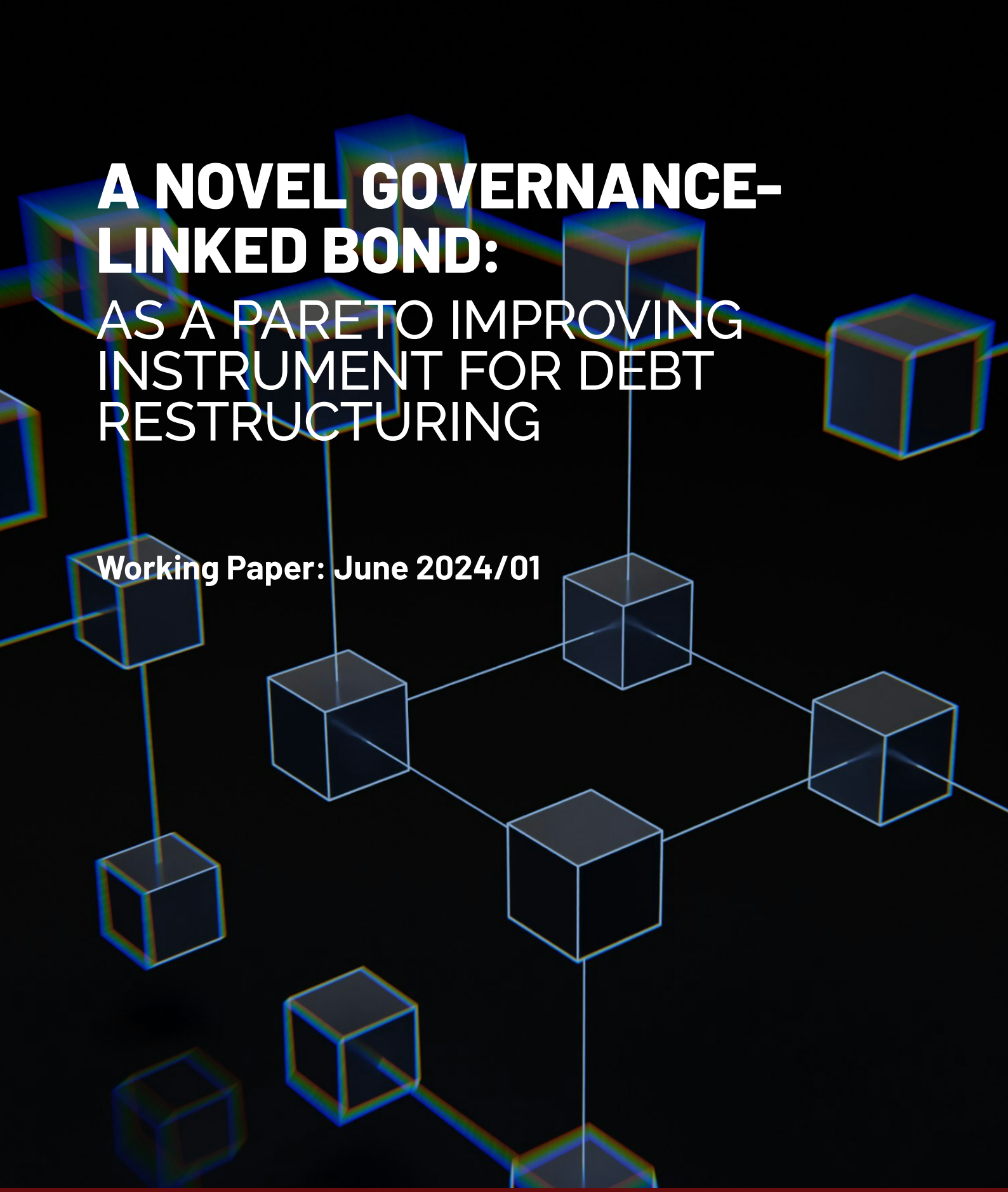

A NOVEL GOVERNANCE-LINKED BOND:

AS A PARETO IMPROVING INSTRUMENT FOR DEBT RESTRUCTURING

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Working Paper

VERITÉ RESEARCH
Strategic Analysis for Asia

Working Paper

A Novel Governance-Linked Bond:

As a Pareto Improving Instrument for Debt Restructuring

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Introduction

This working paper outlines the technical and incentive dynamics for a proposed new sovereign debt instrument designed for countries with high country risk premiums, where this risk is, ceteris paribus, correlated with the quality of present and future governance. We call this instrument a Governance-Linked Sovereign Bond (GLSB).

The paper introduces the design of a GLSB and the formulaic method for deploying such an instrument in situations where country risk premiums might be correlated with governance-related actions. A specific illustrative model is used to demonstrate the practical applications of this debt instrument.

