied to a derivatives transaction between two parties, typically a derivatives dealer and a counterparty.
- The ISDA Master Agreement itself is standard, but it is accompanied by a customized schedule and sometimes a credit support annex, both of which are signed by the two parties in a given transaction.

Benefits of an ISDA Master Agreement:

- **Transparency:** Since the agreement is standardized, all parties can study the ISDA Master Agreement to learn how it works. That improves transparency because it reduces the possibilities for obscure provisions and escape clauses.

- **Liquidity:** The standardization provided by an ISDA Master Agreement also increases liquidity since the agreement makes it easier for the parties to engage in repeated transactions. The clarification of terms offered by such an agreement saves time and legal fees for everyone involved.

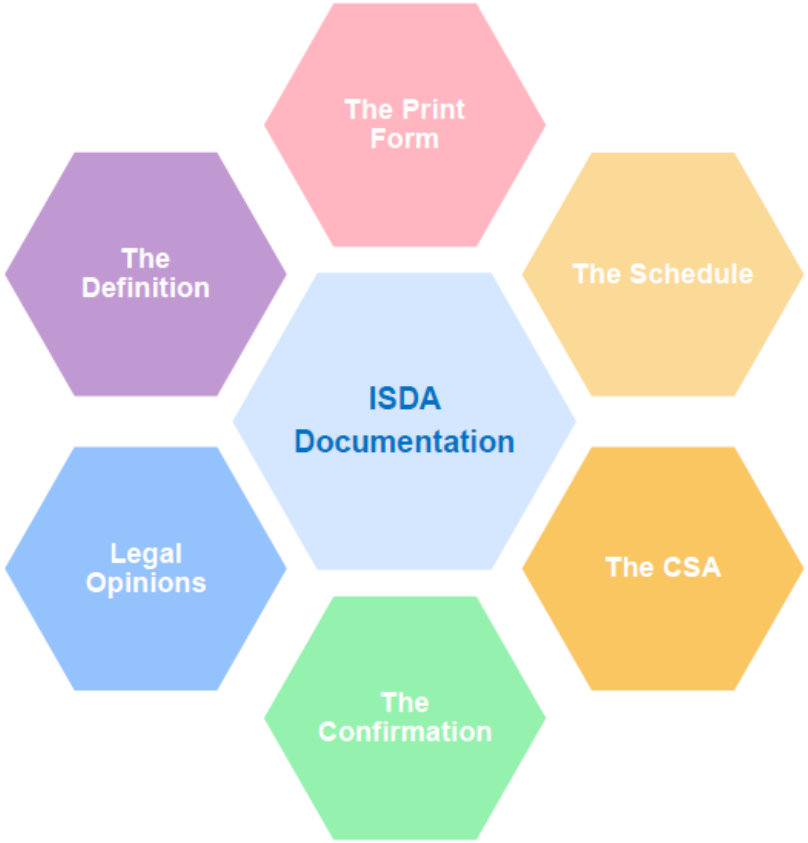
ISDA Master Agreement
How Does it Work?

- Over-the-counter (OTC) derivatives are traded between two parties, not through an exchange or intermediary.
- The size of the OTC market means that risk managers must carefully oversee traders and ensure approved transactions are correctly managed.
- When two parties enter into a transaction, they each receive a confirmation that sets out its details and references the signed agreement. The terms of the ISDA Master Agreement then cover the transaction
- The foreign exchange and interest rate swap markets experienced impressive growth over the last several decades. Together, they now account for trillions of dollars in daily trades. The original ISDA Master Agreement was created to standardize these trades in 1985. It was subject to updates and revisions in 1992 and again in 2002, both of which are currently available for use.
- Banks and other corporations around the world use ISDA Master Agreements. The ISDA Master Agreement also makes transaction closeout and netting easier, as it bridges the gap between various standards used in different jurisdictions
- Most multinational banks have ISDA Master Agreements in place with each other. These agreements usually cover all branches that are active in foreign exchange, interest rate, or options trading.
- Banks require corporate counterparties to sign an agreement to enter into swaps. Some also demand agreements for foreign exchange transactions.

ISDA Master Agreement Structure

- **ISDA Master**: Outlines standard terms to be applied to derivatives transactions between two parties; however, counterparties amend these definitions or add to them (see ISDA Schedule).
- **ISDA Schedule**: Accompanies the Master and is a negotiated document; the critical components of the Schedule clearly define termination events (downgrade scenarios, etc.).
- **Credit Support Annex (CSA)**: Stipulates the terms and conditions under which two parties are required to post collateral to each other.

ISDA Master Agreement Structure - Modular Architecture (building blocks)



- **The ISDA Master Agreement**, published by the International Swaps and Derivatives Association (ISDA), is a document that outlines the terms applied to a derivatives transaction between two parties
- The Master Agreement allows parties to calculate their **financial exposure** under OTC transactions on a net basis, i.e. a party calculates the difference between what it owes to a counterparty under a Master Agreement and what the counterparty owes it under the same agreement
- **Reason for "Master Agreement"?** Practical reasons:
  - Credit enhancement Close-out Netting & Collateral
  - Create connectivity between the Transactions
- Enables enforceability of close out netting

ISDA Master Agreement

Basic Structure

Master Agreement (MA)

- **Standardized** document
- 1992 / 2002 versions
- **NO physical amendment** of the printed form

Schedule

- Negotiated only **once** at the outset
- Will govern (together with the MA) all swap transactions between the parties
- Allows choices, amendments and additions.

Confirmations

- Individual transactions
- Allows for one-time modifications to MA provisions
- Documents the **economic** terms of **each** transaction entered into under the Master Agreement;
- Supplements, forms part of and is subject to the ISDA Master between the parties;
- Relies on “Definitions”.
- Long and Short Confirmations

ISDA Master Agreement

Additional Agreements & Documents

ISDA Definitions

- Booklets of **standard definitions** and other terms and provisions published by ISDA for use in documenting the different types of derivative transactions;
- Each set of definitions provides relevant terms for documenting a particular type of derivative transactions, such as:
  - Equity Swaps
  - FX and Currency Options;
  - Commodity Swaps
  - Credit Derivatives
  - Interest rate and Currency Derivatives (the “2006” Def’s)

Credit Support Annex

- Collateral requirements designed to reduce **credit risk** on an on-going basis
- Not mandatory but prevalent
- Different models:
  - 1994 Credit Support Annex – N.Y. law (pledge)
  - 1995 Credit Support Annex– English law (transfer of title)
  - 1995 Credit Support Deed – English law (security interest)
  - 1995 Credit Support Annex– Japanese law (Loan and Pledge)
  - Other
- Allows the parties to make certain **choices and amendments.**

