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Recording, Monitoring, and Reporting Public Debt - Organizing a Back Office

A Guidance Note

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Abstract

The objective of this note is to provide guidance for countries on how to organize a public debt management back office most effectively. It describes the core processes that should be performed by that unit that is ultimately responsible for recording, monitoring, and reporting on public debt. It also highlights their involvement in the execution and settlement process. These are the basic functions of a debt management office, and evidence shows that many countries could benefit from improvements in this area. Proper debt recording and monitoring are the essential first step to developing good quality data; these form the basis for quantitative analysis, provide support for debt operations and facilitate effective policy decisions. Focusing on the main debt instruments that are used by low income countries, the note describes each process individually and highlights their interdependence. The main conclusion is that debt managers should organize themselves around the processes not products, and they should gather information to create a dataset to support debt management activities. Sound reporting is important for risk assessment and monitoring of a sovereign, and for the development and execution of debt strategies.

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Contents

Abstract.....	3
Contents	4
Abbreviations.....	5
1. Introduction.....	6
Setting the Scene.....	6
Objectives and Scope.....	6
2. The Functions of a Back Office in a Typical DMO.....	8
A. Recording.....	10
<i>Loans</i>	11
<i>Securities</i>	13
<i>Recording in a Constrained Environment</i>	15
B. Monitoring.....	16
<i>Loans</i>	16
<i>Securities</i>	17
<i>Monitoring in a Constrained Environment</i>	18
C. Financial Execution	19
<i>Financial Execution in a Constrained Environment</i>	21
D. Reporting	22
<i>Reporting in a Constrained Environment</i>	24
3. Staff.....	25
A. Recording and Monitoring.....	26
<i>Skills</i>	26
<i>Training</i>	26
B. Financial Execution	26
<i>Skills</i>	26
<i>Training</i>	26
C. Statistics / Reporting.....	26
<i>Skills</i>	26
<i>Training</i>	26
4. Debt Management Information System – brief guidance	27
5. Conclusion	30
Annex 1 – Glossary.....	32
Reference	36

Figures

Figure 1: Debt Performance for Selected Indicators - % of Countries Meeting Minimum Requirements*	8
Figure 2: Core functions of a debt management back office	10

Figure 3: Recording Process	11
Figure 4: Five-year Bond Issue without Reopening	14
Figure 5: Reopening a Five-year Bond	14
Figure 5: Monitoring Loan Contracts	17
Figure 6: Monitoring Securities	18
Figure 7: Financial Execution of Debt Payments	21
Figure 8: Simplified Procedures for Financial Execution of Debt Payments	22
Figure 9: Reporting Debt Indicators	23
Figure 10: Operational Risk Assessment in the Brazilian DMO (as of 2003)	29
Figure 11: Debt Management Information System integrated with other Systems	30

Boxes

Box 1 – Reopening Securities Lines	14
Box 2 - Face Value and Market Value, Prices and Quantities	15
Box 3 - Debt Statistical Bulletins	24
Box 4 - Debt Systems and Operational Risk	29

Abbreviations

ATM	Average Time to Maturity
ATR	Average Time to Refixing
CB	Central Bank
CSD	Central Securities Depository
DeMPA	Debt Management Performance Assessment
DMIS	Debt Management Information System
DMO	Debt Management Office
DMS	Debt Management Strategy
DvP	Delivery vs Payments
FMIS	Financial Management Information System
HIPC	Heavily Indebted Poor Countries
IIF	International Institute of Finance
IMF	International Monetary Fund
ISIN	International Securities Identification Number
IT	Information Technology
LIC	Low Income Countries
LiM	Line Ministries
LMIC	Low Middle Income Countries
MDRI	Multilateral Debt Relief Initiative
MEFMI	Macroeconomic and Financial Management Institute of Eastern and Southern Africa
MoF	Ministry of Finance
MTDS	Medium Term Debt Management Strategy
SE	Stock Exchange
SOE	State Owned Enterprises
TA	Technical Assistance
T-Bills	Treasury bills
TSA	Treasury Single Account
WB	The World Bank

Recording, Monitoring, and Reporting Public Debt - Organizing a Back Office: A Guidance Note

Andre Proite

1. Introduction¹

Setting the Scene

In most countries, the Ministry of Finance takes the lead in economic policy design and fiscal policy implementation. Finance Ministers are also often in charge of regulatory and transactional functions. Transactional functions are similar to operational functions such as: processing budgetary payments, internal control, revenue collection, and other debt management functions.²

Public debt management can be broadly defined as set of government activities that interact with financial market intermediaries to mobilize resources in order to fund the government. Back office functions are at the center of debt management activities and involves preparing issuance or transaction documentation; reconciling and settling debt-related transactions; and recording and accounting. The aim of these functions is to ensure punctual and precise payment registration and execution (World Bank and IMF, 2014).