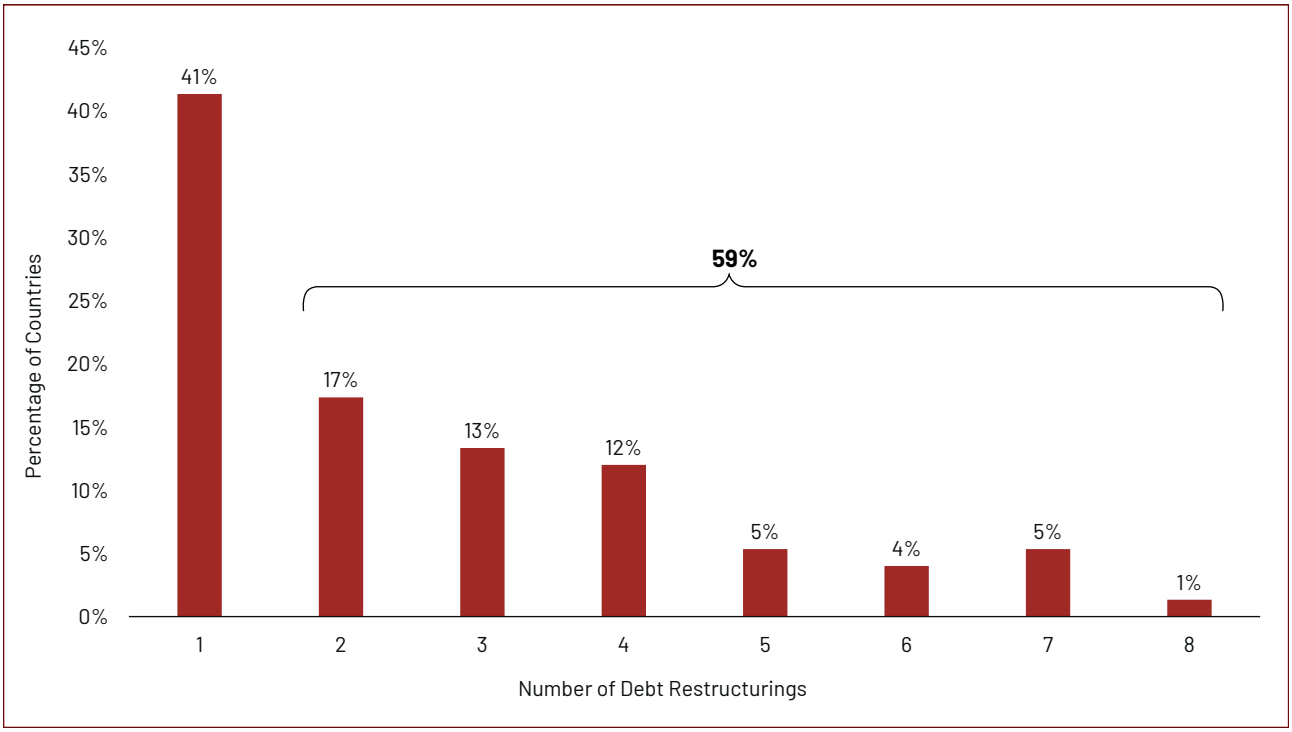
The enumeration of this novel GLSB shows that it will be financially attractive to bondholders, not only in relation to other Environment, Social and Governance (ESG)-related State-Contingent Debt Instruments (SCDIs), but also compared to Plain Vanilla Bonds (PVBs) that are not state contingent.

This novel GLSB design differs from other ESG instruments, in that it is intrinsically positive-sum rather than zero sum with regards to the state-contingent outcomes. This unique feature, not seen in other ESG SCDIs, arises from the specific outcome states and the incentive dynamics of the novel GLSB. Therefore, the novel GLSB has pareto improving dynamics, for the country and the creditors, against the counterfactual of a PVB.

Motivation for Structuring a GLSB

The available and updated data shows that 59 percent of countries that underwent debt restructuring from 1975 to 2020 had to go through multiple episodes of restructuring before getting on the path of debt sustainability (See Exhibit 1). Weak and volatile macroeconomic policies, which are aspects of governance, have been identified by various studies as risk factors in triggering restructuring episodes.[1]

Exhibit 1: Number of restructurings episodes in countries that restructured debt



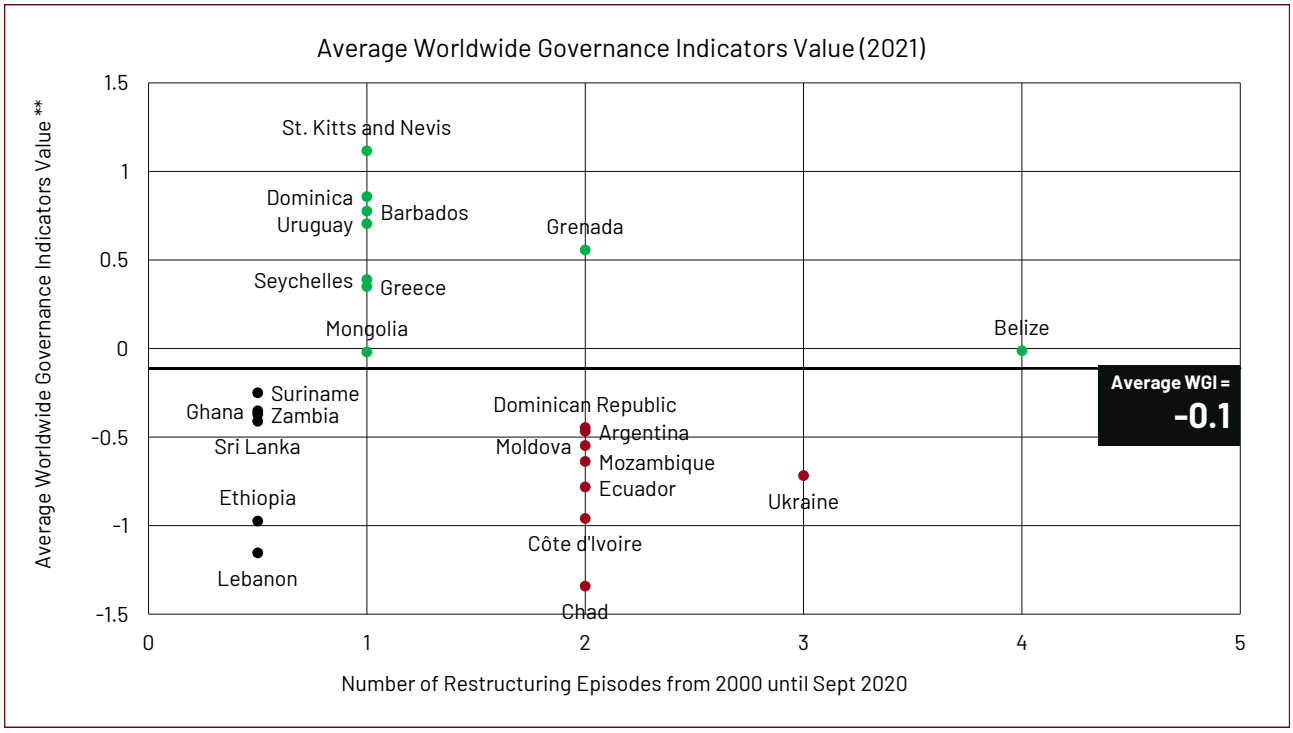
Source: Data provided by Asonuma, Tamon and Christoph Trebesch (2016): "Sovereign Debt Restructurings: Preemptive or Post-Default", Journal of the European Economic Association Vol 15(1), Pages 175-214

The World Bank has published the Worldwide Governance Indicators since 2000. Exhibit 2 shows a strong indicative relationship between countries that experienced more than one restructuring episode and those

that had a lower average score on the Worldwide Governance Indicators during their first restructuring episode.[2]

This suggests that as a country undergoes a debt restructuring episode, the direction of its governance could be rather important in determining whether it is able to emerge from the debt crisis without a high risk of future restructuring episodes.