Legal Opinions

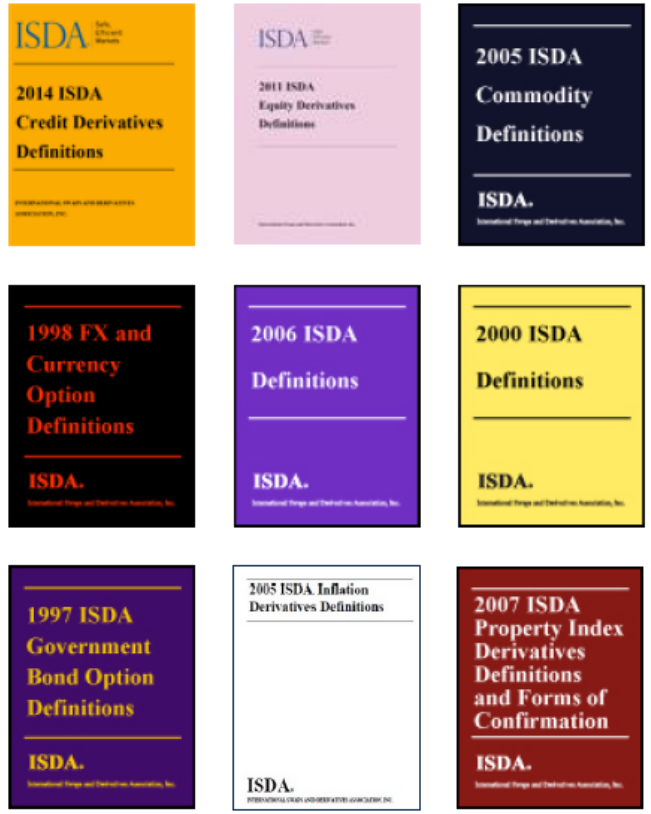
- Payment and close-out
- Netting
- Enforceability
- Collateral

ISDA Master Agreement Definitions

The 2006 ISDA Definitions are intended for use in confirmations of individual transactions governed by ISDA Master Agreements.

The purpose of the 2006 Definitions is to provide the **basic framework for the documentation** of privately negotiated interest rate and currency derivative transactions.

- October 2016: Supplement # 50 to the 2006 ISDA Definitions provides for the addition of the following Floating Rate Option "USD-Overnight Bank Funding Rate“
- April 2016: Supplement # 49, deletion and amendment of certain Floating Rate Options.
- March 2016: Supplement # 48, allow for a mutually agreed clearinghouse, where an Underlying Swap Transaction will be cleared.



Risk Management

Mapping your client needs to financial solutions

- Natural Disasters and Pandemics:
  - ✓ Contingent credit line
  - ✓ Insurance pools
  - ✓ Catastrophe bonds
  - ✓ Derivatives
  - ✓ Insurance

- Loans
- Guarantees

- Interest Rates:
  - ✓ Swaps
  - ✓ Caps and Collars

Area of Focus!

- Currency:
  - ✓ Swaps
  - ✓ Local Currency Financing

- Commodity:
  - ✓ Swaps
  - ✓ Options

- Contingent Credit Lines

Managing Interest Rate Risk

Interest Rate Swaps

Mapping Interest Rate Risk to a Financial Solution

Risk Analysis:

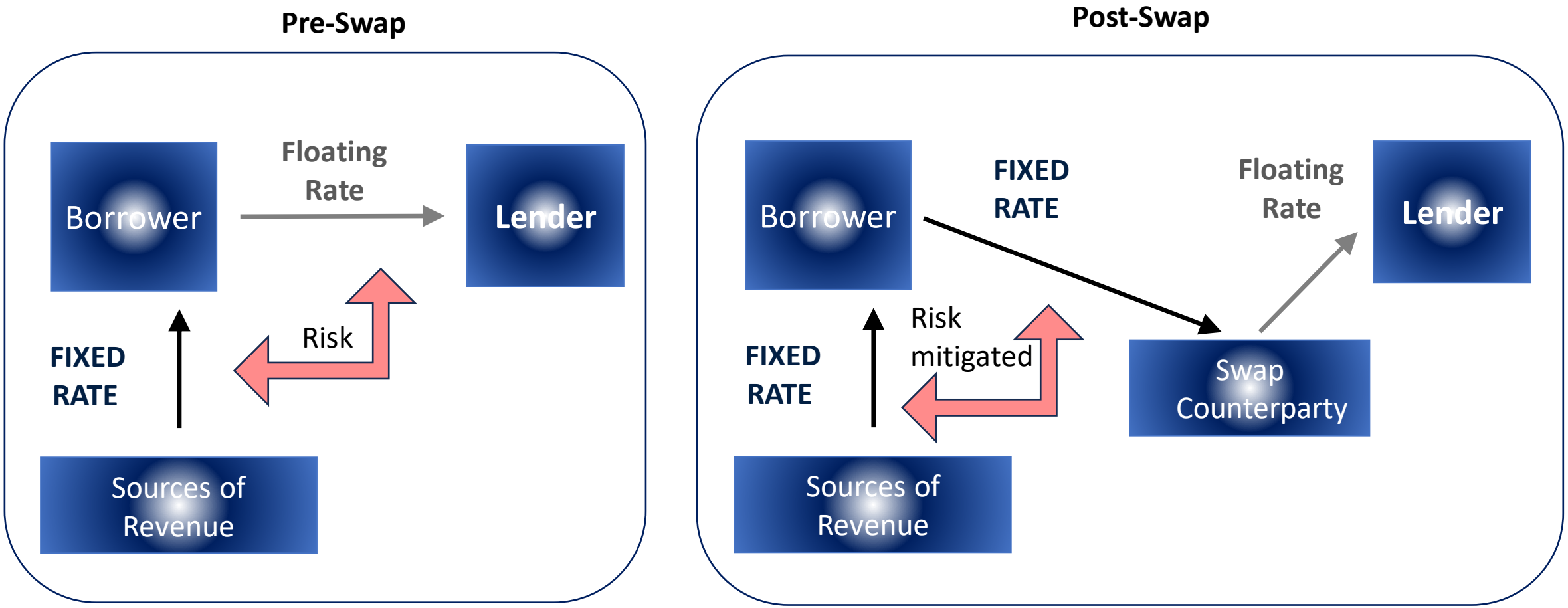
- Mismatch between the interest rate basis of what Country X owes and what it earns
- **Example:** Clients are exposed to interest rate risk when they **borrow on a floating-rate basis**, but have revenues uncorrelated to the floating-rate benchmark

Interest rate swap:

- Derivative transaction that swaps cash flows from fixed to floating rates or vice versa

Managing Interest Rate Risk

Interest Rate Swaps



Managing Interest Rate Risk

Case Study: Panama

Development Challenge

- Panama was concerned about exposure to interest rate risk on a USD 100 million loan from IBRD with a variable spread over LIBOR.
- Panama's debt management strategy has a focus on reducing exposure to interest rate risk
- Market projections forecasting an increase in interest rates

Financial Solution

- IBRD intermediates interest rate swap with market to fix LIBOR reference rate at 3.27% for 20 years

Managing Currency Risk

Currency Swaps

Mapping Currency Risk to a Financial Solution

Risk Analysis:

Country X borrows in foreign currency (USD) and:

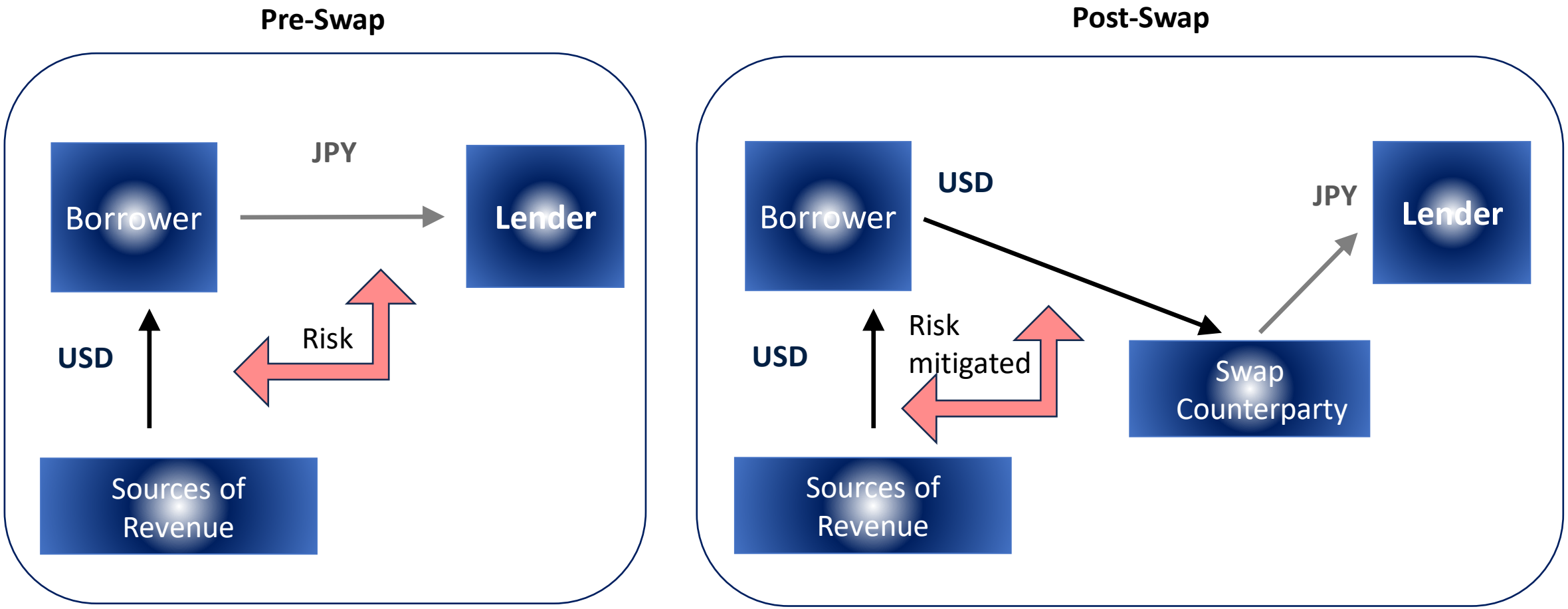
- Might prefer to swap to Yen
- Receives revenues in local currency
- Might on-lend to local entities in a different currency or local currency

Currency Swap:

- Derivative transaction that exchanges cash flows from one currency to another
- Local Currency Financing: Derivative transactions and/or capital market solutions to structure required cash flows in local currency

Managing Interest Rate Risk

Interest Rate Swaps



Managing Currency Risk

Case Study: Morocco Cross Currency Swap

Development Challenge

- Morocco's main trade partner is Europe
- In FY12, Morocco wanted to raise financing in the international bond markets, but investor appetite for EUR-denominated bonds was low
- Morocco issued in USD – greater investor appetite and more competitive pricing at the time
- Morocco needed to reduce USD exposure and match the currency of its assets with liabilities

Financial Solution

- IBRD executed a currency swap to exchange USD-denominated coupon payments and principal repayment of $1B bond into euro
- Issued in USD while managing its USD foreign currency exposure
- Morocco maintained the targeted composition of its debt portfolio
- Morocco secured access to currency hedge without exposure to counterparty risk

Managing Currency Risk

Case Study: Mexico Local Currency Financing

Development Challenge

- Mexican states were having a hard time getting local currency financing due to market conditions and local regulations.
- Financial intermediaries, such as Banobras, used a government trust fund to manage risk, concentrating currency risk exposure in the federal government
- Fee charged for foreign exchange made foreign currency loans too expensive for the states

Financial Solution

- IBRD currency swap transaction converted each loan disbursement into local currency, transforming the loan obligation from USD to Mexican Peso
- Sub-nationals gained access to Peso financing at attractive price levels
- Reduced currency risk

Managing Risk

Intermediation role

of Multilateral Development Banks (MDB)

- **MDBs:**
- Can be the Sovereign Borrower's counterpart.
- Can swap the nature of existing loans, through swaps.
- Can execute long maturities and large sizes depends on the liquidity available in these markets.
- Can eliminate the (counterparty/credit) risk of a market counterpart.
- Do not require posting collateral.
- Can provide workshops to price, negotiate, prepare, evaluate, and execute swaps.

Managing Commodity Price Risk

Commodity Swaps/Options

Mapping Commodity Price Risk to a Financial Solution

Risk Analysis:

Clients are exposed to commodity price risk directly or indirectly through:

- tax or royalty income from commodity exports
- contingent liabilities related to subsidy programs or price stabilization schemes
- safety nets and support mechanisms

Commodity Swaps/options:

- Loan with embedded swaps / caps: Loan repayment linked to commodity index
- Call Option (Price Cap): protection against the risk of price increases for importers
- Put Option (Price Floor): protection against risk of price decreases for producers

Managing Commodity Price Risk

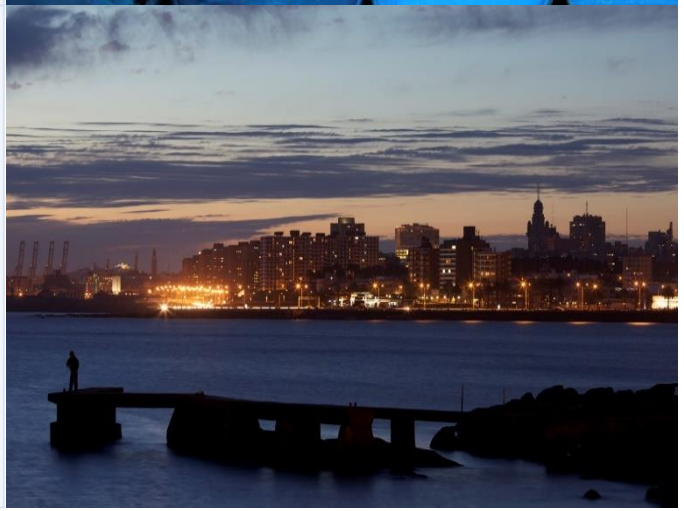
Case Study: Uruguay

Development Challenge

- Uruguay imports around 12 million barrels of oil per year
- An unexpected increase in oil prices can force the government to divert budgetary resources from other priorities
- Uruguay's finance ministry wanted to insulate the budget from abrupt and significant increases in oil prices
- The World Bank Treasury and the Uruguayan debt management office worked together to design an oil hedging program as part of a comprehensive risk management strategy

Financial Solution

- Government of Uruguay executed a commodity hedge through the World Bank
- It purchased a 12-months **call option** on **6 million barrels** to purchase oil at an average price of **$55/barrel**