Reconciliation is a fundamental accounting process that ensures that the actual money spent matches the money leaving an account at the end of a period. This process is used to verify that every transaction adds up to the correct ending account balance and helps prevent fraudulent activity and financial statement errors. Public debt monitoring, recording and reporting is similar, but with larger sums, a variety of instruments and different actors and IT systems.

Because of its operational nature, the back office has typically received less attention than other debt management functions. Funding activities involving personal contact with market or lenders and analytical work that delineates the cost and risk profile are often more captivating than debt recording, monitoring, settling and reporting. Low awareness of the processes associated with the back office and poor understanding of the importance of debt recording are common causes of the problems faced by debt managers; this is often exacerbated by unsatisfactory use and performance of debt systems.

Objectives and Scope

The objective of this note is to provide guidance on the establishment of sound back office functions to regularly produce accurate and reliable indicators to support transparency and accountability, with a special focus on Low Income Countries (LICs). It focuses particularly on: (i) allocating staff, (ii) defining processes capable of producing better recording, (iii) monitoring and reporting, and (iv) undertaking these activities to be carried out timely and accurately. The main focus is on central government debt and on-lending. As public debt management develops, the scope may be expanded to include the recording and monitoring of financial derivatives and sovereign guarantees.

¹ This Note has been prepared by Andre Proite (Senior Debt Specialist EMFMD, MTI, World Bank). It has been peer reviewed by James Knight (MCM, IMF) and Çigdem Aslan (EMFMD, MTI, World Bank). Additional comments were provided by Marcelo Vitorino (CODIV, DMO, Brazilian Treasury) and Maria Cannata (Member of the Expert Council of the Treasury, Italian MoF). Lars Jessen (Lead Specialist, EMFMD, World Bank) and Doerte Doemeland (Practice Manager, EMFMD, World Bank) provided overall guidance. The Note has benefited from many conversations with debt managers from OECD, Emerging and Developing Countries.

² See (IMF, 2015b)

The majority of developing countries have limited resources, in terms of staff, training and infrastructure. Debt management offices may have only 3 to 5 people conducting all debt operations and recording. Staff turnover, lack of training, suboptimal IT systems and infrastructure, absence of procedures manuals, and poor data recovery mechanisms are often the reality.

While there have been improvements in debt management capacity and in institutions working with debt management, available evidence suggests that there are still significant gaps in debt recording, monitoring, and reporting. According to the 2017 debt recording and monitoring capacity assessment conducted for the IMF's Debt Limits Policy (DLP) and the World Bank's Non-Concessional Borrowing Policy (NCBP), 32 out of 70 LICs (46 percent) were assessed to have weak capacity (World Bank and IMF 2018b).