Exhibit 2: Governance score and the number of restructuring episodes



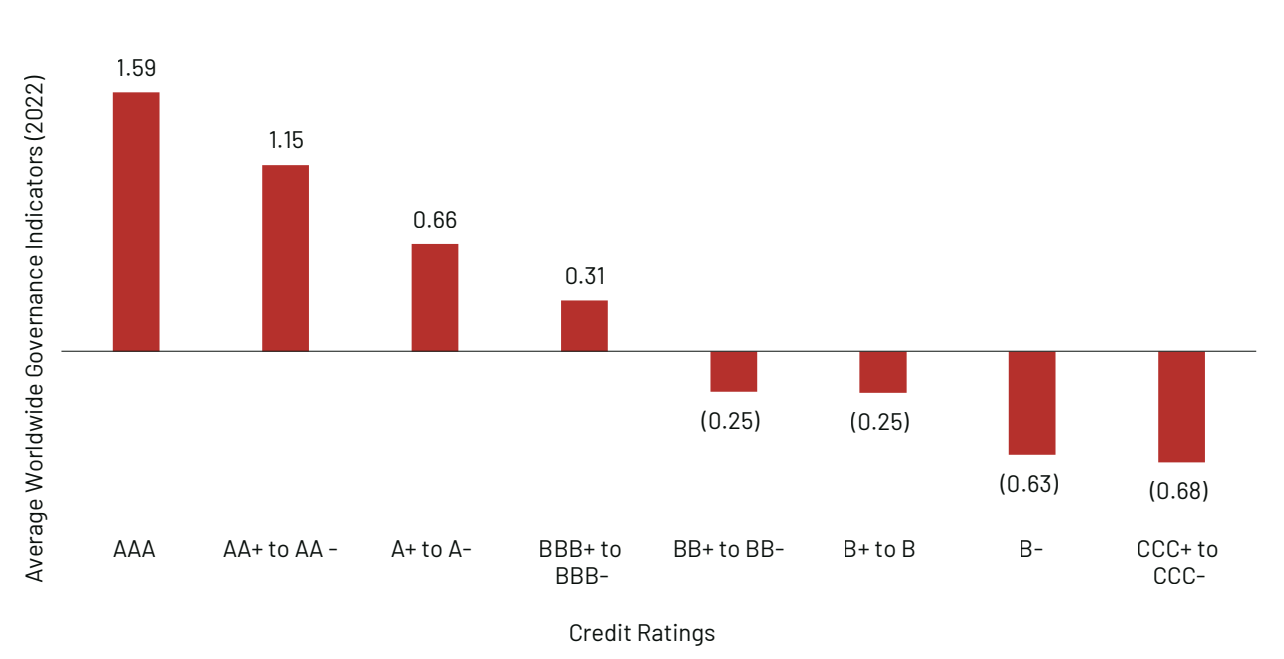
Source: Worldwide Governance Indicators (WGI), World bank | Data provided by Asonuma, Tamon and Christoph Trebesch (2016): "Sovereign Debt Restructurings: Preemptive or Post-Default", Journal of the European Economic Association Vol 15(1), Pages 175-214

** Note: Countries listed in black have not completed their debt restructuring as of May 2024.*

***Note: The average Worldwide Governance Indicator is calculated by taking a simple average of the six sub – components for each country*

This risk relationship between governance and debt-sustainability can also be seen by comparing the average scores on the Worldwide Governance Indicators by the World Bank[3] against sovereign credit ratings. Exhibit 3 illustrates that countries with higher governance scores typically have better sovereign credit ratings. This is also an indication that improvements in governance are linked to improvement in the credit ratings of a country and can contribute to reducing the attributed risk premium on the trading of its debt.

Exhibit 3: Correlation between credit ratings and average worldwide governance indicators



Source: Worldwide Governance Indicators (WGI), World bank | S&P Global Ratings

Adding a GLSB to a debt restructuring plan, especially if governance levels are already low, mitigates the risk of weaking governance and poor or inconsistent macroeconomic policies that could lead to another episode of debt restructuring. Where that risk is not mitigated, it would lead to a reduction in the secondary market value of debt held by bondholders.

This paper presents the design of a GLSB that not only mitigates this risk but also aligns incentives to do so by allowing the country to benefit from committing to risk mitigation measures. Both parties are incentivised by splitting the benefit between the country and the bondholders of a higher secondary market price that results from the lowered risk.

The pareto improving dynamics of the novel GLSB make it an attractive instrument to be put forward by any country that has a record of poor governance and is committed to changing course. However, a country whose leadership is not committed to such change may not float a GLSB of its own accord. But in the context of a country restructuring its debt, creditors are in a position to propose a GLSB, and its pareto-improving dynamics also give creditors a strong reason to do so.

Theoretical Framework

The proposed design of a GLSB aims to provide a country with a reduction in its future debt repayment obligations based on the achievement of certain actions that proxy improvements in governance. A GLSB thus falls within the larger class of SCDIs. It also falls within the subset of SCDIs known as ESG bonds.

The basic design of a GLSB involves a repayment reduction in the form of a coupon step-down, triggered when specific governance criteria are achieved by a certain reference date. That is, the bond's cash flow is contingent on two possible future states: S1, where the governance criteria are not met by the reference date, in which case the coupon payments continue at the same level as a comparable PVB; and S2, where the criteria are met by the reference date, in which case a coupon step-down is applied for the remaining period until maturity.

The described structure of a one-time coupon step-down paves the way for the GLSB to be index eligible. This structure is also preferred by bondholders in contrast to a value recovery instrument (VRI), which has been a feature of state-contingent instruments.

The structural features are important to note, as there can be separate cost and liquidity concerns around state-contingent instruments that are not index eligible. These concerns are pre-empted in this proposed GLSB design.