Managing Commodity Price Risk

Case Study: Protection Against Fuel Price Increases in Morocco

Development Challenge

- Morocco provides consumer subsidies for some fuel products.
- Uncertainty about expenditure for subsidies creates instability in the budget. Costs can run much higher than original budget allocation

Financial Solution

- Government established a commodity hedging strategy as part of larger reform of subsidy structure
- Prepared internal study favoring call option contracts as most appropriate instrument given the objective of smoothing out cash-flows plus other benefits including:
  - Provides insurance-type of coverage against risk of price increases
  - Retains potential benefits of price falls
  - Cost of coverage is fixed and known up front
- Morocco executed transactions with market counterparties in October 2013; estimated cost of $50-60 million

Managing Natural Disaster Risk

Mapping Natural Disaster Risk to a Financial Solution

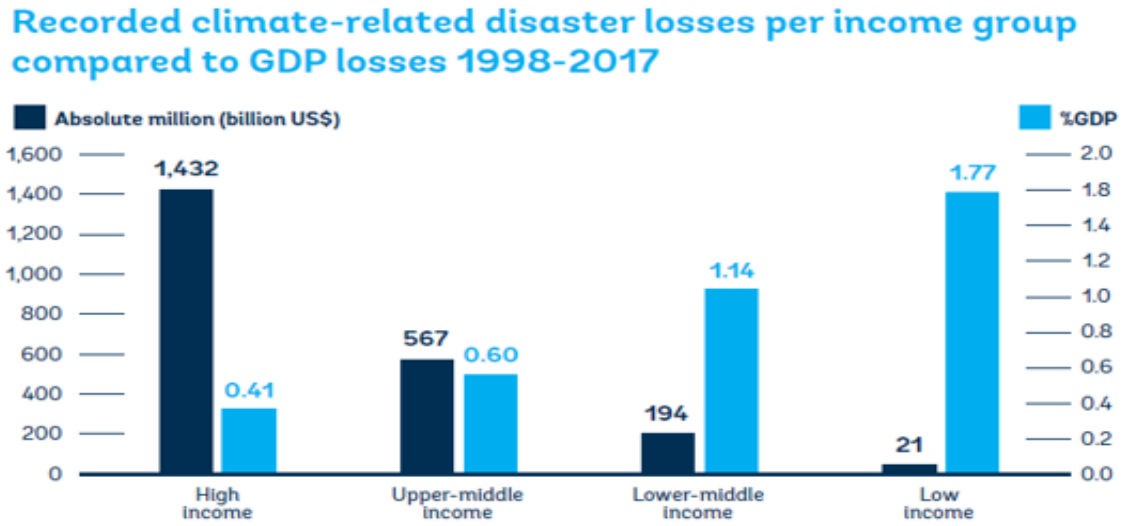
Risk Analysis:

- Clients exposed to natural disasters face challenges:
  - Responding to need for immediate financing after an event
  - Strengthening response capacity in the aftermath, while protecting long-term fiscal balance
- Low and middle-income countries bear weather risks that can have a large impact on their GDP and their budget:
  - Direct economic loss e.g. damage housing stock
  - Production shocks e.g. damage to agricultural production
- Hedging products can help disaster risks in the context of a wider risk management framework

Managing Natural Disaster Risk

Why Manage Disaster Risk?

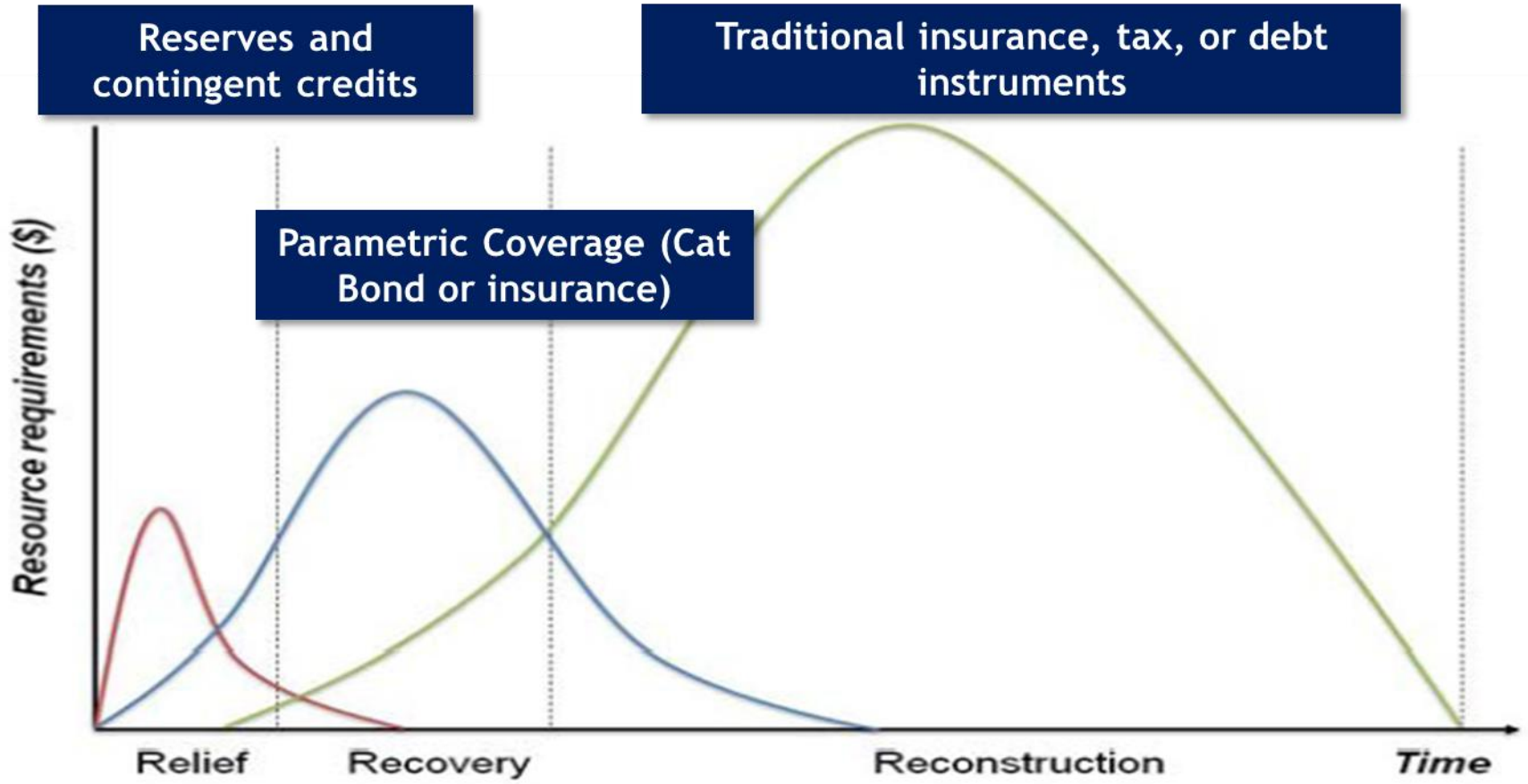
- Disasters put lives at risk and threaten economic stability and growth.
- Disasters force more than 25 million people into poverty each year.
- Weak building codes, dense cities, and minimal insurance coverage make emerging markets more vulnerable.
- Disasters put a significant fiscal burden on governments and creates major budget volatility.