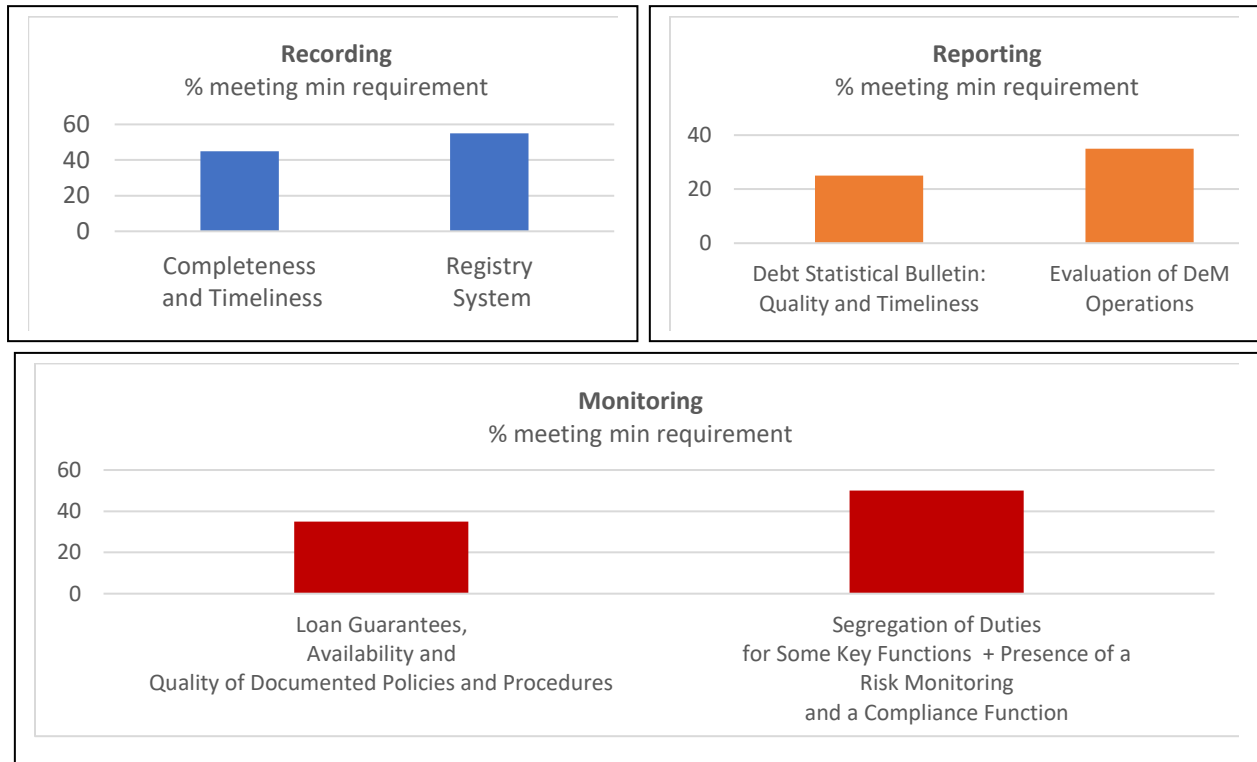
Results from the World Bank's Debt Management Performance Assessment (DeMPA) provide detailed information on debt recording, monitoring, and reporting capacity. The analysis is based on assessments between 2015–17 in 17 developing countries. Although this is a limited data set, evidence from a broader set of countries and assessments prior to 2015 indicate that these patterns may be representative and suggest that only 41 percent of the sample countries meet the minimum requirements in debt recording. With regards to monitoring guarantees, 33 percent meet the minimum requirement³. Given the problems with accuracy, timeliness, coverage and completeness of government debt records, DeMPA results show that creating a comprehensive debt statistical bulletin is a challenge for many developing countries. Only 35 percent of countries in the sample meet the minimum requirements for debt reporting and evaluation (World Bank and IMF 2018b).

Sluggish performance of back offices can be due to a variety of reasons. Some can be associated to staffing, including high turnover ratio; low capacity; lack of support from the management, inadequate institutional arrangements or lack of co-ordination within government. Other reasons may include lack of legal or regulatory requirements to publish debt reports; inadequate hardware and software to collect and store debt records.

This note will define the typical functions of a back office and the processes associated with recording and monitoring debt, executing payments, and reporting on the whole process. A description of the workflows will be presented, describing the interconnection of these processes, and showing the linkages with different parts of the government, creditors, clearing houses and other actors related to debt service. After describing each process, the note will elaborate on how to operate in a constrained environment, which is often the case in LICs. It will describe the skills and staff needed to conduct debt management activities. Finally, it will briefly discuss the importance of Debt Management Information Systems (DMIS), followed by a conclusion.

³ Since 2007, 135 sovereigns and 21 subnational DeMPA were applied in 82 countries.

Figure 1: Debt Performance for Selected Indicators - % of Countries Meeting Minimum Requirements*



Source: DeMPA. *See World Bank, 2015 for a description of the minimum requirements.

2. The Functions of a Back Office in a Typical DMO

Operational responsibility for debt management activities is often separated into front, middle, and back offices with distinct functions and accountabilities, and separate reporting lines (World Bank and IMF 2014).⁴ It is critical to separate at least the front and back office functions. A key reason for organizing a debt management office along functions is to ensure that the staff member executing a debt transaction and the one responsible for entering that transaction into the recording systems are different. Like every financial institution set up, the first essential rule is that the dealing function is separated from the settlement function and that both have separate reporting lines. The back office is responsible for final verification of trade and settlement instructions, editing details in the system, verifying receipts of inward and preparing payments. The separation of roles is important to avoid collusion and to prevent operational errors.