The Design of The Novel GLSB

- A coupon step-down is triggered when predefined governance criteria are achieved by a reference date within the tenure of the bond.
- Governance criteria are ideally designed to be easily understood, popular with citizens, and trackable to increase the democratic and political economy incentives for the government to achieve and sustain those specific improvements in governance. Criteria that are unpopular, even if they are of value, can lead to conflicts between political and financial incentives and are therefore not ideal in a GLSB design.
- To incentivise the bondholders to take up the GLSB, it is possible to also have a smaller coupon step-up, relatively to a PVB, in the issuance of the GLSB. Such a step-up would be for the initial duration until the evaluation date for meeting the governance criteria, after which a much larger coupon step-down can be triggered.
- The bonds have future cashflows that can be on one of two State Contingent paths. State 1 **(S1)**, governance criteria are not met, and coupon payments continue at the same level as a comparable PVB. State 2 **(S2)**, governance criteria are met, resulting in a coupon step-down below the comparable PVB for the remaining period until the maturity of the bond.
- The step-down level can vary based on the extent to which the governance criteria are met, with a smaller step-down for meeting only a subset of the governance criteria. This modified application is explained at the end as an alternative ternary (instead of a binary) evaluation structure for a GLSB.
- Governance criteria are considered to be achievable. That is, there is a non-zero probability (α) of the country moving to S2, and therefore (1- α) of remaining in S1.

Assumptions Underlying The Pareto Improving Dynamics

The design of the GLSB instrument and the simple mathematical demonstration of its pareto improving feature depend on a **critical assumption**. It can be stated as follows:

Ceteris paribus, the secondary market price of a sovereign bond is correlated to the market perception of country risk (discount rate) associated with signals of its financial governance.

It follows from the stated assumption that:

- Ceteris paribus, positive news regarding a country meeting the governance criteria of a GLSB has a positive probability of leading to an increase in the secondary market price of its sovereign bonds by being perceived as de-risked.
- The price impact due to the coupon step-down on the GLSB has a trading value offset through the price increase due to the perception of being de-risked.

This gives the GLSB its potentially pareto improving payoff structure, where both the bondholder and the country benefit when the contingent state occurs.

The financial benefit to the country sets up a strong incentive for the country to strive towards meeting the criteria, which in turn increases the probability of the positive sum (thereby potentially pareto improving) outcome.

Pareto-Improving Price and Repayment Streams of GLSB

The price of a bond is generally the present value of its future cashflows. In the case of a PVB that pays out annual coupons until maturity, the price of the bond (P) can be written as:

$$P = \sum_{t=1}^{t_n} \left[\frac{c \times F}{(1+r)^t} \right] + \frac{F}{(1+r)^{t_n}}$$

Where:
t_n = time until maturity of the bond
c = coupon rate
F = Facevalue of the bond
r = e + p
e = risk free market discount rate
p = country risk premium

The GLSB being considered has a coupon step-down from, let's say c_1 to c_2 in the case of S2, if the governance criteria are met; where, $c_1 > c_2$.

The initial coupon rate on the GLSB is proposed as $c_1 = b + \delta y$, where b is the coupon rate of the corresponding PVB issued along with the GLSB; y is the coupon step-down that the country would expect to receive upon being evaluated at a certain reference date as having successfully met the governance criteria; and the fractional parameter δ is a potential initial coupon step-up that can further incentivize the take-up of the GLSB by bondholders ($0 \leq \delta \leq 1$).

In the case where δ is zero, the GLSB offers the country only an upside in the case of S2, with no downside in the case of S1. As not meeting the governance criteria and remaining in S1 results in the same stream of payments as the country would have on an alternative PVB.

The price of the bond in the case of S2 can be specified by modifying the previous equation. The coupon step-down, denoted as $y = c_1 - c_2$, occurs only if S2 occurs.

It follows from the critical assumption stated previously that the market-determined country risk premium will also reduce if the governance criteria is achieved. That is, in the case where the country moves from S1 to S2, the underlying risk assessed in the market also changes from r_1 to r_2; where $r_1 > r_2$

The parameter t_g represents the reference date at which an assessment is made to determine if the governance criteria have been met to move from S1 to S2.

If the country is expected to move to S2, the price of the bond (P_2) can be written as:

$$P_2 = \sum_{t=1}^{t_g} \left(\frac{c_1 \times F}{(1+r_1)^t} \right) + \frac{1}{(1+r_1)^{t_g}} \left[\sum_{t=t_g+1}^{t_n} \left(\frac{c_2 \times F}{(1+r_2)^{t-t_g}} \right) + \left(\frac{F}{(1+r_2)^{t_n-t_g}} \right) \right]$$

That is, there is a change in the coupon rate from c_1 to c_2 after t_g, and a change in the discount rate from r_1 to r_2. Therefore, when calculating the present value of cashflows, r_1 is applied to the annual coupons between t_1 and t_g, and for the remaining period after t_g, the cashflows are discounted at r_2 for the period between t_g and t_n

If the country is expected to be in S1, the price of the bond (P_1) is written as above:

$$P_1 = \sum_{t=1}^{t_n} \left[\frac{c_1 \times F}{(1+r_1)^t} \right] + \frac{F}{(1+r_1)^{t_n}}$$

This is because there is no change in the payment stream from the original bond, and it is the same as setting $c_2 = c_1$ and $r_2 = r_1$

THE MAXIMUM BENEFIT TO THE BONDHOLDER

In S2, when governance improves, resulting in a reduction in the risk premium from r_1 to r_2, and if the coupon remains the same $c_2 = c_1$, this will result in an increase in price P_2^a that gives the maximum benefit to the bondholder.

