IDA in the debt crisis: Exploring feasible deals through comparability of treatments and new loans

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Executive summary

Several low-income and lower-middle income countries with access to concessional World Bank financing are now negotiating a debt restructuring program[1], which entails the sharing of losses by the different creditors. The goal of this note is to estimate the size of losses, at the current juncture of the debt crisis, and how they can be distributed among the different types of creditors.

We also consider how the MDB system can play a more prominent role in this context. There have been suggestions to put MDB's preferred creditor status in question. In this paper, which focuses on the role of IDA, we propose instead to view its participation as providing new loans and estimate a possible envelope. We start by identifying countries that require debt restructuring and estimate the amount of debt reduction needed to bring them back to a sustainable path. In a second step, we distribute financial contributions across creditors. One contribution of this paper is to propose alternative approaches to Comparability of Treatment: not only as proportional reduction in present value claims, but by requesting a higher contribution from non-concessional lenders.

Focusing on the 73 IDA clients, our results show that, under a set of simple assumptions, 19 to 23 countries will need some kind of debt restructuring to bring back the present value of public debt to levels which can be considered as sustainable. Total face value of debt varies between $230 billion and $374 billion, and we estimate that the total reduction needed in present value stands between $31 and $76 billion. Those are large, but manageable numbers. The key question is thus: how to split those losses? MDBs is the largest creditor group in stocks, followed by the private sector and China, but their loans are much more concessional. How can this be taken into account?

We then estimate the distribution of the burden of debt reduction, including IDA's share, according to three different Comparability of treatment rules. Comparability of treatment aims at ensuring that all participating creditors should be treated similarly. A traditional interpretation of this term seeks to apply haircuts among creditors on the basis of the distribution of their debt's present value. While we accept this line of reasoning, we believe however that this is not sufficient, especially in the context of poorer countries where the range of grant elements among creditors is very large.

We thus develop new *fair* rules for comparability of treatment, which we think is needed when countries obtained loans with a wide range of concessionality levels or even taking into account past grants. The goal is to equalize the level of concessionality after debt restructuring, thus requesting larger losses from less concessional lenders.

In this scenario, what would be the appropriate financial contributions from IDA? We estimate that support to its clients with new flows would require and additional credit allocation of $1.5 billion / year over the next three years under a "fair burden sharing" scenario, a manageable effort, equivalent to 20% of the normal country allocation scenario.

[1] This version is a slightly updated compared to the previous one and includes an analysis of IDA's contributions when considering its grants activities

1. Context and goals

Several low-income and lower-middle income countries, which have access to funds from the International Development Association (IDA), the World Bank's concessional arm, are now negotiating a debt restructuring programme. Debt treatment often entails questions around how to share losses across different creditor groups. Multilateral Development Banks (MDBs) are large official lenders to developing countries, but they have in general retained a "Preferred Creditor Treatment" (PCT), a widely accepted status which contends that MDBs are given priority for repayment of debt in the event of a borrower experiencing financial stress.

In many cases, MDBs are the largest creditor group of several developing countries. It has thus been suggested that they should also accept to bear part of the burden of debt losses, given their high exposure. There are strong arguments to protect Preferred Creditor Status (PCS): it is justified because MDBs tend to lend for development, and not profit-making purposes. They do not charge risk premia, and in fact lend despite high risks. They also lend at low rates, even highly concessional conditions in the case of IDA (or its equivalents such as the African Development Fund). In all cases, the rates they offer are well below those of markets, and often below those of non-concessional bilateral loans. In fact, MDBs can lend at such low rates because they themselves are financed at low rates which they raise on markets, based on their PCS.

While this has been the subject of fierce debates, the distinction between the position for "loss-taking" MDBs and PCS absolutists might be less stark than what appears. This paper takes a "pragmatic" position in between, premised on a simple point: if money is fungible, then the difference between refinancing new loans and taking losses on old ones is a matter of degree, not nature. IDA, in particular, provides a share or all its country allocations in the form of grants (for high debt countries under a certain income threshold), which can be seen as a sort of "pre-emptive debt relief". Indeed, if aid money is fungible, a grant can be allocated to repaying other creditors. If it is not, for instance if the grant is dedicated to a specific project, it is reasonable to think that the government might have dedicated some budget to this project.

In the case of countries in a restructuring process, the key question is one of provision of financing assurances, which come under two possible buckets: debt restructuring and new financing. Both these buckets can then be allocated across creditors, under differentiated financial terms. This paper provides a simple accounting: under simple criterions of re-establishing debt sustainability, what are the conditions under which IDA can increase its participation?

The goal of this note is to estimate the size of losses, at the current juncture of the debt crisis, and how they can be distributed among the different types of creditors. Not unlike Tolstoy's unhappy families, all distressed countries are different. However, a global picture of the restructuring needs is useful, and we therefore make simplifying assumptions to find how many countries might restructure in the near future and by how much. The first section of this paper presents those scenarios. In the second part, we develop allocation rules for financial contributions, whether under the form of haircuts or new flows. To achieve this result, we have also developed a new

Comparability of Treatment rule which, we argue, is more adapted to the environment of poor countries. Finally, we compare how much financial contributions IDA and other creditors would have to bear under different rules. We also estimate what shape these contributions could take for IDA: what would be the consequences of providing those assurances with new flows as opposed to outright haircuts?

2. Debt sustainability & Debt Restructurings: a look at IDA countries

We start by identifying countries that require debt restructuring and estimate the amount of debt reduction needed to bring them back to a sustainable path. As a second step, we distributed the losses across creditors according to two Comparability of Treatment (CoT) rules.

Our assessment of Debt Sustainability relies on the IMF-WB Low Income Country Debt Sustainability Framework (LIC-DSF). This methodology defines the perimeter of debts to be restructured, and then evaluates if a country's debt is sustainable in future, using solvency and liquidity criteria, based on its characteristics[2]. Based on posited thresholds above which the debt ratios enter an unsustainable range, the method allows an assessment of a country's risk of debt unsustainability, which is classified as low, medium, high risk, or in debt distress.

