

Time to implement a tech-driven sovereign debt transparency initiative: Concept, design, and policy actions

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Amidst calls for debt relief to mitigate the socioeconomic consequences of COVID-19 in Africa, debt transparency has become an even more pressing issue. This paper assesses the key debt transparency initiatives promoted by international organizations and the private sector, given the June 2019 G20 Communiqué on the importance of improving debt transparency for debt sustainability. The communiqué also supported the IMF–WBG approach for addressing emerging debt vulnerabilities and endorsed the Institute of International Finance’s (IIF) voluntary Principles for Debt Transparency (IIF, n.d.). We propose a tech-driven private-public debt transparency initiative to enhance debt transparency and management in low-income countries (LICs) and lower-middle-income countries (LMICs). This initiative should utilize technological innovation in financial market infrastructure through the introduction of a multilateral collaborative platform/debt registration depository that would be powered by blockchain technology. New debt issues registered through the platform would allow the close tracking of borrowed fund usage. Information held on the platform would be made accessible to all key players and the public to improve debt transparency and accountability in LICs and LMICs. Debt transparency can, in turn, foster the prudent management of borrowed money by relevant governments, thus limiting corruption.

Challenge

Debt unsustainability and transparency

According to the IMF Global Financial Stability Report (2019), the median external debt in emerging markets economies rose to 160% of exports (the highest was up to 300%) in 2019, as compared to 100% in 2008 (IMF 2019). This development was largely due to prolonged accommodative monetary policies in developed countries, the growing role of emerging countries in financing LICs and LMICs, and growing capital flows to emerging markets and other LICs, which have supported additional borrowing from a large spectrum of official and non-official lenders (for example, international financial institutions, Club of Paris countries, and the private sector) and limited the fiscal space for these countries.^[1] Rising external debt in emerging economies and LICs, with reduced capacity to service this debt, has resulted in increasing vulnerabilities and ensuing risks to economic growth and financial system stability, increasing the probability of default. However, this risk is not easily measured when the debt is not fully disclosed (to) and monitored by market participants. When the issued debt is transparent and all creditors are known, managing default and restructuring becomes less costly for national economies and their wider society.

Debt service in LICs is becoming a structural issue (G20 2020a). Some African economies have already demonstrated major strains with sharply reduced economic output and a severe reduction in income from migrant worker remittances. Initiatives are underway to alleviate the burden of interest repayments, particularly in Africa (G20 2020a), but the lack of debt transparency is a major obstacle of restructuring efforts. Consequently, the more vital debt restructuring is delayed, the greater the economic impact on these countries, exacerbating the economic and human consequences of the pandemic, which may destabilize the most vulnerable countries and cause incalculable costs.

In April 2019, the Jubilee Debt Campaign, a UK-based charity which is part of a global movement of civil society organizations, called for

new mandatory rules that would require lenders to disclose information on loans granted to governments. Several examples of debt cases with little to no disclosure were mentioned. A characteristic example was from Mozambique. In 2013, the country borrowed USD 2 Billion via state-owned companies, guaranteed by the country's Ministry of Finance, to buy tuna fishing ships and military patrol boats and upgrade the fishing sector. The loans were not fully approved by the Mozambican Parliament, despite the requirement from within the Mozambique Constitution. Several international banks and investors were involved in a structured deal. In 2017, an investigation mandated by the Embassy of Sweden in Maputo unveiled a scandal of misconduct, incompetence, secrecy, corruption, and misuse of funds. Beyond this specific case, which turned into an international scandal, the public sector and local entities in several countries have been able to borrow funds for special purposes that are guaranteed by the government as part of private-private partnership schemes. Many of these deals are neither registered nor disclosed.