Source: Economic, Losses, Poverty & Disasters 1998- 2017 Report by CRED & UNISDR

Managing Natural Disaster Risk

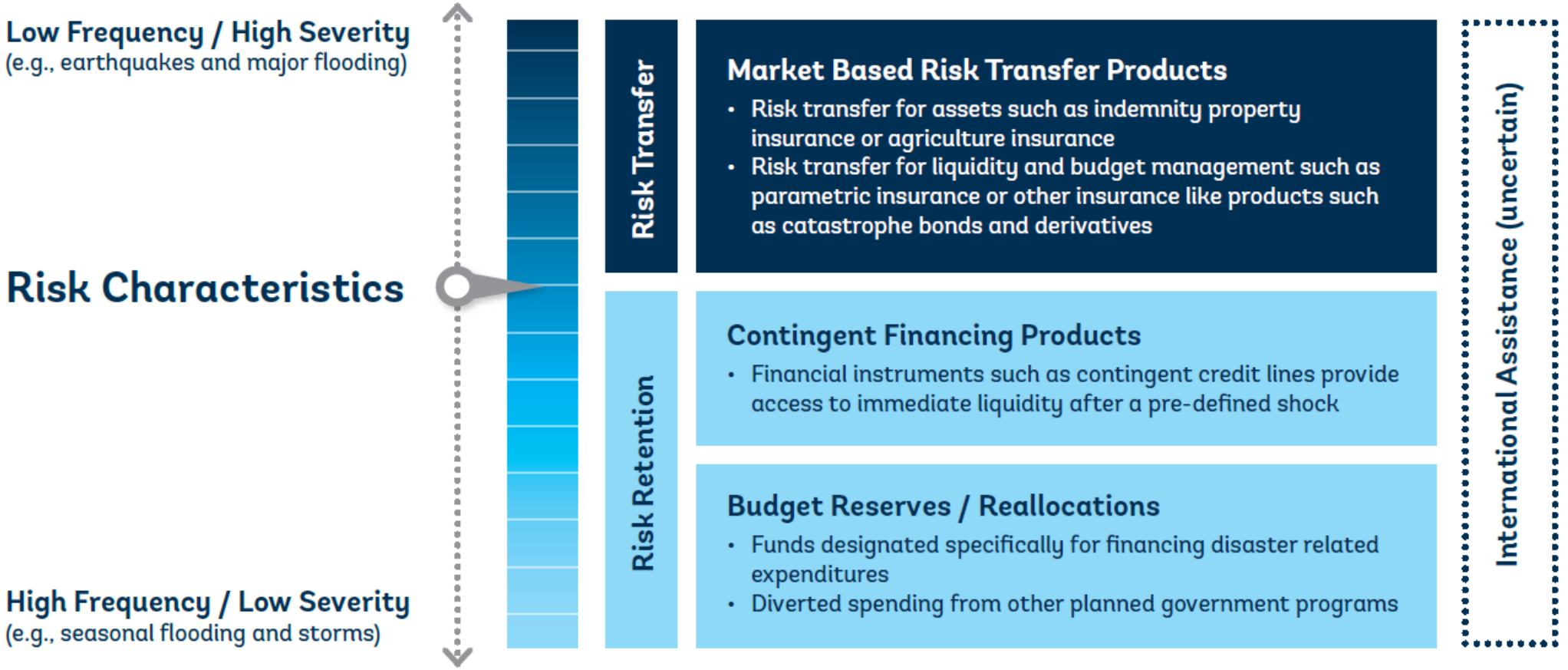
Phases of Post-Disaster Funding Needs



Managing Natural Disaster Risk

Disaster Risk Financing Instruments

- A range of financial products can be used to address the financial risks of natural disasters
- the optimum mix of approaches depends on the types of risks faced by a client and the frequency and severity of disaster events.



Managing Natural Disaster Risk

IBRD's Catastrophe Deferred Drawdown Option (CAT DDO)

Catastrophe Deferred Drawdown Option (CAT DDO)

- Provides immediate liquidity to IBRD countries following a natural disaster
- Secures access to up to US$500 million or 0.25% of GDP (whichever is less) before an event occurs
- Funds become available for disbursement immediately after the declaration of a state of emergency due to a natural disaster

Philippines (2012)

Development Challenge

- Highly exposed to natural disasters
- Disaster risk management is a government priority

Financial Solution:

- In 2012 the Philippines signed its first $500 mm CAT DDO
- After tropical storm 'Sendong' hit the country, the government withdrew the $500 million for recovery and reconstruction activities

Managing Natural Disaster Risk

Pooling Natural Disaster Risk in the Pacific Islands (1 of 2)

Development Challenge

- Small economies highly exposed to natural disaster: Marshall Islands, Tonga, Solomon Islands, Samoa, Vanuatu
- Cost of catastrophic events have big fiscal impacts

Financial Solution

- Pacific Catastrophe Risk Insurance Pilot (2012) pooled risk approach provides coverage for up to a maximum of $45 mm
- Rapid payouts linked to impact of an earthquake, tropical cyclone or tsunami
- Country-specific catastrophe risk policies taken to the market as single, well-diversified portfolio
- IDA acted as intermediary between the countries and reinsurance companies
- Japan financed the premium

Managing Natural Disaster Risk

Pooling Natural Disaster Risk in the Pacific Islands (2 of 2)

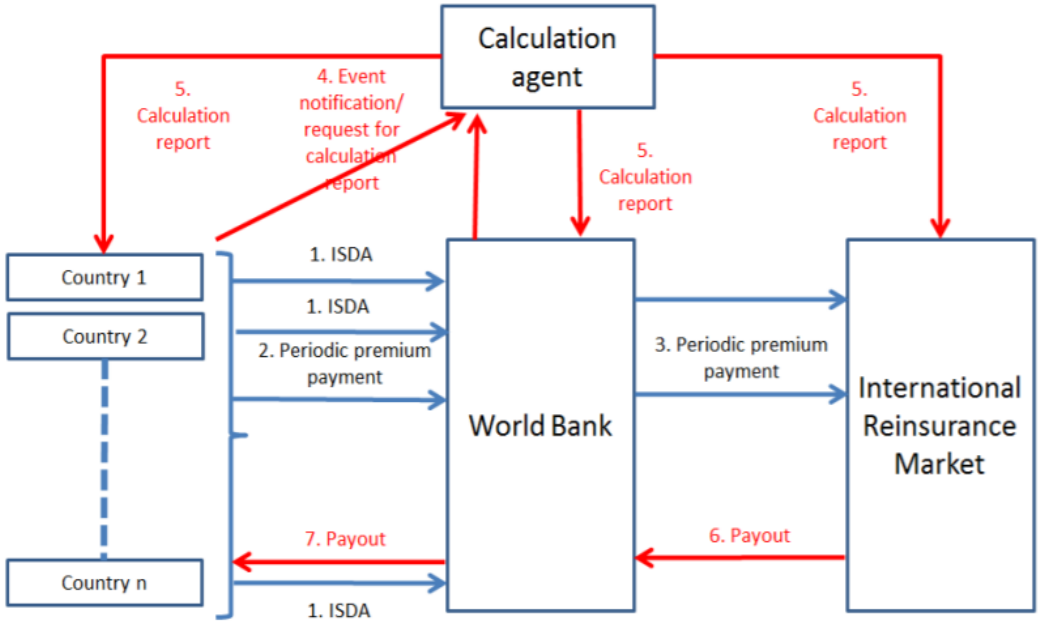
Main Terms: 2012-2014 Pacific Catastrophe Risk Insurance Pilot	
Type of Transaction	Catastrophe swap
Effective Date	January 17, 2013
Termination Date of 1st Year Pilot	Oct. 31, 2013 2nd year pilot will run from Nov. 1 -Oct. 31, 2014
Settlement Index	Modeled emergency loss for each country
Perils	Earthquake (including ground-shaking and tsunami) and tropical cyclone (including wind, sea surge and rainfall)

How does the Pacific Catastrophe Risk Insurance Pilot work?