If $c_2 = c_1$, then P_2^a can be written as:

$$P_2^a = \sum_{t=1}^{t_g} \left(\frac{c_1 \times F}{(1+r_1)^t} \right) + \frac{1}{(1+r_1)^{t_g}} \left[\sum_{t=t_g+1}^{t_n} \left(\frac{c_1 \times F}{(1+r_2)^{t-t_g}} \right) + \left(\frac{F}{(1+r_2)^{t_n-t_g}} \right) \right]$$

THE MINIMUM BENEFIT TO THE BONDHOLDER

In order to ensure that the bondholder is not worse off after the coupon step-down, the lowest coupon rate that the bondholder would agree to in S2 would be at a level where $P_1 = P_2$ Deriving the reduced coupon that would be achieve this equivalence as c_L, we get:

$$c_L = \frac{P_1 - \sum_{t=1}^{t_g} \left[\frac{c_1 \times F}{(1+r_1)^t} \right] - \left[\left(\frac{F}{(1+r_2)^{t_n-t_g}} \right) \times \frac{1}{(1+r_1)^{t_g}} \right]}{\sum_{t=t_g+1}^{t_n} \left[\left(\frac{F}{(1+r_2)^{t-t_g}} \right) \times \frac{1}{(1+r_1)^{t_g}} \right]}$$

NEGOTIATING SPACE FOR COUPON STEP-DOWN

The negotiating space for reducing the coupon to c_2 therefore would be between the maximum and minimum benefit range to the bondholder. Within that range, the bond would still receive a higher price than expected in S1 and the country would benefit through a reduction in the coupon rate. The range for negotiation is:

$$c_L \leq c_2 \leq c_1$$

The next section offers a numerical example applying the above method to an illustrative construction of a GLSB.

Synthetic Example to Illustrate Pareto Improvement Through a GLSB

The defining expectation of the GLSB that is modelled is that when governance criteria are met, the markets make a positive evaluation of the country risk premium as having reduced, leading to a lower yield (and higher price) in the trading of its bonds. The model is illustrated with the following synthetic specifications:

- e_1 is the ex-ante risk premium: the difference between the US treasury yields and the yields of the sovereign bonds prior to evaluating achievement of governance criteria.
- e_2 is the ex-post risk premium: the difference between the US treasury yields and the yields of the sovereign bonds if the country moves to S2.
- u is the 10-year US treasury yield rate.
- ∂ defined earlier is set to be zero, therefore c_1=b, the coupon on a PVB.
- r_1 is the corresponding ex-ante discount rate, which is r_1=u+e_1
- r_2 is the corresponding ex-post discount rate, which is r_2=u+e_2

In this synthetic example we consider a bond issued with the following characteristics.

t_n= 10 yrs; c_1 = 6.0%; F = USD 1,000; r_1 = 8.0%; r_2 = 6.0%; t_g= 4th year; Coupons paid annually.

For this illustration we assume ceteris paribus throughout the period.

S1: GOVERNANCE CRITERIA ARE NOT MET:

In S1, the country will continue to have to repay the bonds at the original PVB equivalent coupon rate of c_1 = 6.0%.The risk premium also remains at r_1=8.0%. Then, as set out in the table, the present value of future cashflows (price of the bond) equals USD 865.8.

Exhibit 4: Present Value of the synthetic bond when governance criteria is not met

Year	Coupon Rate	Discount Rate	Cashflow (USD)	Present Value (USD)
1	6.0%	8.0%	60.0	55.6
2	6.0%	8.0%	60.0	51.4
3	6.0%	8.0%	60.0	47.6
4	6.0%	8.0%	60.0	44.1
5	6.0%	8.0%	60.0	40.8
6	6.0%	8.0%	60.0	37.8
7	6.0%	8.0%	60.0	35.0
8	6.0%	8.0%	60.0	32.4
9	6.0%	8.0%	60.0	30.0
10	6.0%	8.0%	1,060.0	491.0
Present Value				**865.8**

S2: PARETO IMPROVEMENT WITH NO COUPON STEP-DOWN:

In S2, if the bond is not subject to a coupon step-down and continues at the rate of c_1=6.0%, the country is no worse off. The risk premium, however, reduces to r_2=6.0%.Then, as set out in the table, the present value of future cashflows (price of the bond) increases to USD 933.8. This is a pareto improvement, as it makes the bondholders better off without making the country worse off.

Exhibit 5: Present Value of the synthetic bond when governance criteria is met with no coupon stepdown

Year	Coupon Rate	Discount Factor	Cashflow (USD)	Present Value (USD)
1	6.0%	8.0%	60.0	55.6
2	6.0%	8.0%	60.0	51.4
3	6.0%	8.0%	60.0	47.6
4	6.0%	8.0%	60.0	44.1
5	**6.0%**	6.0%	60.0	41.6
6	**6.0%**	6.0%	60.0	39.3
7	**6.0%**	6.0%	60.0	37.0
8	**6.0%**	6.0%	60.0	34.9
9	**6.0%**	6.0%	60.0	33.0
10	**6.0%**	6.0%	1,060.0	549.3
Present Value				**933.8**

S2: PARETO IMPROVEMENT WITH MAXIMUM COUPON STEP-DOWN:

In S2, the price improvement benefit of USD 68 accruing to the bondholder can be passed down to the country through a coupon step-down.

There is some maximum coupon step-down which is still pareto improving, where it makes the country better off without making the bondholders worse off. The lowest pareto improving value for the stepped-down coupon c_L is the value at which the Present Value (PV) of the bond is the same in S2 as in S1, despite the risk premium reducing to r_2=6.0%.

The calculation yields c_L=4.12%. This results in the PV of future cashflows (price of the bond) being 865.8, the same as S1. This is a pareto improvement, as it makes the country better off by paying a reduced coupon without making the bondholders worse off.

Exhibit 6: Present Value of the synthetic bond when governance criteria is met with a coupon stepdown