For the sake of simplicity, we will only focus on solvency aspects of sustainability, which are assessed from the debt stock of countries. Because low-income countries have significant concessional borrowings, the LIC-DSF relies on the present value (PV) of debt. To assess the need for restructuring, we will require Public and Publicly Guaranteed (PPG) debt to be below levels consistent with a medium debt carrying capacity, corresponding to a PV of PPG debt to GDP ratio of 40%, and a PV of PPG debt to Exports of 180%. We considered that breaching any of those two indicators would require some debt relief in PV terms, and that this reduction should bring the ratios back to the most stringent of those two indicators. An implication of this approach is that we focus on only one aspects of IMF programs: restoring long term sustainability. Flow treatments are a major part of debt restructuring, including in IMF programs. For simplicity, we abstract those considerations in this paper.

Our focus is on all current IDA eligible countries[3]. We also need to consider the allocation of losses, for which we group creditors in 6 buckets: Private Sector, China, other Non-Paris-Club Official

[2] To evaluate the sustainability of a given country's debt stocks, the methodology first defines a country's Debt Carrying Capacity (DCC). The DCC has three levels – low/medium/high - derived from a linear combination of a series of indicators, including CPIA, reserves, remittances, country and global growth. Depending on the DCC level, the PV of PPG debt ratios (on GDP and on exports) deemed sustainable change: the thresholds are 30/40/50% and 140/180/240% respectively.

[3] Full list here. Note that our data focuses on all countries listed as IDA eligible as of early 2023. In practice, IDS data that we used dates back at the latest in 2021, data at which Sri Lanka was not yet considered IDA eligible. There are therefore differences between IDS provided information on 'IDA total' that entails all IDA eligible countries.

Creditors, Paris-Club Official, IDA, and other Multilaterals. Debt in present value terms is usually not available in PPG terms[4]: to compute it from World Bank's IDS data, we compute the grant element associated with each group (see the annex for details on data sources and methodology). We then computed the PV of each debtor PPG debt stock, and derived two solvency ratios: the PV of PPG debt to GDP, and to exports.

Box 1: IDA : Grants and Credit Lending Terms

IDA eligibility relies upon a country's relative poverty (proxied by its GNI per capita). Countries below the IDA threshold (of $1255 GNI per capita in 2023) are categorised as regular eligible countries. Countries with population below 1.5m are considered as "small states". Countries above the IDA threshold which are not considered as "creditworthy" by the IBRD remain eligible to IDA as 'gap' countries. Some countries, such as Nigeria and Pakistan, are IDA-eligible based on per capita income levels and are also creditworthy for some IBRD borrowing. They are referred to as "blend" countries.

For countries below the IDA income threshold (based on IMF-WB DSF). Countries at high risk or in debt distress (red light), receive their allocation entirely as grants. Countries at medium risk (yellow light), received their allocation with 50% as grants and 50% as credit. Since the last IDA replenishment, these countries receive their entire allocation from a 50-year credit. For other countries (green light), the allocation is only provided as credit. Countries above the income threshold receive their allocation entirely in credits, regardless of their assessed risk.

IDA lending terms vary from group to group and are presented in the table below. Note that the variety of maturity/interest rate(s)/grace period, implies a variety of Grant Element as illustrated in the last line of the table.

Lending Type	Maturity	Grace P.	Int. Rate (SDR)	Principal Repayment		Grant El.
Small Econ.	40	10	0.75%	2% (y11:20)	4% (y21:40)	62%
Regular	38	6	0.75%	3.125% (y 7:38)		54%
Blend	30	5	2.00%	3.3% (y6:25)	6.8% (y26:30)	36%

Based on our estimates of PV levels of PPG debt, we find that debt reduction would be needed in 19 countries (the "DR19"). It is important to caveat that this is a blunt estimate, relying on a simplified assessment (proper IMF Debt Sustainability Analyses make these determinations based on a range of fine-grained forward-looking scenarios). The results should thus not be taken too literally for any given country.

- **Regular IDA** - Ethiopia, The Gambia, Guinea Bissau, Mozambique, Somalia, Sudan;
- **Blend countries** - Kenya, Lao PDR, Pakistan, Sri Lanka, Zambia; and
- **Small Economies** - Bhutan, Cabo Verde, Djibouti, Dominica, Maldives, Samoa, Sao Tome & Principe, St Vincent & The Grenadines.

[4] IDS provides data on total external debt In PV terms, but not PPG only.

In total, PPG debt of these countries is $260.9b, of which $65.8b is owed to the private sector, $60.1b to China, $48.1b to IDA, and $43.7 to other MDB (of which $3.0b to IBRD). The Paris Club represents $27.7b and non-Paris Club countries $15.6b. With our simple criteria, overall (in PV), a total of $30.6bn of debt needs to be reduced.[5]

An upper limit

An immediate caveat is that PPG debt in IDS tends to be severely underestimated. Various forms of "hidden" debt tend to be discovered several years later, and especially during crises, debt defaults, or IMF programs (Horn et al. 2023). We thus provide an upper bound by making the assumption that external debt stock could be underestimated by 40%.

For instance, Zambia presented an example where external debt stocks as recorded in IDS were underestimated. An additional $4bn of debt was discovered during the default compared to IDS in previous year. The main creditors were China, the private sector and other non-PC bilaterals. This represents a 40% underestimation of these creditors' debt stocks.

To mitigate the risk of underestimating the cost of debt restructuring, we develop a "high case scenario" by increasing debt stocks recorded in IDS by 40% for these creditors (IDS+). We recalculate the debt ratios for all countries, and now find that debt reduction is needed in 23 countries (the "DR23"). The additional countries are three blend countries (Congo Rep., Ghana, and Senegal), and one small economy (Tonga).

The total Debt for these 23 countries is $374.7bn, of which $126.1bn to the private sector, $88.7b to China, $56.3b to IDA, $49b to non-IDA MDBs, $30.5b to PC countries, and $24b to non-PC countries. In present value terms, a total amount of $75.7b needs to be reduced (DR19 countries represent $65.7b of this amount, new countries $10b). Tables A1 to A4 in the annex detail the information available in the aggregate for country groups by IDA lending type.

[5] For Zambia, we use data on debt stocks from the recent debt reconciliation exercise, and not from IDS.