In a 2019 article, Axel Weber, Chairman of UBS, and the IIF emphasized the growing danger of unreported debt. He noted that "more low-income countries borrow on commercial terms from private groups, rather than primarily from multilateral institutions such as the IMF or the World Bank Group, some forms of debt are often not being reported and thus not counted when investors judge a borrower's debt capacity. That makes it hard to help countries avoid falling into the same trap we saw in previous economic cycles: unsustainable debt saps potential growth and robs vulnerable populations of their right to a decent life by tying governments' hands through heavy interest burdens." (Weber, 2019). He also stressed the importance of the Voluntary Principles of Debt Transparency and recognized that greater debt transparency facilitates good governance, fights corruption, supports debt sustainability, and ensures better allocation of funds in the real economy. However, to make these principles work, support is required from the public sector and private lenders to set-up a repository (G20 2020b), where all relevant debt transactions are reported.

Augmented governance and monitoring mechanisms will prompt lenders to exercise discipline and allow for adjustments to the principles as sound practices develop. Debt transparency enhances the accountability of the LIC and LMIC governments vis-à-vis their citizens and country creditors. When the issued debt is registered and recorded in a way that is publicly accessible and identified, then it is more efficiently managed in case of default or restructuring and is potentially less costly for all.

We strongly suggest that a public debt registration repository will not only help to deal with the moral hazards of large-scale debt forgiveness programs but will also greatly aid sovereign debt restructuring for LICs and LMICs from a legal and practical viewpoint. For the authorities and those who manage the restructuring process, it will be easier to aggregate investors in different bond issues and limbs per bond issue, and thus, manage the process more effectively once they have the full picture, in terms of the size of the debt and the nature of the investors^[2]. It will also be easier to monitor the implementation of Collective Action Clauses, creditor ranking, and subordination arrangements across the spectrum of a country's issued debt, as well as contingent claims such as sovereign guarantees.

Finally, increased transparency can make it less likely for holdout investors to frustrate restructuring efforts through strategic voting per issue and per limb as the plurality of investors would be known to the restructuring agent and could be mobilized in favor of the restructuring decision. Restructurings with larger majorities can, in turn, make holdout litigation less likely or ultimately, less successful, especially where the majority of the other investors have expressly shown willingness to restructure and compromise.

Proposal

Toward a global tech-driven debt transparency platform

Overview of the problem and what has been achieved

In a joint WBG-IMF paper (2018), three key observations were highlighted:

1. "Strengthening public debt recording, monitoring and reporting is critical to debt transparency" via capacity building.
2. "The primary responsibility for reporting accurate and comprehensive public debt data lies with the sovereign borrower."
3. There are gaps in "the recording, monitoring, and reporting of reliable and comprehensive public debt data in LICs and LMICs."

These observations stress the importance of relying on data recorded by the borrowers. There are, however, prerequisites to effectively record, monitor, and report public debt consistently. There should be a strong governance framework, effective organizational structure,

adequate staff capacity, and a functional recording system. The IMF-WBG paper outlines, in detail, the steps necessary to achieve this objective.

Nevertheless, there are significant gaps^[3] in debt recording, monitoring, and reporting by LICs and LMICs. The key problems in debt management governance range from weak legal frameworks and lack of audits (e.g., debt management performance audit and annual audits) to poor data administration, internal controls, and low staff capacity. The International Organisation of Supreme Audit Institutions (INTOSAI) reaches similar conclusions.^[4]

According to the WBG and the IMF, the main drivers of weaknesses in debt recording, monitoring, and reporting include:

- a) Weak incentives to produce reliable data—linked to the lack of senior public manager demand, limited public scrutiny, and non-regular audits, leading to debt data not being recorded or updated accurately or consistently,
- b) Weak procedures, which contribute to low-quality data and data administration, weaknesses in infrastructure for debt recording and outdated software, and
- c) Insufficient human resources.

Other weaknesses stem from the broader institutional and governance framework. These include fragmented responsibilities and uncoordinated institutional arrangements; limited mandate, where the legal framework for the coverage of public debt is narrow; and weak audit capacity.^[5] Overall, there is a fundamental gap in the debt recording and monitoring capacity that can be exacerbated by multiple data requests from different stakeholders (including international financial institutions, rating agencies, and investors) demanding different pieces of information in varying formats.