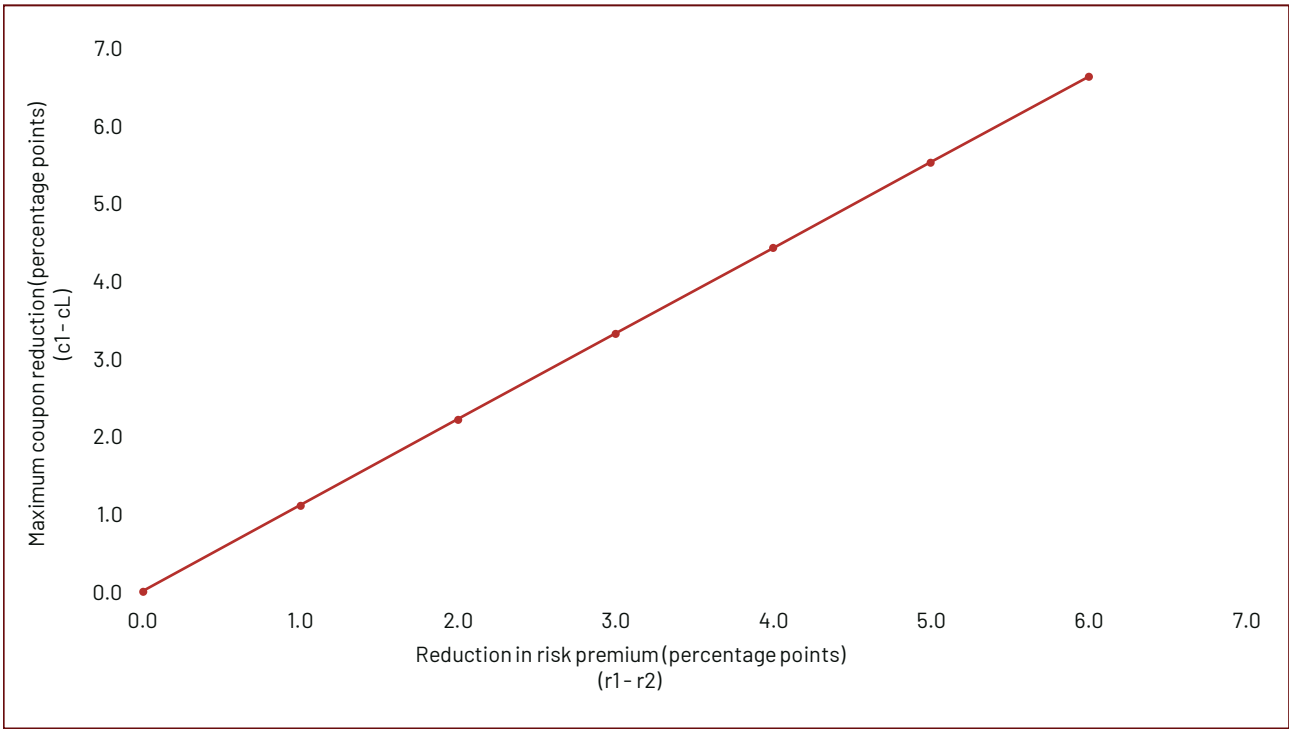
Year	Coupon Rate	Discount Factor	Cashflow (USD)	Present Value (USD)
1	6.0%	8.0%	60.0	55.6
2	6.0%	8.0%	60.0	51.4
3	6.0%	8.0%	60.0	47.6
4	6.0%	8.0%	60.0	44.1
5	**4.1%**	**6.0%**	41.2	28.6
6	**4.1%**	**6.0%**	41.2	27.0
7	**4.1%**	**6.0%**	41.2	25.4
8	**4.1%**	**6.0%**	41.2	24.0
9	**4.1%**	**6.0%**	41.2	22.6
10	**4.1%**	**6.0%**	1,041.2	539.5
Present Value				**865.8**

S2: NEGOTIATING SPACE FOR PARETO IMPROVEMENT:

Therefore, there is a pareto improving negotiating space for the coupon in S2 to be between c_L and c_1. Both parties are incentivised when the GLSB has a coupon step-down to c_2 such that $c_L \leq c_2 \leq c_1$.

The relationship between the maximum pareto improving level of coupon step-down (c_1- c_L) and the reduction in risk premium (r_1- r_2) is such that the higher the reduction in risk premium, the higher the coupon step-down that is tolerable for the bondholder, or the larger the negotiating space for the country to have a larger coupon step-down (See Exhibit 4, for a calculation relating to the synthetic example). Therefore, in setting out the governance criteria to be achieved, both the country and the bondholders have an incentive to establish criteria that will have a high impact on reducing the risk premium.

Exhibit 7: Relationship between maximum coupon reduction and reduction in risk premium.



S2: PARETO IMPROVEMENT WITH BOTH PARTIES BETTER OFF:

Given the values of the synthetic example where c_L=4.12% and c_2=6.0% , we will evaluate the outcome for c_2=5% to demonstrate a pareto improving case where both parties are better off. In this scenario, that is derived and shown in the table, the bondholders receive a price improvement of USD 32, while the country receives a coupon step-down of 100 bps, making both parties better off.

Exhibit 8: Present Value of the synthetic bond when governance criteria is met with a 5% coupon stepdown

Year	Coupon Rate	Discount Factor	Cashflow (USD)	Present Value (USD)
1	6.0%	8.0%	60.0	55.6
2	6.0%	8.0%	60.0	51.4
3	6.0%	8.0%	60.0	47.6
4	6.0%	8.0%	60.0	44.1
5	**5.0%**	**6.0%**	41.2	34.7
6	**5.0%**	**6.0%**	41.2	32.7
7	**5.0%**	**6.0%**	41.2	30.9
8	**5.0%**	**6.0%**	41.2	29.1
9	**5.0%**	**6.0%**	41.2	27.5
10	**5.0%**	**6.0%**	1,041.2	544.1
Present Value				**897.6**

Improving and Aligning Incentives for Meaningful Risk Reduction

The structure of the proposed GLSB improves and aligns incentives in three ways:

(1) Improves Incentive for better governance: It incentivises better performance by the country in terms of governance improvements by tying positive performance on governance criteria to reducing coupon payments on the exiting GLSB. This contrasts with some proposed structures, where better performance by the country (e.g., higher GDP growth) is linked to higher payments to creditors.

(2) Aligns Country and Bondholder Incentives: The critical assumption set out is that better governance is related to de-risking the bond, which improves its secondary market price. Thus, the GLSB structure aligns the interests of bondholders with those of the country by tying reduced debt service costs to the country to meeting governance criteria. This can in turn improve the secondary market price of the bonds for bondholders if the coupon step-down is designed to redistribute less than the full consequential increase in price.

(3) Aligns in-country political incentives: It aligns political and societal incentives within country if the governance criteria are tangible, transparent, trackable, and popular. These features tend to generate strong public interest as well as political competition and accountability for achieving the governance criteria.

The Novel GLSB Instrument Compared to Existing Instruments

The GLSB has an explicit direct positive-sum outcome when governance criteria are achieved and an implicit and indirect positive-sum outcome by simply introducing it to the portfolio of debt instruments for the country.

The governance criteria designed for the GLSB, when they are of intrinsic public interest, and trackable, will garner high public support. The GLSB will focus public interest on the criteria, both for their intrinsic value and the financial benefits to the country. This fosters increased political economy incentives for the government to meet these criteria.