The back office has a highly specialized function, fundamental for sound debt management. Typically, the back office oversees settlement of debt-related transactions, maintenance of financial records, and initiation of debt service payments. The exact roles and responsibilities will vary from country to country, depending on the following: (i) the complexity of debt-related transactions; (ii) the number and degree of standardization of debt instruments; (iii) its role in managing guarantees; and (iv) connections with other peripheral systems like settlement and financial management. Integration with

⁴ See World Bank, (forthcoming) for the benefits of a consolidated debt management office.

the other units in the DMO and other counterparts is crucial. The limits and roles of each area need to be defined and observed.

Although the back office is ultimately responsible for debt recording, initial registration of debt issuances, either through securities or contracts, should start at the front office. One member from the debt operations team enters the data into a Debt Management Information System (DMIS), in a standardized format that contains essential information about the debt instrument, this could be: currency, interest rates, maturity, or nominal amount. Before a transaction is registered, an instrument is normally “set up” within the DMIS, with all of its characteristics entered into the system before operations are registered. Examples of this type of information are the ISIN code of a security or the internal code of the DMIS to track the instrument.⁵

A back office usually has four core functions: debt recording, monitoring, financial execution (payments and revenues) and reporting. Recording refers to entering debt transactions into a system and includes all types of instruments, for example bonds, bills, loan contracts, swaps and guarantees. Monitoring is controlling and tracking the stocks and flows by checking with clearing houses (for securities) or creditors (loan contracts). The monitoring process can be different for different types of instrument, particularly for those with variable interest rates, or where disbursements are not standardized or made in the future. Financial execution is undertaking all necessary steps to make debt payments on time. Lastly, reporting is the process of transforming debt data from records into reports, analyzing and disseminating it for decision-making and publication.

These functions are associated with operational risk, specifically related to data security and data administration. In coordination with the risk monitoring and compliance functions, the back office typically manages operational risks related to data security, access to the DMIS, disaster recovery schemes and business continuity plans.⁶

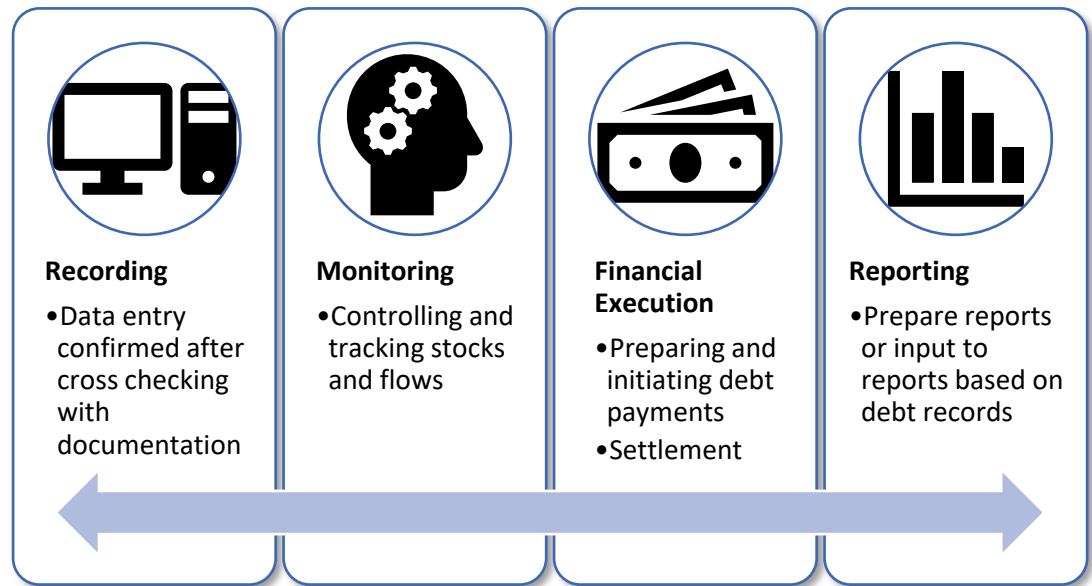
There should be a clear division of responsibilities for each process, primarily focusing on processing debt-related payments, without relegating other core debt management activities. Executing payments with precision and on time is indispensable to avoid default (and associated reputational risk) and protect public finances from fraud and operational errors.