1. Each government signs a derivative contract with the World Bank based on the ISDA framework.
2. Premiums are paid periodically to the World Bank.
3. The World Bank enters into a mirroring agreement with market counterparties, paying periodic premiums.
4. In case of a natural disaster, the claim can be initiated in two ways: a) the affected government sends a notification to the World Bank; b) the Bank by itself notifies/sends a request to the calculation agent to produce a calculation report.
5. The calculation agent delivers a calculation report to all actors, specifying whether the event has triggered a payout and the amount of the payout, which is based on the severity of the event.
6. The market counterparties deliver the payout to the World Bank based on the calculation report.
7. The World Bank delivers the payout to the affected government.

See Figure 1 for more details.

Figure 1: Pacific Catastrophe Risk Insurance Pilot



➔ Red arrows are triggered when at least one of the governments is impacted by a natural disaster.

Managing Natural Disaster Risk

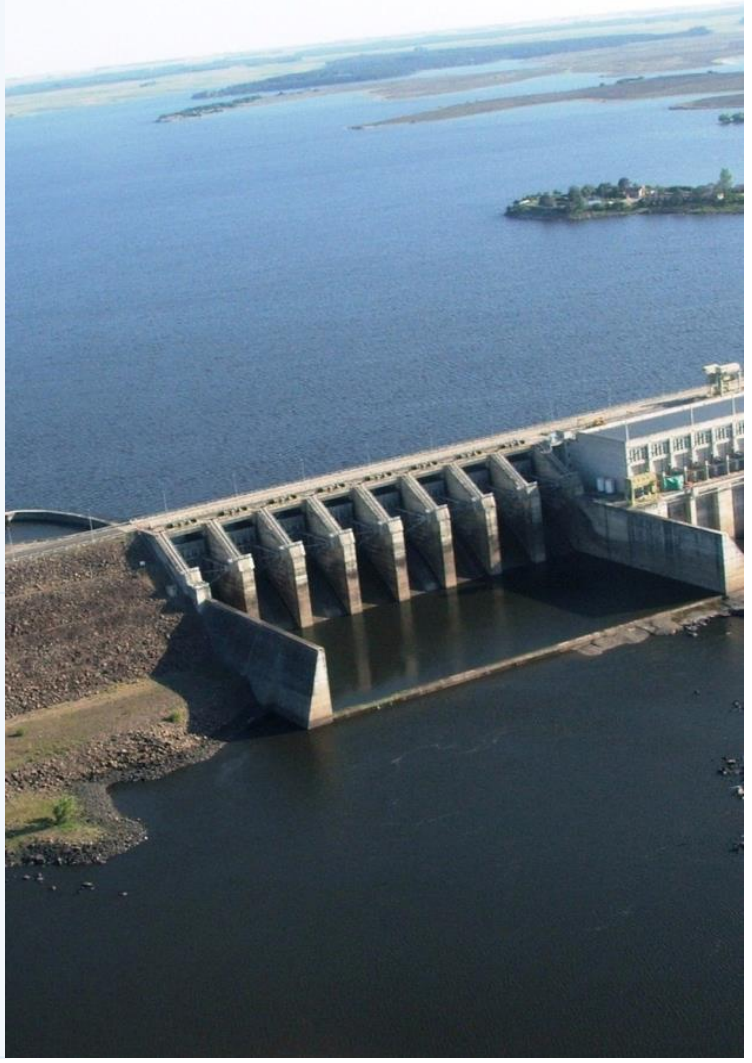
Weather Derivative for coverage of drought and high oil prices in Uruguay (1 of 2)

Development Challenge

- Hydropower generates over 80% of energy needs; high exposure to drought. State-owned power company, UTE, suffers financial losses when there is not enough rain to feed hydropower plants.
- Alternative thermal power generation costs more and requires fuel imports.
- 2008 drought and record high oil prices cost government more than $400M. In 2012, UTE had to borrow from market and withdrew $150M from Uruguay's Energy Stabilization Fund, ultimately increasing consumer utility rates

Financial Solution

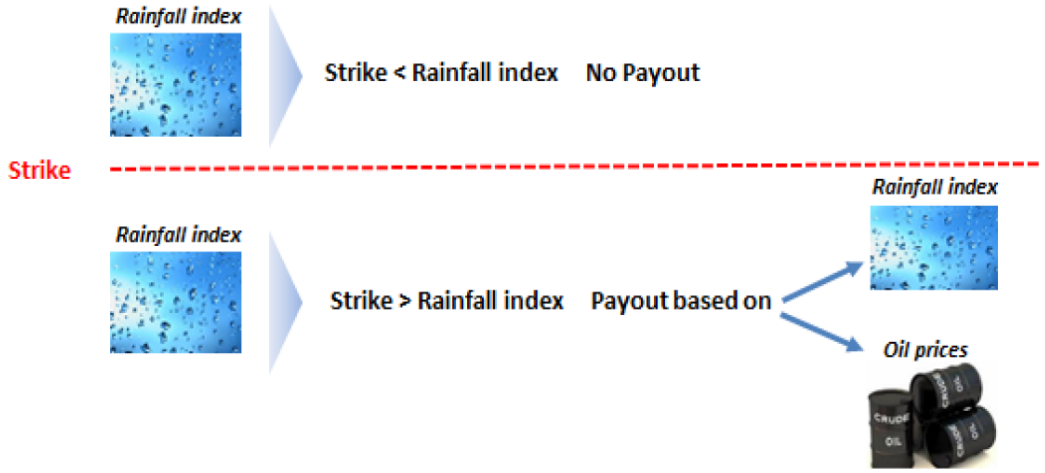
- Customized weather derivative provides coverage against combined risk of drought and high oil prices up to maximum payout of $450M. Coverage for 18 months.
- IBRD acted as intermediary being the counterparty to UTE and reinsurance companies
- Intermediation strengthens capacity, confidence, and helps to bring participants to the market