The incentive dynamics imply that the mere creation of the GLSB, within the government's bond portfolio, will increase the probability of governance improving in the direction of meeting the criteria set out, and achieving a pareto improving outcome. Bondholders thus benefit financially from the reduced risk of deteriorating governance even when the contingent state S2 is not achieved, due to inadequate success in meeting the criteria.

Relative to PVB the GLSB has positive-sum payoffs relative to the PVBs through an increased probability of a decrease in country risk and consequently, an increase in price.

Relative to a standard ESG bond the GLSB adds two features that are not in standard ESG instruments: firstly, a set of criteria that is designed specifically to reduce country risk through targeted measures for improved governance; and secondly, an intrinsic incentive to improve governance and reduce risk as a consequence of the GLSB being introduced to the debt portfolio of the country.

In standard state contingent debt instruments, the over-all payoffs would be intrinsically zero sum, in which the benefit bestowed by the debt instrument, in a contingent state, would have to be borne by the bondholder (or passed on to a third party), for the sake of promoting some extrinsic benefit (a public good), such as improvements in environmental conditions in the global commons. The positive outcomes that are being promoted or achieved would thus be extrinsic to the debt instrument.

In some types of environment-linked ESGs, the bondholder could benefit from claiming carbon credits (resulting from the deployment of the concession) or positive reputational benefits from demonstrating ESG commitments by structuring such a bond. These potential benefits would still be extrinsic to the bond instrument and would not help to improve the price of the bond when trading it in the market.[4]

The GLSB in contrast, is an instrument with an intrinsic positive sum (non-zero sum) outcome.

A GLSB can be more financially attractive to bondholders than standard ESG SCDIs and PVBs that are not state contingent. Exhibit 5 contrasts these three types of bond instruments in terms of differences in their

structural and incentive dynamics. Exhibit 6 compares the payoffs of a GLSB to those of typical ESG bonds that lack this positive-sum payoff feature.

Exhibit 9: Comparison between different types of bond instruments

Plain Vanilla Bond	Standard ESG Bond	Governance-Linked Bond
Net present value (NPV) is based on the country's risk premium. Future prices change along with changes to that risk premium.	A PVB with the additional feature that NPV can be reduced by a reduced repayment linked to meeting defined commitments.	An ESG with the additional feature that commitments are linked to governance actions that reduce the country's risk premium.
Financial returns (through trading) are linked to the fluctuations in the country's risk premium.	Financial returns are additionally negatively linked, through the probability of repayment reduction, to the achievement of the defined commitments.	Financial returns are linked both negatively (through repayment) and positively (through risk premium reduction) to the achievement of the defined commitments.
Can contribute to the ex-post elevation of country risk, as issuing the bond increases the debt burden.	Can reduce the ex-post increase in risk by providing a possibility to trigger lower repayment.	Additionally incentivising actions that reduce risk by explicitly linking them to reduced repayment.
There is no intrinsic structure that de-risks the bond.	There is no intrinsic structure that de-risks the bond.	The bond has an intrinsic de-risking structure. The risk is reduced just by the country attempting (going half-way) to meet the criteria, even if it does not achieve the stipulated level of success.
No incentives for specific country-level actions.	[Zero Sum] Incentives for country-level actions create a trade-off where benefit to the country is at the expense of creditors or third-party financing.	[Positive Sum] Incentives for country level action can increase returns to the creditors while reducing costs to the country.

GLSBs as a restructuring instrument should, for pareto improving features and the reasons set out above, be preferable not only to typical ESG bonds but also to restructuring exclusively with PVBs.

Exhibit 10: Possibility of achieving a pareto improvement with GLSB

		Payoffs on standard ESG Bond	Payoffs on Governance Linked ESG Bond
S1: Underlying criteria **not** achieved*	Bondholder	**No-Change:** The ESG operates as a plain vanilla bond	**No-Change:** The ESG operates as a plain vanilla bond
	Country	**No-Change:** The ESG operates as a plain vanilla bond	**No-Change:** The ESG operates as a plain vanilla bond
S2: Underlying criteria achieved**	Bondholder	**Reduce:** The NPV of the bond falls with a coupon step-down	**Improve:** The NPV of the bond increases even with a coupon step-down***
	Country	**Improve:** State expenditure reduces with a coupon step-down	**Improve:** State expenditure reduces with a coupon step-down

Assuming no coupon step-up | **Assuming a one-time coupon step-down * the price increase comparison should be against a PVB with no de-risking.*

Containing The Free Rider Problem in Introducing a GLSB

The free-rider problem arises in cases of positive externalities resulting from the actions of others, where individuals that are not party to a decision or transaction derive a benefit that is not taken into account within the decision or transaction.

- The holders of the PVBs from the same country will have a positive externality whenever a GLSB is created for that country. They benefit from the increased probability of improvements in governance incentivised through the GLSB, thereby de-risking the PVBs as well, without having to make a payment (accept a coupon step-down) if the governance criteria are met.
- This is an important consideration since, in a restructuring scenario, this can give rise to the free rider problem. Individuals will have an incentive to opt into only accepting PVBs, provided an adequate number of others are accepting the GLSB, if the take-up of the GLSB is made purely voluntary.
- Therefore, a restructuring scenario should consider (a) restructuring all bonds as GLSBs instead of PVBs or (b) pairing GLSBs and PVBs in a fixed ratio across all restructured bondholders, such as a 75:25 ratio of PVBs to GLSBs. Given that the GLSB is presently a novel instrument, option (b) is a more practical approach.

An Alternative Ternary Structure for GLSB

The structure detailed above refers to a simple two-state (binary) evaluation. In this binary evaluation structure, the coupon step-down below the level of the PVB is triggered only if all the governance criteria are met. There is no evaluation of partial success.

A ternary three-state evaluation, which includes the case of "partial success", could be more suitable to sustain incentives even when some criteria are irrevocably missed. This approach would award a partial coupon step-down contingent on the partial fulfilment of the governance criteria.