Table 1: Descriptive Statistics

Country group	Average PV Ratios		2021 FV Debt Stocks							Average Debt Haircut	*Needed Debt Reduction*
	PPG to GDP	PPG to X	Total	Private	China	No-PC	PC	IDA	other MDBs		
			IDS data								
All countries	24.2%	122.9%	628	149	104	35.8	73.3	137.1	128.5	21.7%	***30.6***
DR19	37.3%	206.0%	261	66	60	15.6	27.7	48.1	43.7	21.7%	***30.6***
			IDS+ revised data (+40% scenario)								
All countries	28.9%	149.1%	744	209	146	50.1	73.3	137.1	128.5	21.7%	***75.7***
DR23	46.9%	255.6%	375	126	89	24.1	30.5	56.3	49.0	31.7%	***75.7***
			Focus on Zambia								
O/w Zambia	66.4%	119.9%	16.5	6	5.9	0.7	1.3	1.4	1.3	44.0%	***6.6***

Source: World Bank IDS – Author's calculations

We now have, under strong but workable assumptions, estimates of debt reduction needed for IDA clients. How they should be allocated is the topic for next section.

3. Comparability of treatment and concessionality

The allocation of losses is generally done through the principle of "Comparability of Treatment" (COT). The Paris Club indeed requires a debtor country to seek "comparable terms" from private and non-Paris club bilateral creditors. In practice, "factors for assessing comparability include, for each type of creditor, changes in nominal debt service, net present value and duration of the restructured debt." In our case, and in line with the first section which focuses on present value terms, we only consider COT from the point of view of NPV reduction.

To compute NPV reductions, we rely on concessionality levels. As defined by the OECD-DAC, the degree of concessionality of a loan is measured by its grant element, which is the difference between the loan's nominal value (face value) and the sum of the discounted future debt-service payments to be made by the borrower (present value), expressed as a percentage of the loan's face value. Whenever the interest rate charged for a loan is lower than the discount rate, the present value of the debt is smaller than its face value, with the difference reflecting the (positive) grant element of the loan. In most computations, a discount factor of 5% is chosen.

Comparability of Treatment aims at ensuring that all participating creditors should be treated similarly (Rivetti 2022). Recent authors have suggested to simplify the evaluation of COT by relying on NPV reduction with a common discount factor (Lazard 2022, World Bank 2023). One argument is that debt payments are accelerated, and must be considered as due when DR is computed, and thus, debt should be evaluated at face value. This results in considering haircuts for all creditors based on the necessary effort in PV relative to creditors' current face value. The other view is that different debt instruments entail varying costs over the future, depending on their concessionality, and that as a result, it is fairer to apply haircuts among creditors on the basis of the distribution of their debt's

PV. While we accept this line of reasoning, we believe however that this is not sufficient, especially in the context of poorer countries where the range of grant elements among creditors is very large.

To illustrate, consider two loans, both of $100, one with no grant element (GE), and one with a 50% GE. Let us examine how different CoT rules would distribute a 60% DR. A face value method would demand $60 of loss from each instrument. A PV approach would demand $60 of the first, and $30 of the second. This is fairer, but we argue, not fair enough. The concessional loan is in fact a loan of $50 with no grant element, and a grant of $50. The PV rule takes the first but not second element into account. If the grant part however is considered as an advance on debt reduction, then the required loss would be only $10. Another argument in favor of such treatment is not related to fairness, but to risk premia. A more expensive loan is one which embeds a higher risk premium, and should thus bear a higher share of the risk.

To operationalize our "fair COT", we rank creditor groups according to their grant elements. As long as the grant element is above that of the next creditor group, only the least concessional would bear losses. Once losses for the first creditor group are so large that the terms become more concessional than the terms of the second most "generous" creditor group, losses are shared by the next group. Debt reduction will in the end converge towards a new average final level of concessionality, corresponding to the needed global effort to get the country back to sustainable levels. All creditors are thus required to converge to a similar minimum level of concessionality. Creditors the furthest away from this targeted average will bear the largest effort. Similarly, if a creditor is already more concessional than the average, while its required effort will be smaller.

As accounting for grant elements enables to delve deeper into issues of relative concessionality and fairness, we develop an "extra-fair COT" through which we account for the fact that some creditors committed to delivering grants rather than concessional credits. Considering a creditor's past grants valued in present time will mechanically increase its effective grant element[6]. Hence accounting for past grants is equivalent to defining new levels of concessionality and of debt stocks[7].

Table 2: Average Grant Element of different creditors

	Private	China	Non-PC	PC	Other MDBs	IDA	IDA (Grant Adj.)
All IDA countries	0	21.1	27.1	38.6	35.7	45.0	57.9
DR19	0	17.0	22.1	36.1	36.1	42.7	54.4
DR23	0	17.7	21.6	36.4	36.7	42.9	53.6

[6] We consider time series of past grants commitments between 2010 and 2021 and actualize historical values with a 5% discount factor. The actualized value of past grants is then counted as extra FV stock that leave the PV of existing debt unchanged, thus increasing the grant element.

[7] In this policy note, as a first run, we only apply this methodology to IDA. Accounting for other grants would tend to have an important effect on other MDBs and PC countries which are large bilateral grant providers. This would increase the amounts of debt reduction for other creditor groups.

Source: World Bank IDS – Author's calculations

3.A. Results for rule 1

Excluding Zambia, there is a need for a total debt reduction of $24.1b – an average haircut of 20.5% in PV, which each creditor type shares equally.[8] In the extended scenario, total debt reduction amounts to $69.1b – an average haircut of 31.1%. Losses are here proportional to the distribution of debt across creditors in each country, with the larger creditors taking a larger hit. Private lenders end up with the larger bill, followed by China, other MDBs, and then IDA. IDA's financial contribution would remain between $3.6 and $8b.