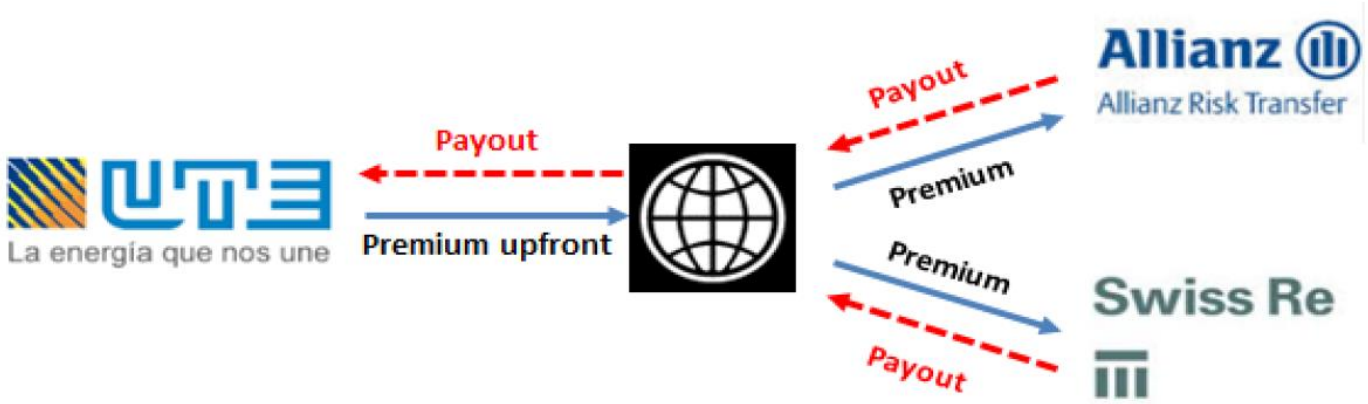
Managing Natural Disaster Risk

Weather Derivative for coverage of drought and high oil prices in Uruguay (2 of 2)

How does the weather and oil price insurance work?



How does the transaction work?



Managing Natural Disaster Risk

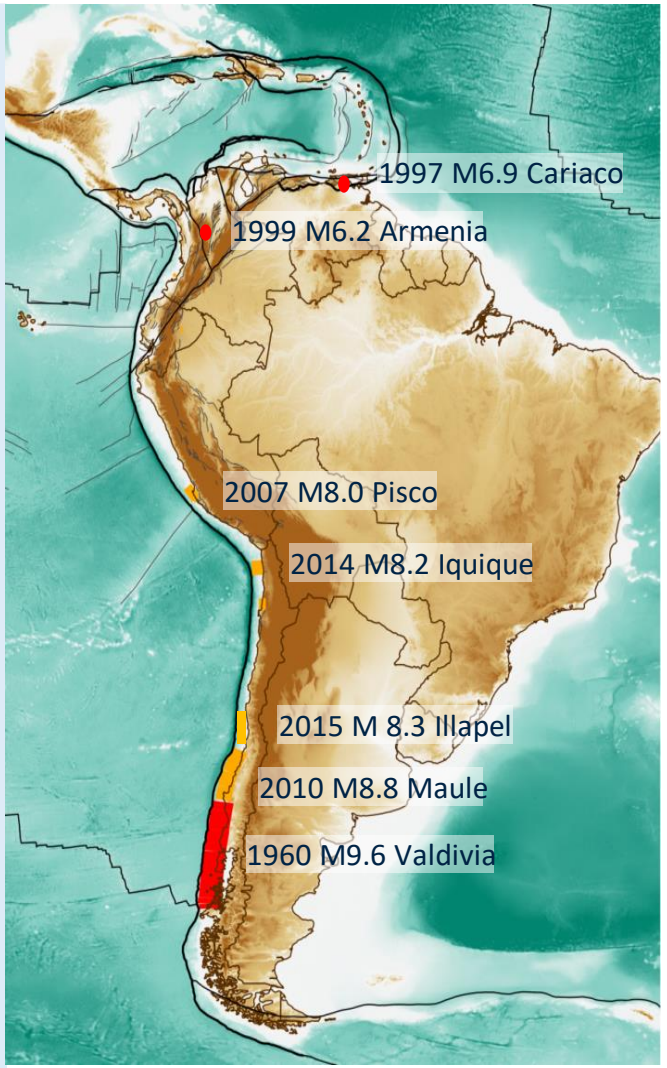
Pacific Alliance Joint CAT Bond (1 of 2)

Development Challenge

- The countries of the Pacific Alliance – Colombia, Chile, Mexico and Peru – worked together with the following principles and objectives:
  - **Increase resilience** - Expand financing options for significant natural disaster risks beyond the scope of budget funds and without increasing sovereign debt
  - **Gain access** to fast-disbursing and cost-effective financing capacity in the capital markets
  - **Political collaboration** - demonstrate the effectiveness of the Pacific Alliance by implementing an innovative solution that benefits all countries