The ternary structure has the benefit of avoiding an all-or-nothing outcome from the country's perspective; especially if there are a significant number of governance criteria. In a case where the number of criteria is large, it would be sensible for the country to have additional incentives to continue to achieve other governance criteria, even if it becomes evident in the initial years leading up to the evaluation on t_g that a few criteria have been irrevocably missed. This would lead to a modified definition of the states as follows:

- State S1 is where less than the minimum benchmark level of the criteria is met by t_g, in which case the coupon c_1 after that date is the same as for the PVB until maturity.
- State S2 is where all the criteria are met by t_g, in which case the maximum reduced coupon c_2, (which is a step-down from c_1) is applied for the remaining period until maturity.
- State S3 is where all the criteria are not met, but at least the minimum benchmark level of the criteria is met by t_g. In this scenario, a moderately reduced coupon c_3, which is a step-down from c_1, but higher than c_2, is applied for the remaining period until maturity.

Annex 1: Bond Holder support for A GLSB

A less-technical version of the GLSB set out in this paper was proposed to Sri Lankan bondholders as a novel instrument to be considered in Sri Lanka's restructuring efforts. This version of the paper included 15 governance criteria as potential benchmarks to trigger the coupon step-down. These 15 conditions were drawn from the 2024 IMF programme structural benchmarks[5] on governance and certain recommendations from the IMF Governance Diagnostic Assessment for Sri Lanka.[6]

Sri Lanka's bondholders have now included it as part of their third restructuring proposal to Sri Lanka [7] (See Exhibit 7). The bondholders have grouped the targets into qualitative and quantitative targets and enumerated them with several of the targets set out in the proposal submitted to bondholders. They have also left open the finalisation of the targets to the negotiation process.

Exhibit 11: Extracts from the third bondholder proposal

Overview of GLB key proposed features (1/2)

- ⇨ **Including an ESG component to the debt treatment agreement,** focusing on governance aspects, and mimicking the structure of Sustainability-Linked bonds (applicable to non-MLB instruments, with target size of $500m to $1bn)
- ⇨ **Governance-linked bond as an efficient incentive for the authorities to improve governance and reduce corruption vulnerability**, benefitting both the country and bondholders
- ⇨ **Coupon step down structure, with single adjustment triggered** in case all indicators meet performance targets at a specific date
- ⇨ **Final structure to be refined in good faith and in close coordination with the Sri Lankan authorities**

1 **Selected performance indicators**	▪ **Set of transparent and easily measurable governance criteria** ▪ **GLB adjustment based on [2] Key Performance Indicators (KPIs)**, including ▫ 1 quantitative target: government tax revenue-to-GDP ▫ 1 qualitative target: based on IMF program commitments, to be discussed *(see next page)*
2 **Measurement date**	▪ **Aligned on MLB**: H1-2028, based on performance in [2026 or 2027]
3 **Adjustment date**	▪ **Downward coupon adjustment** potentially **triggered in [June] 2028** if both targets met
4 **Test & coupon adjustment mechanism**	▪ **[50] bps downward coupon adjustment** if both targets are met
5 **External party assessment**	▪ **External review by independent entity** (Moody's ESG Solutions, Sustainalytics, …)

1

Overview of GLB key proposed features (2/2)

GLB structured based on 2 Key Performance Indicators (KPIs)

⇨ **The coupon step-down would be activated if all of [two] KPIs are successfully met,** including one "quantitative" KPI and one "qualitative" reform target

1

KPI #1

Quantitative

⇨ **Tax revenue-to-GDP ratio for [2026] or [2027][1]**

- For reference, IMF program tax revenue-to-GDP target: 14.0% in 2026 and 14.1% in 2027

2

KPI #2

Qualitative

⇨ **Selected reforms envisaged under the current IMF program ("Structural Benchmarks"), in particular:**

- **Publication of public procurement contracts**: publish online semi-annually all public procurement contracts above Rs. 1 billion, along with comprehensive information in a searchable format on contract award winners, is confirmed by IMF reviews as met with at least 4 satisfactory semi-annual updates after the first date of publication, being confirmed as met by IMF reviews by end 2026.
- **Publication of information on tax exemptions:** publish online semi-annually a list of all firms receiving tax exemptions through various legal provisions, alongside the estimation of the value of the tax exemption, is confirmed by IMF reviews as met with at least 4 semi-annual updates after the first date of publication, being confirmed as met by IMF reviews by end 2026.

- **The Sri Lanka Authorities may also suggest their own governance targets, along with their associated measurement and verification method**, to be subsequently discussed with the Steering Committee, so as to define the GLB mutually, in good faith

Endnotes

1 See Manasse, Paolo, and Nouriel Roubini, 2009, "'Rules of Thumb'" for Sovereign Debt Crises," Journal of International Economics, Vol. 78, No. 2, pp. 192–205.

2 Verité Research, "Plenary Session: Sovereign Debt Architecture: Where Are We, and How Did We Get Here?", Presentation pg. 7-8, available at: https://debtcon6.princeton.edu/sites/g/files/toruqf3611/files/documents/20230423_slidesfordebtcon_nishan_de_mel.pdf

3 The average Worldwide Governance Indicator is calculated by taking a simple average of the six sub – components for each country.

4 We are not aware of any instance in which the tradeable value of spin-off benefits, such as carbon credits, has been linked to the tradeable price of the bond. Externally promoted regulatory or reputational incentives on large funds to have a minimum portfolio of ESG bonds could, however, create a positive price premium for such funds as a whole and place an additional value on the bond for that extrinsic purpose, not due to the payoff streams of the bond itself.

5 International Monetary Fund. 'Sri Lanka: Technical Assistance Report - Governance Diagnostic Assessment.' IMF Country Report, 29 Sep. 2023, https://www.imf.org/en/Publications/CR/Issues/2023/09/29/Sri-Lanka-Technical-Assistance-Report-GovernanceDiagnostic-Assessment-539804 [last accessed 25 April 2024]

6 The proposal shared with the international bondholders: Verité Research, "Proposal for a Governance-Linked Bond in Restructuring Sri Lanka's Debt (Version 3)" available at: https://www.veriteresearch.org/publication/governance-linked-bond/ [last accessed 25 May 2024].

7 Ministry of Finance Sri Lanka 'Sri Lanka announces conclusion of initial restricted discussions with members of the Ad Hoc Group of Bondholders' 16 April 2024 at https://www.treasury.gov.lk/api/file/bdfd5073-3639-4c0b-bcda-a52d85e33daa [last accessed 25 April 2024]