The WBG, the IMF, and other Technical Assistance (TA) providers have delivered sustained and extensive TA on debt management related issues in LICs and LMICs—from institutional and governance arrangements to the preparation of medium-term debt management strategies. However, the gap has not been filled because of a lack of incentives that would prompt and motivate decision-makers to improve debt management, an essential condition for debt sustainability. However, as we have already illustrated, debt management cannot be effective without debt transparency. Capacity reinforcement can be part of the framework, but if there is no political willingness locally, little can be achieved credibly and decisively.

As recommended by the WBG and IMF, the TA should continue and be expanded to include the revision of the legal and regulatory framework. This will allow the central government to obtain information from sub-central governments and State-Owned Enterprises and provide central oversight on their borrowing activities, including private-public partnership (PPP) financing schemes.

To achieve this, more resources are necessary to support integrating debt management activities into wider public financial management frameworks and processes. More training is required at all levels of the relevant institutions and international events to promote activities such as benchmarking, best practices, and success stories. Additionally, there should be more campaigns to raise awareness at the highest political level (e.g., politicians, public servants, civil society, and academics). Transparency can be enhanced through open knowledge platforms that can be set-up as a coordinated effort between all institutions involved, which, via these platforms, can provide technical assistance and training materials to key officials and others who might require them. Benchmarking and performance assessments should also be encouraged and made public.

Data-driven and policy initiatives spearheaded by the IFIs and the private sector

Despite the weaknesses mentioned above, the WBG and the IMF have taken fundamental steps towards debt transparency. In a note for the G20 published jointly, in June 2018 (G20 2018), the role of the WBG and the IMF in this field was reviewed and summarized as follows:

- a) Collection and dissemination of debt (WBG n.d.) statistics reported officially by the relevant country authorities,
- b) Production of analyses of public debt data via debt sustainability analyses (DSAS), and
- c) Support of country efforts to produce medium-term debt management strategies.

Both organizations publish information on a country's borrowing capacity and directly liaise with multilateral, bilateral, and private creditors.

These efforts provide important support for borrowers and lenders in their decision-making and so that other stakeholders can use this

information. Beyond this, the statistics collected provide a wealth of information for civil society organizations and academics to analyze and enhance knowledge on this topic. However, the data collected is aggregated by country and not by the counterparty, and there are gaps in the debt transactions that are difficult to access from countries, such as loans with the private sector and other over-the-counter transactions.

The private sector (acting as lenders) represented by the IIF has also been very active in debt transparency, particularly in LICs and LMICs. Since the launch of the Principles for Stable Capital Flows and Fair Debt Restructuring (Principles; ICMA Group 2004) in 2004 under the auspices of the Group of Trustees of the Principles, the IIF has been increasingly active in advancing good practices in sovereign investor relations (IR) and data dissemination in emerging markets and has published the rankings of such practices since 2005. Many countries have made progress in enhancing IR and data dissemination practices, helping develop the investor base and build capital markets.

A new set of voluntary Principles for Debt Transparency (IIF n.d.)—conceived within the framework of the 2004 Principles mentioned above and subject to the same governance—relate to financial transactions with both sovereigns and sub-sovereigns. The principles for Debt Transparency recognized that greater transparency across all debt transactions improves the flow of information and reduces the risk of adverse shocks arising as a result of undisclosed public liabilities appearing in central government liabilities. Greater transparency assists borrowers, creditors, and the official sector in the ongoing assessment of debt dynamics and debt sustainability. In this respect, these Principles also complement the WBG and IMF multi-pronged approach for addressing emerging debt vulnerabilities.

There is also a firm recognition by private-sector lenders about the importance of debt sustainability for the evaluation of creditworthiness. Private lenders use and regularly refer to the data, analysis, and guidelines of the IMF and International Development Association's (IDAs) Non-Concessional Borrowing Policy, including Article IV consultation reports (which benefit from greater disclosure of debt coverage), the Debt Sustainability Framework, and the medium-term debt management strategy, as recommended by G20 Guidelines. This publicly available data and analysis are valued as important information, and considered in the decision-making process for credit extension, together with other third-party sources and in-house credit risk assessments.