Table 3. Distribution of haircuts under CoT rule 1 – Aggregate Results

$mn	PV DR	Private	China	Non-PC	PC	other MDBs	IDA
Zambia	6561	1320	2440	275	503	307	335
DR19 (excl. ZMB)	24078	7502	5334	2272	1899	3850	3220
DR23 (excl. ZMB)	74514	29080	167413	5916	6225	8221	7659

Table 7 detail the results on a country basis. The largest possible losses for IDA re in Zambia and Pakistan. Indeed, the largest part of losses resides in the blend countries. While these countries end up with lower haircuts (see table 1), their significantly larger debt stocks (nearly two thirds of the debt of countries with unsustainable debt) implies a need for larger debt stock reductions.
Source: World Bank IDS – Author's calculations

3.B. Results for Rule 2

Under our "fair COT", total loss is not changed: it just changes the allocation rule. The fair CoT rule does not distribute this equally among creditors. The distribution of haircut now depends not just on debt distribution, but importantly, on the initial concessionality of each creditor's loans. This advantages IDA, but it also reduces the amount of losses attributed to bilateral lenders (and China) and it pushes more of the losses to the private sector. In the base case, private lenders now bear more than half of total losses, while with the previous rule, they bore less than a third. IDA (and other MDBs) only gets affected in a few cases – when debt is augmented, and in countries where it has a relatively larger exposure.

The results in Table 4 are based on a country-by-country estimate of the distribution of losses among creditors. On average, across countries, the post restructuring concessional rate reached by restructuring creditors varies across countries, but on average (across countries), it amounts to 28% (39% in the extended scenario). Again, the large majority of losses comes from the blend countries.

Overall, IDA's additional financial contributions ranging between $400m and $979m, much lower than under rule 1 - about 8 times less. Annex table 6 details the results on a country basis. There are potentially large possible contributions for IDA (more than $100m) in many countries, including not just Zambia and Pakistan, but also Lao, Senegal, Sri Lanka, Ghana, Kenya, Sudan, Ethiopia and

[8] We compute, country by country, the haircut for each creditor and then sum over all countries.

Bhutan. But in all cases, these losses are relatively small compared to IDA normal country allocations - either less, or in the worst cases, of the same order of magnitude.

Table 4. Distribution of haircuts under CoT rule 2 – Aggregate Results

(in PV)	Total Haircut	Haircuts by creditor in PV ($ mn)							Haircuts by Creditor (in%)					
		Priv.	China	No PC	PC	Oth MDB	IDA		Priv.	China	No PC	PC	Oth MDB	IDA
Zambia	6558	1845	3274	358	631	216	234		61%	59%	57%	55%	31%	31%
DR19 (exZMB)	24077	15983	5190	1789	493	456	166		26%	12%	16%	3%	2%	1%
DR23 (exZMB)	69125	42033	16831	5495	1581	2441	744		38%	26%	31%	6%	8%	3%

Source: World Bank IDS – Author's calculations

3.C. Results for Rule 3

Under our "extra-fair COT", total loss is not changed. Given IDA's now higher grant elements, the main change with respect to COT rule 2, is a slightly lower participation to the efforts. Note that the results for Zambia do not change as the country didn't receive any grants in the past ten years. Table 5 below presents the results aggregated over country estimates.

In this scenario, we focus on grants provided by IDA, and we will integrate bilateral grants in a future paper. As a result, estimated concessionality of IDA's financial participation increases. In our "fair" approach, this implies that IDA will participate less in restructuring, and other actors more. IDA's contributions would indeed fall by around $140mn to $300mn in cases DR19 and DR23 compared to our initial "fair scenario". (respectively 80% and 40%). In turn, there is a small increase in the participation of other creditors, by less than 4% for all except Paris Club creditors. In a future iteration, integrating bilateral grants would also reduce PC's participation.

Table 5. Distribution of haircuts under CoT rule 3 – Aggregate Results

(in PV)	Total Haircut	Haircuts by creditor in PV ($ mn)							Haircuts by Creditor (in%)					
		Priv.	China	No PC	PC	Oth MDB	IDA		Priv.	China	No PC	PC	Oth MDB	IDA
Zambia	6558	1845	3274	358	631	216	234		61%	59%	57%	55%	31%	31%
DR19 (exZMB)	24077	15995	5198	1853	634	369	29		26%	12%	16%	4%	6%	0%
DR23 (exZMB)	69125	42124	16905	5551	1589	2510	444		38%	26%	31%	6%	8%	2%

Source: World Bank IDS – Author's calculations

In sum, the estimates of IDA's possible contribution we have reached, in today's environment, amount somewhere between $270m and $7b. These are, in the big picture, a relatively modest amount compared to IDA's loan portfolio of $180b. The way this is done would however constitute a precedent, which would apply to more cases if the debt crisis were to further deteriorate. This

remains a possibility should the trends in debt service deteriorate more over time, a possibility if the current context of financial conditions tightening continues (IMF 2023).

4. New IDA loans

How should MDBs contribute to these deals? The most straightforward interpretation of our calculation would be to accept haircut but as described above, this goes against practice and possibly the ability of IDA of remaining a major contributor to development. Those financial contributions could also be delivered in the form of new additional flows. The communiqué of the Global Sovereign Debt Roundtable held in April 2023 suggested that this could be a possible consensus among global players, and our approach provides a possible yardstick to estimate the magnitude of those new flows.

Instead of haircuts, those new flows could be provided in the following way: over three years, IDA would, in addition to its allocation, offer new concessional credit equivalent (in present value) to the amount of losses it needs to bear.

To illustrate this, consider the case of Zambia. The current IDA allocation to Zambia is $182m a year. In the recent past, it has been receiving this amount in the form of a concessional loan with a grant element of around 36%. In the fair CoT method, IDA should provide Zambia an additional $234m in grant equivalent, or $78m per year over three years, which is equivalent of an additional credit of $122m per year (with a 36% grant element). For the three years, IDA would thus be providing 1.7 times its normal allocation to Zambia.

Table 6 summarises the different options in terms of financial contributions that IDA would be facing for all countries that are expected to require debt restructuring under the four types of scenarios - DR19 and DR23, using the fair and unfair CoT rules. It proposes two approaches: haircuts (or "losses") and new loans.

Overall, and over the three years, IDA would need to extend new concessional loans ranging from $771m to $1.7b if the fair CoT rule is used, and from $6.1b to $14.5b if the unfair one is used. In the aggregate, the extra loans that need to be provided for three years are relatively small in comparison to the normal IDA allocation, between 18% in the most favourable case, to 38% in the worst case.