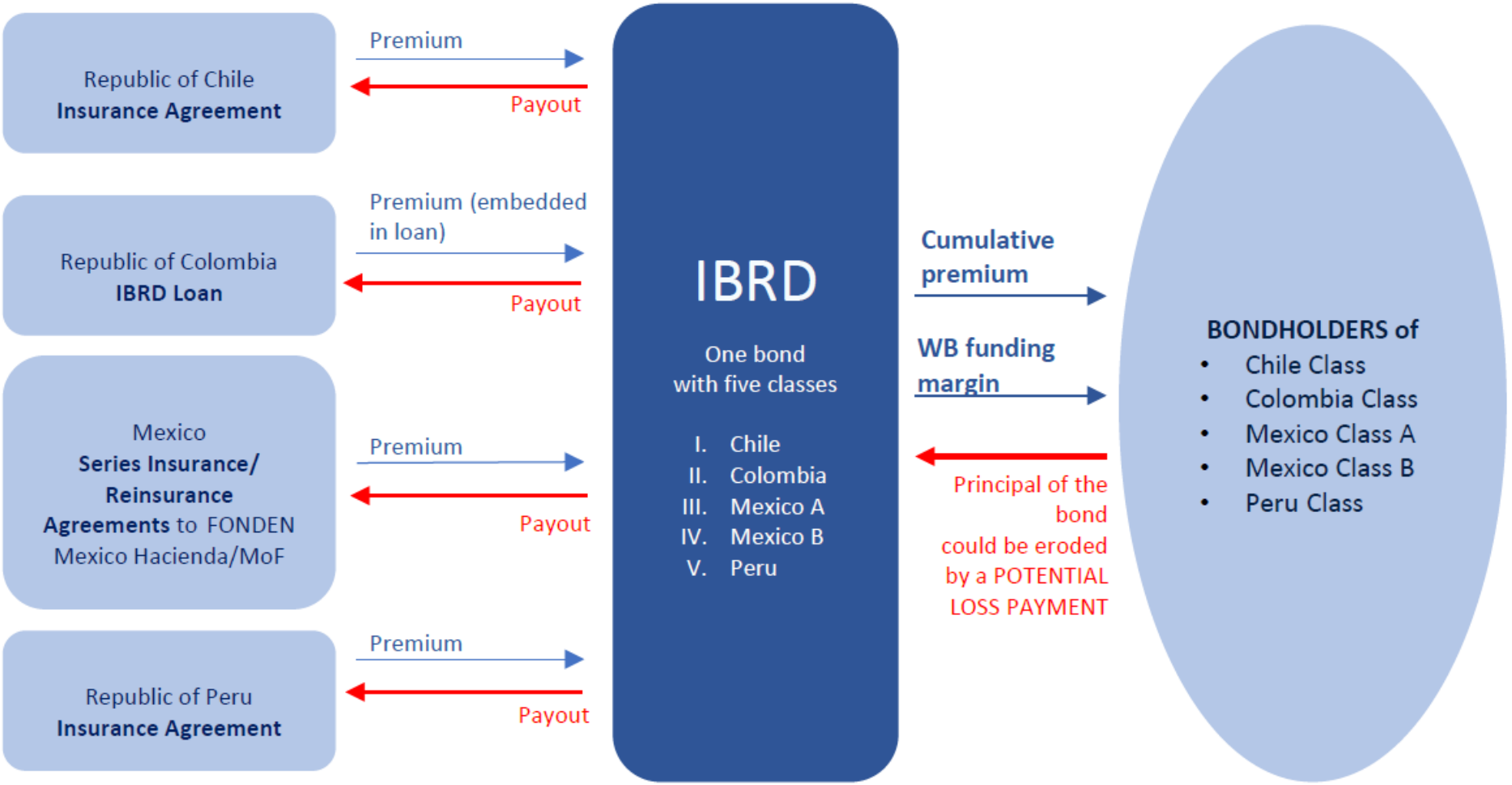
Financial Solution

- To address the needs of the Pacific Alliance, the World Bank issued a Cat Bond for USD1.36 Billion providing earthquake coverage to Chile, Colombia, Mexico and Peru.



Managing Natural Disaster Risk

Pacific Alliance Joint CAT Bond (2 of 2)



Risk Management

Role of Multilateral Development Banks (MDBs)

Advantages of accessing risk management tools through MDBs

- Superior credit quality and access to markets
- Convening power and their ability to bring all parties to the table in a manner that is perceived by all to be “safe” and fair
- Not-for-profit and “honest broker” status
- Centralized execution capabilities
- Significant financial expertise that can be transferred to its client members
  - Product & market knowledge
  - Well-developed network of connections among international banks, investors, insurance and re-insurance companies, etc.
- Mandate to ensure knowledge sharing (both “north-south” as well as “south-south”) and capacity building, as a mechanism towards uniform and best-practice risk management among their constituents

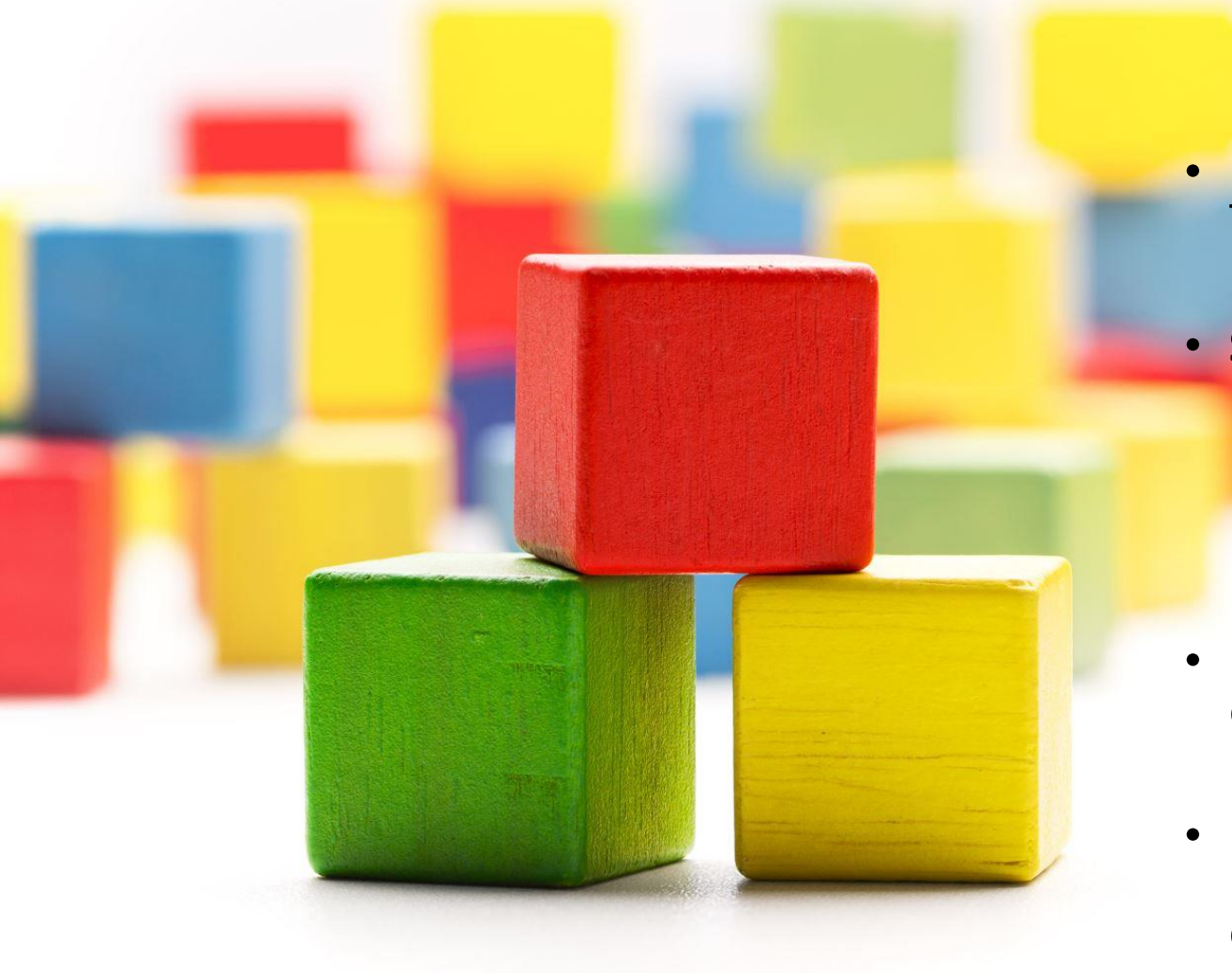
Role of Development Banks

Development banks play a fundamental role in promoting the sound use and scaling of financial instrument that help public sector debt managers raise funds and manage risk efficiently. The banks could carry out the following:

Provide technical assistance to share knowledge, experiences and best practices through general or client-specific assessments, research, workshops and events. Development banks can finance some of the costs associated with these instruments (such as research, assessments, fees) from their own budgets or through trust funds.

Create and support practice communities to gather experts, practitioners and scholars for focused discussions. (ex: Understanding Risk Community, Public Debt Management (PDM) Network, Multilateral Cooperation Center for Development Finance).

Support establishing and adopting global standards by publishing guidelines, procedures and/or best practices to put public debt managers on sound footing to adopt and utilize new instruments and practices



Conclusions

- **Risk & Liability Management:** Instruments and Techniques are constantly evolving
- **Sovereign Issuers:** should be aware of
  - Innovations
  - How they work
  - What are the benefits/challenges/costs
- **Preparation:** Using these instruments always requires ex ante and/or ex post investment
- **Development Banks:** have an important role to play in helping sovereign issuers with experience sharing, capacity building, setting standards

Thank you!