These voluntary Principles for Debt Transparency acknowledge the role private lenders can play to support transparency and official sector debt sustainability objectives and, hence, the stability of the global financial system. The role requires public disclosure by private-sector lenders of certain commercial terms of underlying transactions to a reporting entity, hosted by an appropriate international financial institution (to be determined; Reporting Host).

While it is certain that the private sector can play a major role in disciplining the sovereign borrowers via registering and sharing key information on the individual debt transactions, this is much easier if data from the largest private lenders and creditors are registered, pooled, recorded, and stored in an independent global repository in the form of an online platform that can be accessible, not only to the international financial institutions (e.g., the WBG and the IMF) but also to civil society organizations, donors, and debt charities. The platform can be powered using digitalization, in particular, Distributed Ledger Technology (DLT).

In its communiqué from a meeting in June 2019, the G20 Finance Ministers and Central Bank Governors, "reiterated the importance of the joint efforts undertaken by both borrowers and creditors, official and private, to improve debt transparency and secure debt sustainability, called on the IMF and WBG to continue their efforts to strengthen borrowers' capacity in the areas of debt recording, monitoring, and reporting, debt management, public financial management, and domestic resource mobilization." (G20 2019).

Toward a tech-driven centralized digital platform to boost global debt transparency

The key proposal of this paper is the establishment of an independent, open-access tech-driven Debt Transparency Platform (DTP) that can be powered with DLT, essential to later evolve it into a trading platform. The platform will be a private-public partnership project and will serve as a global registry that will fill the gap in the newly issued sovereign debt in LICs and LMICs. Such an additional layer of transparency will act as a push factor to enhance transparency, hence, augmenting the TA efforts of IMF-WB.

In the first phase, the purpose of the DTP would be to enhance the transparency of sovereign debt (bonds, loans, and guarantees) issuance data and provide innovative knowledge on how to enhance better debt management, sustainability, and accountability, in particular, in emerging countries, LICs and LMICs.

In the second phase, the DTP could undergo technical upgrades and potentially evolve into a fully-fledged trading platform. Its main

function would be to gather and consolidate buying and selling interest to deepen the secondary market for LICs and LMICs debt and enhance price discovery and efficiency.

Building on the existing initiatives and data available in the public domain, the key objectives for the DTP are as follows:

1) To collect data (based on the existing available data published by international organizations, market participants, and other public registries) and implement additional data collection exercises and simulations (based on additional sources and artificial intelligence technologies) to fill any gaps. The following information will be included: all arrangements, irrespective of their form, which have the economic effect of borrowing, and any guarantee or other assurance provided against such arrangements, which, in each case, is entered into or provided by one or more Public Sector Entities. Therefore, these arrangements include, without limitation loans, debt securities that are not subject to public disclosure, securities repurchase agreements, and other forms of asset-backed lending or commercially equivalent arrangements, whether secured by commodities revenues, in the form of margin loans, gold loans, or gold swaps or otherwise. They also include financial derivatives but exclude derivatives entered into solely for hedging purposes, Islamic financing transactions that are debt-related, and financial transactions with private parties in PPP projects (including debt assumptions and similar commitments).

The disclosure scope will include the following for each Financial Transaction:

- i. Borrower (or equivalent) and initial recipient of financing (if not the borrower and known at signing);
- ii. Guarantor/provider of indemnity (if any) or equivalent, the beneficiaries of the guarantees/indemnities or equivalent and the maximum amount payable thereunder;
- iii. The type of financing (e.g., loan, bond, or repurchase agreement);
- iv. The type of guarantee, promise to pay, and any other legal forms that serve the same purpose;
- v. For bilateral financings, the lender (or equivalent) at signing;
- vi. For syndicated financings, the mandated lead arrangers and the facility agent (or equivalent) in each case at signing;
- vii. The details of the agent/trustee/transaction intermediary (for syndicated deals, or those with multiple providers of financing/underwrites);
- viii. The ranking (e.g., senior or subordinated);
- ix. The ratings, if available;
- x. The amount that can be borrowed/raised and details of disbursement period, if prolonged; applicable currency or currencies;
- xi. The repayment or maturity profile (including any puts or calls where applicable);
- xii. The interest rate (or commercial equivalent), specified as falling within one of several specified ranges; intended use of proceeds on drawdown;
- xiii. The governing law;
- xiv. Any waiver of sovereign immunity and its extent;
- xv. The dispute resolution mechanism and forum;
- xvi. The applicable collateral/security/assets subject to repossession agreements; and
- xvii. Clear and systematic guidance for data collection will be developed to ensure the data are easily compiled, standardized, and comparable.