Table 6 Aggregate IDA financial contributions under our four scenarios

($ billion)	# counties impacted	IDA Alloc. /y	IDA Losses	Losses as loans	Extra loans/y
DR19					
Fair CoT	7	1.4	0.4	0.8	0.3
Extra-fair CoT	3	0.9	0.26	0.4	0.1
Unfair CoT	19	11.1	3.6	6.1	2.0
DR23					

Fair CoT	8	4.2	1.0	1.7	0.6
Extra-fair CoT	6	3.7	0.7	1.1	0.4
Unfair CoT	23	12.7	7.7	14.5	4.8

Source: World Bank IDS - WB IDA – Author's calculations

Annex tables 6 and 7 provide the results at the country level, for the fair and unfair rules. The first three columns give, IDA lending type, estimates of IDA yearly allocation, and the loss that needs to be taken.[9] The next three columns then detail how the losses should be distributed in PV over three years, the FV equivalent given lending type concessionality, and by how much this would imply multiplying IDA allocation for three years.

The fair CoT rule scenarios entail only moderate increases in IDA loan allocation in all the countries involved. On average, in the DR19 scenario, loans have to rise by 15% over normal country allocations for three years, and a 19% increase under DR23. Only in five cases do the new loans amount to more than 25% of the country's IDA allocation (3 out of 7 in DR19 and 2 out of 8 in DR23). The maximum increase is of 44%. Under the extra-fair CoT rule, IDA's contributions in country allocations would be minimal: excluding Zambia, credits would increase on average loans by 6.5% under DR19 and by 12% under DR23.

If the unfair CoT rule is used, IDA losses rise, and so does the new lending required. In the DR19 scenario, for 8 countries (out of a total of now 19 countries) new required flows represents an increase over the normal IDA allocation above 25% (with a maximum of +51%). Under DR23, for 14 out of 23 countries, the new required flows are above 25% of IDA allocation, and in 5 cases they are above 50% (the maximum is in Sri Lanka, with +90%).

Conclusion: a possible way forward

The debt crisis Is here to stay. It could Impair growth for the next decade, and requires swift action. The multilateral system can play a role, but to properly allocate efforts, one has to have a clear Idea of how to determine the quantum of contributions and Its Implementation. MDB losses are Inefficient, and unfair, especially when considering concessional loans. Our framework offers a simple way to propose new loans In a fair manner. While actual numbers will depend on each country situations, overall the additional resources to IDA for debt-restructuring countries will be reasonable, especially If offered with new credits.

[9] The IDA allocation is computed as the maximum IDA commitment between IDA18 and IDA19 (that is respectively over fiscal years 2018/19/20 and 2021/22/23) –divided by 3.

Annex

1. FAIR COMPARABILITY OF TREAMENT - FORMULAE

■ Concepts, Definitions & Model Setup

Debt10 restructuring with a pool of different creditors is a multidimensional problem as it must consider the fact that creditors hold various Face Value debt stocks, at various interest rates, maturity (and even grace periods). That is the problem considers a set of debt stocks defined in quantity and in concessionality.

Concessionality is a concept that encompasses the difference between the present value of what the debtor will have to repay relative to the face value that the debt stock represents in present time. The present value of a debt stock denotes the sum of future interest payments and principal repayments (i.e. total debt service) that are expected given the lending of an initial face value of debt. Future debt service must be expressed in today's value (for comparability with face value), that is discounting all future flows with a given discount factor (here taken at 5%). Given this discount factor, the present value is therefore derived from (i) the maturity of each lending, (ii) the interest rate applied on the coupon, and (iii) any grace period if there are.11

Concessionality as captured by the grant element, which is defined as the share of the Face Value of the Debt Stock that is not considered as repaid in Present Value term.
Given the discount Factor DF, for a creditor C having lent a debt stock to the debtor D, with face value FV, present value PV, interest rate i, maturity M, grace period GP, and grant element GE, we can define the following accounting equations:

$$FV = D$$

[10] Debt can conceptually be described as, on one side, a commitment by a creditor of a quantity of liquidity made available to disbursements by a debtor at signature date, and on the other side, a calendar of repayment that details the flows from the debtor to the creditor that will ensure that in the years following the signature, the creditor recovers the amount of the principal it lent as well as interest payments that account for the creditors return of making the liquidity available to the debtor (incl. premia). This calendar has a length equal to the maturity of the debt (and, in case of grace period, including this additional time extension), and a width of two as it details (i) the interest payments to be made over the scope of lending and (ii) principal repayments.
[11] Grace periods postpone the start of repaying principal.

$$PV = \sum_{t=1}^{M+GP} \frac{(Principal\ Repayment + Interest\ Payment)_t}{(1 + Discount\ Factor)^t}$$

$$PV = \sum_{t=1}^{M+GP} \frac{Repaym_t + i_t \,.\, D}{1{,}05^t}$$

$$Repaym_t = \begin{cases} 0 & if\ 0 < t \leq GP \\ \dfrac{D}{M - GP} & if\ GP < t \leq M \end{cases}$$

$$PV = f(i, M, GP \mid DF) \,.\, D = f(i, M, GP \mid DF) \,.\, FV$$

f (i,m,gp|rest) is a increasing function of the interest rate: the larger the interest rate the more interest to be repaid in the future, the larger the PV. The longer the maturity, the more spread are the repayments, Given the discount factor, this entails that the principal repayment discounted value in today's value will be lower).

$$GE = \frac{FV - PV}{FV}$$

$$GE = 1 - \frac{PV}{FV}$$

$$PV = (1 - GE) \,.\, FV$$

$$GE = g(i, M, GP) = 1 - f(i, M, GP \mid DF)$$

The grant element is another proxy for concessionality that internalizes the discount factor. GE is a decreasing function of the interest rate. More concessional lending entails smaller interest rates, i.e. smaller future interest payments, and larger grant elements. GE is an increasing function of maturity. Longer maturity, given a 5% DF, entail a smaller PV principal repayment, and hence a greater grant element. GE is an increasing function of the grace period. By postponing repayments in the future, grace periods imply that the future flows will be discounted at a higher discount, and thus will relatively decrease PV, thus increasing the grant element.

The grant element can be understood as, in today's value, the share of the debt that is lent today by the creditor, that will not give rise to future flow backs. It is a fraction of the initial face value of the debt stock, that the creditor agrees to donate (grant) to the debtor.
Hence the grant element associated to each creditor encompasses three dimensions previously mentioned: interest rate, maturity & grace period.
In other words, concessional debts make for only a fraction of current face value stocks. Non-concessional lenders

Now consider a case with a set $\mathbb{C}$ of creditors, each characterized by a pair (FV, GE). Thanks to equation 7, that is equivalent to considering the problem when characterizing the creditors given (GE, PV).

$$\forall\, i \in \mathbb{N}\,;\; C_i = \{FV_i;\; GE_i\} = \{FV_i;\; PV_i\} = \{PV_i;\; GE_i\}$$
$$|\; PV_i = (1 - GE_i)\,.\; FV_i$$

Considering, for one debtor, all creditors, we have that:

$$FV = \sum_{\mathbb{C}} FV_i$$

$$PV = \sum_{\mathbb{C}} PV_i$$

The average Grant Element derives from $GE = 1 - \frac{PV}{FV}$. It can also be reconstructed as a weighted average of creditor Grant Elements. Let us now rank the creditors from the less concessional to the most one.

$$\forall (i,j) \in \mathbb{C}^2\,;\; i < j \leftrightarrow GE_i < GE_j$$

Consider a debtor, whose latest DSA reveals that its debt is unsustainable, that needs undergoing a Debt Restructuring DR characterized by a haircut in present value of R. Denoting with X^*, variables post-DR, we have that:

$$PV^* = PV - R$$

Among the creditors, denote by $\mathbb{R}$ the subset of creditors participating in the DR and taking PV haircuts, and by $\mathbb{N}$ the set of creditors that do not take a haircut.

We now detail the different allocation rules between $\mathbb{R}$ and $\mathbb{N}$ based on the underlying concept of Comparability of Treatment:

- **'Unfair' CoT – Present Value Based**

We consider in the first rule that all creditors participate to the DR proportional to their share in the FV.

$$\mathbb{R} = \mathbb{C}\,;\, \mathbb{N} = \emptyset$$
$$\forall\, i \in \mathbb{R}\,;\, PV^*_i = \kappa^*\, PV$$
$$with\ \kappa^* = \frac{PV^*}{PV}$$

- **'Fair' CoT – Present Value Based**

We consider in the second rule that creditors participate in the DR if taking a haircut implies a lower grant element than the next in line creditor.

First, consider the case when the least concessional creditor can absorb all the haircut such that its post-DR grant element remains below the grant element of the next in line creditor.

$$PV_1^* = PV_1 - R$$
$$(1 - GE_1^*).FV_1 = (1 - GE_1).FV_1 - R$$
$$GE_1^* = \frac{GE_1.FV_1 + R}{FV_1}$$

This post-DR grant element remains below the grant element of creditor 2 as long as the following is true:

$$R \leq (GE_2 - GE_1).FV_1$$

In that case, the haircut $\boldsymbol{h}$ (in PV) that befalls creditor 1 writes:

$$h_1 = 1 - \frac{PV_1^*}{PV_1}$$
$$h_1 = \frac{GE_1^* - GE_1}{1 - GE_1}$$
$$h_1 = \frac{R}{(1 - GE_1).FV_1}$$

Second, consider the case when the last two creditors can absorb the haircut such that their post-DR grant element remains below the grant element of the next in line creditor.

Similarly, we can show that this happens under the following condition:

$$R \leq (GE_3 - GE_1).FV_1 + (GE_3 - GE_2).FV_2$$

The DR is associated with a new grant element GE^* that leads to the following haircuts:

$$GE^* = \frac{GE_1.FV_1 + GE_2.FV_2 + R}{FV_1 + FV_2}$$

$$h_1 = \frac{R + (GE_2 - GE_1).FV_2}{(1 - GE_1).(FV_1 + FV_2)}$$

$$h_2 = \frac{R - (GE_2 - GE_1).FV_1}{(1 - GE_2).(FV_1 + FV_2)}$$

Interestingly, if we interest ourselves to burden sharing among these two creditors, two things stand out:

The share of the debt reduction sunk cost R attributed to each takes into account the fraction of total FV stock restructured that is non-concessional under their own pre-DR view on concessionality.

The contributor with a lower concessionality level needs to contribute more to the effort to account for the fact that, before being on similar concessionality terms as the other more concessional creditor, he has to reach his level of concessionality. Mechanically, this effort must not be supported by the already more concessional creditor that sees his contribution fall to account for this.

Finally, we can generalize by iteration, and derive the following formulae that define the solution to our problem:

For all given aggregate debt reduction amount R,

$$\forall\, R \in \mathbb{R}\ such\ that\ R \leq PV$$

There is a unique number J of creditors that are asked to participate in the Debt Restructuring.

$$\exists! J \in \mathbb{N}\ s.t. \sum_{i \leq J-1} FV_i.\left(GE_J - GE_i\right) < R \leq \sum_{i \leq J} FV_i.\left(GE_{J+1} - GE_i\right)$$

$$J \equiv card(\mathbb{R}) \propto \mathbb{R} = [\![1; J]\!]$$

DR will entail that all creditors from $\mathbb{C}$ participate in the effort such that they increase their concessionality post-level to a similar level GE^*:

$$GE^* = \frac{R + \sum_{i \leq J} GE_i.FV_i}{\sum_{i \leq J} FV_i}$$

In practice the previous equation illustrates that, for all participating creditors, they now participate in the general concessionality effort based upon their pre-DR effort and an additional burden sharing that allows absorbing debt reduction costs. The new concessionality level

for these creditors is a FV weighted average of their pre-DR concessionality efforts and an evenly distributed share of the debt reduction costs relative to their contribution to the FV stock.

In other terms, all creditor participating in the DR agree to exchanging their coupons against a common coupon associated with the same grant equivalent. As proven earlier, the grant element is a function of the interest rate, the maturity and possible grace periods. Therefore, even if creditors must settle on the same grant level, they can choose among various debt instruments: some can have similar interest rates but over new maturities, others can agree on any combination that respects equation 9 taken at the DR level.

$$\forall GE^*, \exists (i^*, M^*, GP^*) \in \mathbb{R} * \mathbb{N}^2 \; such \; that, GE^* = g(i^*, M^*, GP^*)$$

Creditors' efforts are equivalent to them absorbing a haircut in PV defined as follows:

$$\forall i \in \mathbb{R}, h_i = \frac{R - \sum_{k=1}^{i-1}(GE_i - GE_k).FV_k + \sum_{k=i+1}^{J}(GE_k - GE_i).FV_k}{(1 - GE_i).\sum_{k\in\mathbb{R}} FV_k}$$

As we observed earlier, each creditor participating in the effort take a haircut that translates, relative to each contributor relative non-concessional contribution to the FV stock, the debt reduction cost as well as a compensation for the fact that less concessional creditors still need to participate to reach its own effort, and an additional contribution to account for the fact that our creditor has to compensate for the fact that other participating creditors have already participated more to the concessionality effort.
This interesting pattern of our fair rule insists on the fact that lending to these countries remains something that is better done at more concessional terms.