2) To verify the collected data (with the WBG, IMF, and countries) through a digital verification mechanism, possibly powered by blockchain technology, which presents the advantage of the immutability of recorded entries. The verification of data is critical for the reliability of the data collected. A verification process will be developed, either by a digital notification to the original borrowers and lending or through a structured legal process that is coded in a smart legal document that can, later on, be powered by blockchain technology. Such a project can be tested for several countries and transactions and then up-scaled for more countries and transactions, within a collaborative system that allows members of the platform to register and validate transactions.

3) To provide an independent open-access knowledge digital repository on sovereign debt (including quantitative and qualitative data [on newly issued disaggregated debt and past exposures], policy and academic research, and expert notes by credit rating agencies). This data could be accessible to all stakeholders, including academics and policy research institutions, to enhance knowledge on the subject.

4) To update frequently, monitor the platform, and develop an automatic notification system when certain pre-defined criteria are breached.

5) To develop the pillars for a new framework governing the identification, management, and monitoring of the proceeds of new issues and specific types of borrowed funds (such as private-public partnership transactions and infrastructure financing)⁶

Data in the DTP, while protected, could be made accessible to all interested issuers, borrowers, lenders, IFIs, and donors, once registered, on-boarded, and authorized by the system.

Using a tech-based solution is essential for DLT, and there are five distinct advantages:

1. DLT allows multi-party collaborative platforms to record transactions while securing the immutability of records.
2. DLT platforms enable interested parties to trace past debt issuance and related transactions. All registered civil society organizations, opposition parties, debt charities, and IFIs would be able to track the total size and subsequent use of borrowed funds, as close to real-time as possible. Thus, the platform could prove a powerful tool in the struggle to reduce corruption and public debt mismanagement. Record immutability and platform transparency would mean that funds would be traceable, even where remote and offshore actors were involved in their misappropriation.
3. The use of Artificial Intelligence (AI) and machine learning (ML) tools on the blockchain would further open up opportunities for increased debt transparency, governance, and accountability, given the advantages offered by atypical logic and black box techniques when it comes to tracing corruption. For example, relevant algorithms can be programmed to focus on risk level changes by looking at red flags (e.g., changes in beneficial ownership). They can also be used for unusual activities that could otherwise escape attention.^[7] Using AI/ML and Blackbox techniques for detecting or tracing corruption is already a widely used practice in banking, and it is effective in preventing and detecting money laundering and terrorist financing.^[8]
4. The certainty of recorded debt transactions and levels facilitates debt sustainability, debt governance, and accountability, including monitoring of debt evolution following debt restructuring or debt relief events.
5. Concentrating recorded debt transactions within a single depository will greatly facilitate and reduce the legal and audit costs of debt restructuring operations, especially the voting aggregation process per issue and per limb. As voting records on a blockchain are immutable and DLT platforms can offer multiple points of access and reliable time stamping, they guarantee the integrity of voting by bondholders however complex the connection between them is, which makes holdout tactical voting less likely.

Another advantage of using a DLT platform is that both data secrecy—for instance, through the use of multiple keys or zero-knowledge proofs—and data integrity could be preserved. This means that the platform can be open access at all times, without compromising the confidentiality of some documents if there is a need for such confidentiality. Therefore, any arguments against a DTP, on the grounds of maintaining the confidentiality of some documents, are fully negated from the outset.

The DTP will have a private-public funding mix to ensure independence. The private sector could co-fund an independent body, housed in an academic institution, with the relevant skills, capacity, reputational standing, and integrity to be an independent, trusted host of data. The platform will be open to key stakeholders to register past and newly issued debt data. The governance structure should include high-level representatives from private financial institutions, international financial organizations, academics, and civil society organizations.