Data

To apply the model, we collect data from the World Bank International Debt Statistics. IDS provides data on FV for all creditors at each period. IDS provides data on PV only for all external debt (that is not the PPG Long Term debt that usually falls under the perimeter of DSA/external DR). This value is therefore only an upper bound for the value of PV that is of interest for us (that is the present value of future debt services due on LT PPG debt). IDS provides data for future debt service 'only' for the period between 2022 and 2029. Reconstructing the exact PV is therefore not possible.

IDS nevertheless provide the average grant element on new commitments for each creditor at each period.

We use the later series to compute an average grant element by creditor over a 10-year time window (2011:2021) and consider this average grant element by creditor/debtor couple. In case a creditor/debtor couple exhibit a negative average grant element, we set the value for the grant element to 0. Conceptually, a negative grant element entails that the present value is above the face value of the bond. In other words,

given previous definitions, this entail that the interest paid by the debtor is actually superior to the Discount Factor (5%) and that the creditor values more expensively (i.e., with a positive premium) the cost of lending to the debtor.

The results in the table below apply our fair CoT rule to each group considered in the last column. Face Value and average grant elements are then adjusted to replicate the group's characteristics.

2. The case of Zambia

During the debt reconciliation process which took place during the restructuring, it was discovered that some of Zambia's debt were not recorded in IDS. An extra $4b of debt was discovered, o/w $2,6b to China. This increased the total to $16,5b, o/w $1.4 for IDA. In practice, $3b out of the $16b consist in non-resident holdings of domestic local currency debt, which remained outside the DR perimeter. The DSA recommended a DR of $9b in PV, that is (taking into account the $3b set aside) translated into a DR of 44% in PV. We find that:

- Rule 1 would push $335m of losses to IDA and $307m to other MDBs.
- Rule 2 attributes a $234m loss to IDA (and $216m to other MDBs).

Table 5. Losses in the Zambia debt restructuring

$	PV DR	Private	China	Non-PC	PC	Other MDBs	IDA
Prop. COT	6.6b	1.3b	2.4b	275m	503m	307m	335m
Fair COT	6.6b	1.8b	3.3b	358m	632m	216m	234m

Source: World Bank IDS – Author's calculations

3. Annex tables

Table A1 – Descriptive Statistics by scenario (IDS/IDS+) and by IDA Lending Type

Country group	Average PV Ratios		2021 FV Debt Stocks							Avg Debt Hair-cut	*Needed Debt Reduction*
	PPG to GDP	PPG to X	Total	Private	China	No-PC	PC	IDA	other MDBs		
IDS data											
O/w Blend	34.5%	161.7%	190.2	51.6	48.5	4.3	20.7	31.4	33.8	17.0%	*23.2*
O/w. Regular	33.2%	276.1%	58.8	12.3	9.0	8.2	6.5	15.1	7.7	23.8%	*4.6*
O/w Small	42.8%	189.8%	11.9	1.9	2.6	3.0	0.5	1.6	2.3	23.0%	*2.9*
IDS+ revised data (+40% scenario)											
O/w Blend	44.5%	195.7%	289.0	106.2	72.2	8.4	23.5	39.6	39.0	24.0%	*53.7*
O/w Regular	41.8%	372.7%	70.6	17.1	12.6	11.5	6.5	15.1	7.7	38.5%	*19.9*
O/w Small	54.2%	237.3%	15.1	2.7	3.8	4.3	0.5	1.6	2.3	34.0%	*5.0*

Source: World Bank IDS – Author's calculations

Table A2: Average Grant Element of different creditors by lending type

	Private	China	Non-PC	PC	IDA	IDA (Grant Adj.)	Other MDBs
DR* – Blend	0	17.5	20.6	42.8	38.5	40.4	35.6
DR* – Regular	0	16.6	27.2	15.2	52.0		41.9
DR* – Small	0	20.4	9.7	31.5	49.3		30.4

DR* are, by lending type, the average of GEs computed on the DR19 and DR23 samples, which, in some cases, slightly vary.

Source: World Bank IDS – Author's calculations

Table A3 - Distribution of haircuts under CoT rule 1 – Results by lending type

$mn	PV DR	Private	China	Non-PC	PC	other MDBs	IDA
IDS data							
DR19 – Blend C.	16670	5666	4234	271	1355	2712	2432
DR19 – Regular C.	4526	1414	589	837	463	681	543
DR19 – Small Econ.	2882	422	512	1164	81	457	245
Extended IDS scenario (+40%)							
DR23 – Blend C.	52579	22302	13556	1453	4882	5800	4584
DR23 – Regular C.	16909	5543	3089	2637	1159	1795	2686
DR23 – Small Econ.	5026	1235	766	1835	184	626	390

Source: World Bank IDS – Author's calculations

Table A4 – Results on Fair CoT rule for aggregate rules

$; %PV	PVDR	Private	China	Non-PC	PC	Oth. MDBs	IDA
IDS							
DR19	26.4b	19.2b/28%	6.3b/13.3%	910m/7.6%	--	--	--
DR19 Blend	19.0b	14.4b/26.5%	4.4b/11.6%	216m/6.7%	--	--	--
DR19 Regular	4.6b	3.1b/25.1%	766m/10.2%	--	644m/11.7%	--	--
DR19 Small	1.6b	852m/44%	611m/30%	1.1b/38%	62m/19%	319m/20%	--
Augmented IDS+ scenario (+40%)							
DR23	74.7b	50.6/39%	18.3b/25%	4.1b/22%	669m/4%	960m/3%	--

DR23 Blend	52.8b	39.2b/35.2%	12.4b/21.2%	1.3b/19%	--	--	--
DR23 Regular	16.9b	8.2b/47%	3.9b/37%	2.3b/28%	2.1b/38%	427m/10%	--
DR23 Small	5.0b	1.4b/52%	1.2b/40%	1.8b/46%	97m/29%	485m/31%	35m/4%

Source: World Bank IDS – Author's calculations

Table A5 – Distribution of haircuts under CoT rule 2 – Results by lending type

(in PV)	Total Hair-cut	Private		China		Non PC		Paris Club		Other MDBs		IDA	
		$mn	%	$mn	%	$mn	%	$mn	%	$mn	%	$mn	%
DR19 Blend	16670	12167	25%	4380	12%	123	4%	0	0%	0	0%	0	0%
DR19 Regul.	4526	3090	27%	300	4%	428	7%	458	8%	195	4%	55	1%
DR19 Sm.Ec.	2883	725	44%	510	25%	1238	45%	36	11%	261	17%	111	14%
DR23 Blend	47191	32181	32%	12127	22%	1109	17%	9	0%	1254	5%	509	3%
DR23 Regul.	16911	8437	51%	3903	38%	2340	28%	1457	26%	678	13%	95	1%
DR23 Sm. Ec.	5028	1415	53%	801	34%	2045	58%	115	28%	509	34%	141	15%

Source: World Bankd IDS – Author's calculations

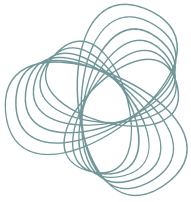
Table A6 - Loss/Flow Absorption scenario – Fair CoT Losses ($millions)

	IDA Characteristics		Losses				Additional IDA loans - DR19			Additional IDA loans - DR23		
Country	Type	Alloc.	Loss DR19	Loss DR23	DR19 /Alloc	DR23 /Alloc	Loss/Flow PV /y	New Loans /y	Add/alloc	Loss/Flow PV /y	New Loans /y	Add/alloc
Lao PDR	Blend	158.5	na	34,4	na	24%	na			11,5	17,9	111%
Zambia	Blend	181.6	234,2		47%		78,1	122,0	167%	78,1	122,0	167%
Pakistan	Blend	1547.5	na	474,9	na	22%	na			158,3	247,4	116%
The Gambia	Regular	484.3	18,8	35,6	5%	10%	6,3	13,6	103%	11,9	25,8	105%
Guinea-Bissau	Regular	96.8	36,0	59,3	37%	61%	12,0	26,1	127%	19,8	43,0	144%
St. Vincent &.	Small	55.5	20,1	na	28%	na	6,7	17,2	131%	na		
Samoa	Small	52.5	2,0	9,5	6%	27%	0,7	1,7	103%	3,2	8,1	115%
Djibouti	Small	123.5	5,7	na	5%	na	1,9	4,9	104%	na		
Cabo Verde	Small	605.2	na	83,2	na	19%	na			27,7	71,1	112%
Bhutan	Small	399.0	83,5	48,0	31%	18%	27,8	71,4	118%	16,0	41,0	110%

Table A7 – Loss/Flow Absorption scenario – Unfair CoT Losses ($ millions)

Country	IDA Characteristics		Losses				Additional IDA loans - DR19			Additional IDA loans - DR23		
	Type	Alloc.	DR19	DR23	DR19 %Alloc	DR23 %Alloc	Loss /y	New Loans /y	Total/alloc	Loss /y	New Loans /y	New/alloc
Congo, Rep.	Blend	453.5	na	47.7	na	11%	na			15.9	24.9	105%
Lao PDR	Blend	158.5	16.8	136.8	11%	86%	5.6	8.7	106%	45.6	71.2	145%
Zambia	Blend	181.6	335.0		184%		111.7	174.5	196%	111.7	174.5	196%
Senegal	Blend	506.1	na	339.2	na	67%	Na			113.1	176.7	135%
Sri Lanka	Blend	204.9	201.6	354.0	98%	173%	67.2	105.0	151%	118.0	184.4	190%
Ghana	Blend	560,0	na	549.0	na	98%	Na			183.0	285.9	151%
Kenya	Blend	1,467.1	757.8	1,141.9	52%	78%	252.6	394.7	127%	380.6	594.7	141%
Pakistan	Blend	1,547.5	1,455.8	2,015.5	94%	130%	485.3	758.3	149%	671.8	1,049.7	168%
Somalia	Regular	500.3	2.0	6.5	0%	1%	0.7	1.5	100%	2.2	4.7	101%
Gambia	Regular	484.3	29.2	34.0	6%	7%	9.7	21.1	104%	11.3	24.6	105%
Guinea-Bissau	Regular	96.8	55.7	61.6	57%	64%	18.6	40.3	142%	20.5	44.6	146%
Sudan	Regular	942.5	62.3	123.5	7%	13%	20.8	45.1	105%	41.2	89.5	109%
Mozambique	Regular	1,067.3	51.7	317.4	5%	30%	17.2	37.4	104%	105,8	230.0	122%
Ethiopia	Regular	2,259.2	342.4	2,142.6	15%	95%	114.1	248.1	111%	714.2	1,552.4	169%
Sao Tome & P.	Small	304.0	0.6	1.7	0%	1%	0.2	0.5	100%	0.6	1.4	100%
Tonga	Small	68.5	Na	2.0	na	3%	Na			0.7	1.7	103%
Dominica	Small	59.5	2.7	7.7	5%	13%	0.9	2.3	104%	2.6	6.5	111%
Maldives	Small	58.5	11.2	21.5	19%	37%	3.7	9.5	116%	7.2	18.3	131%

St. Vincent & G.	Small	55.5	22.1	24,7	40%	44%	7.4	18.9	134%	8.2	21.1	138%
Samoa	Small	52.5	9.0	30,4	17%	58%	3.0	7.7	115%	10,1	25.9	149%
Djibouti	Small	123.5	32.7	48,3	27%	39%	10.9	28.0	123%	16.1	41.3	133%
Cabo Verde	Small	605.2	59.8	117,0	10%	19%	19.9	51.1	108%	39.0	100.0	117%
Bhutan	Small	399.0	107.0	136,6	27%	34%	35.7	91.5	123%	45.5	116.8	129%



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