A new taskforce between the IIF, WBG, and IMF should continue to work together on a collaborative, coordinated approach to tackle debt transparency and debt sustainability, in particular, in emerging countries, LICs, and LMICs. This task force should regularly report to the G20 on the progress of the DTP.

At a future date, the DTP could evolve into a fully-fledged trading platform, powered by blockchain technology, on which a country's debt would be issued, and secondary market trades would take place, be cleared, and recorded, which would ameliorate both transaction and conciliation costs for market participants and boost liquidity, especially for LICs and LMICs debt. These platforms can consolidate buying and selling interest, raising liquidity, and pricing efficiency levels. At the same time, as conciliation happens instantly through the use of smart contracts and holdings, this is recorded on the platform, and investors could hold cross-country positions and use these positions to

leverage trades elsewhere. This would require prior tokenization of sovereign bonds to become "home assets," namely, tradeable and storable on the platform, but technically this is not a complex process. Once investor cross-market bond-holdings are tokenized, they would also be eligible to be used as collateral in trades taking place in other asset markets, provided that DLT systems also power those markets. Similarly, a DLT platform, which consolidates buyer interest for distressed sovereign debt, raises the prospect of higher market prices for this debt, discouraging purchases by vulture funds at basement prices.

Disclaimer

This policy brief was developed and written by the authors and has undergone a peer review process. The views and opinions expressed in this policy brief are those of the authors and do not necessarily reflect the official policy or position of the authors' organizations or the T20 Secretariat.

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Appendix

[1] . This assessment has been confirmed, and countries belonging to this category were recommended to implement countercyclical fiscal buffers to withstand shocks. See IMF (2020).

[2] . In the process of drafting this paper, we noticed that several other works also raise the importance of a digital repository for debt transparency. See Mustapha and Olivares-Caminal (2020).

[3] . According to the paper, "The World Bank's Country Policy and Institutional Assessment (CPIA) indicates that the average quality of the debt management policy and institutions are broadly comparable with the overall assessments of policy and institutions, and they both fall short of the 3.5 rating for which countries are considered to have "adequate" capacity." (WBG-IMF 2018)

[4] . INTOSAI's "Audit of Lending Borrowing Frameworks, 2013 – 2017" concludes that, "where legislation was not clear on the allocated authority, front, middle and back office activities were uncoordinated and spread across a number of entities, creating inefficiencies in the debt management function, and information to departments and auditors was limited. Lack of clear segregation of duties led to lack of transparency in reporting, weak quality control, and a lack of accountability." The auditors also found that record-keeping was often not accurate or complete, delays in updating of information led to discrepancies between payment schedules and orders, debt reporting often did not comply with legislative requirements, and there was little integration of debt statistics into policy-making decisions. They noted that, in some cases, while the data was regularly published, it was not useful for decision-makers as it lacked relevant details, and they also pointed to significant inconsistencies amongst different sources (INTOSAI Development Initiative 2018a).

[5] . According to the findings of the WBG and IMF report, "the lack of trained internal and external auditors can result in weak audits and lack of follow-up on audit recommendations. Where responses are weak, or recommendations are ignored, audits have limited impact. Lack of publication of external audit reports also contributes to a lack of effectiveness, as there is then no public scrutiny." (WBG-IMF 2018).

[6] . Within this category, there is a link to the Taskforce on infrastructure financing and investment in the G20 2019 Communiqué (G20 2019, paragraph 7). Sovereign debt transparency will allow the identification, tracking, monitoring, and evaluation of the use of debt proceeds raised to fund infrastructure projects, particularly in countries where gaps in debt management are identified. Public procurement and value for money assessment during the execution of the projects are essential for managing the risks of non-performance and corruption, and hence, reducing the probability of the mismanagement of public funds.

[7] . Examples of these types of activity include layering of transactions (splitting up of deposits to fall below reporting thresholds), transactions connected with jurisdictions that have a history of money laundering, and transactions connected to individuals or businesses that are potential money launderers.

[8] . In contrast, legacy systems used to create an inordinate amount of so-called false positives, namely, 98% of all money laundering reports where there were either false alerts or false leads.