Ideally, the back office should be a “data powerhouse” capable of providing debt and risk exposure indicators, in addition to data, to meet debt obligations, and to support the debt management office and other parts of government. For example, when negotiating new contracts, the front office may want to know interest rates and types for a specific creditor in aggregate or on a loan-by-loan basis. The middle office may want information on a 5-year maturity profile by each outstanding debt instrument. Some countries allocate the reporting function within the analytical area (usually the middle office). In any case, that can only be possible if debt records are updated and accurately captured in the DMIS, which is a typical back office function.

⁵ ISIN - International Securities Identification Number.

⁶ This note will focus on the core business of recording, monitoring, settlement and reporting, although will shed light on important operational risks binding to debt recording.

Figure 2: Core Functions of a Debt Management Back Office



Source: Author

Application of the above functions will vary depending on availability of staff and how well the back office is integrated with other areas in the DMO. Given the limitations on staff and the managerial structure typically observed in LICs, it seems reasonable to assume a constrained environment. This note will describe optimal workflow across the different functions of the back office. Core functions are highly transversal and careful coordination among them is crucial. These core functions will be described in detail, with a focus on securities and contracts, the most representative instruments managed by debt officials.

A. Recording

The unit where the debt originated should begin the debt recording process, with validation by the back office. Front office staff should be familiar with the financial terms of the negotiated debt instruments to be recorded; they will enter the transaction into the debt management information system under a specific user profile. From an operational risk-perspective, this double-checking scheme creates the first layer of control ensuring the validity of initial inputs. This procedure should be carried out for all types of instruments, for example bonds, bills, loan contracts, swaps and guarantees.

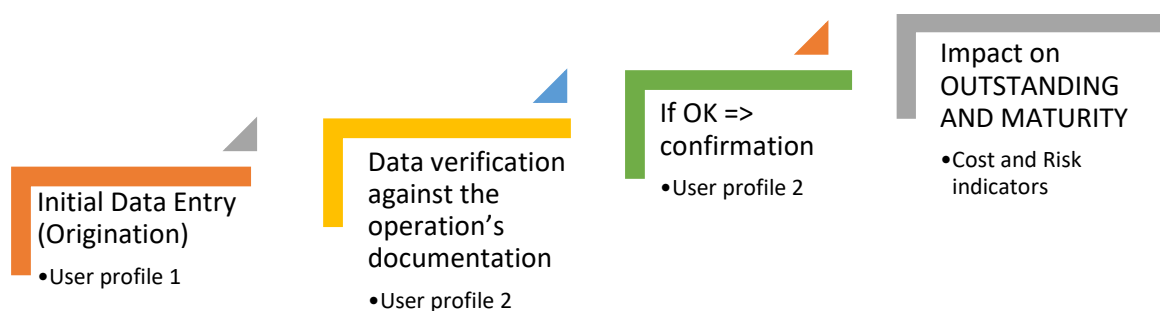
After the transaction has been recorded, the back office, with a broader access profile, will validate the information that has been entered into the system. This confirms the debt record in the system, which in turn will affect the overall debt portfolio and associated indicators, including maturity structure.

A secure debt management information system is essential. This is typically championed by the back office with support from information technology (IT) specialists to ensure data security. A key priority is effective access control, with users having different privileges to read and write data to and from the system, in addition to adequate backups and storage of data off-site on remote servers to facilitate disaster recovery. A written instructions manual describing all steps of the debt recording process is also needed to mitigate operational risk.

The process of recording debt may be different for each type of debt instrument. For example, loan contracts, with future debt disbursements and repayments must continue to be interpreted and recorded after confirmation. Debt securities are also often subject to changes in records, particularly if they are re-opened subject to liability management operations (for example, buybacks, exchanges), or have floating interest rates or are denominated in foreign currency. In all cases, recording is dependent on such variables as exchange rate, inflation, and interest rates. These inputs are typically provided by other parts of the Central Bank or Ministry of Finance (MoF). Guarantees represent a potential future contractual debt and need to follow a similar process.

For on-lending, the original loan from a creditor is often the first leg of an operation's to be recorded. The second leg of the transaction is defined when the central government forwards the resources originally mobilized to another entity (a SOE for example) through an agreement. The first leg is a typical debt contract and should be registered accordingly. The second leg is a credit against the entity and could have different terms from the original loan. The original loan will increase the overall gross debt level, while the on-lent leg to a beneficiary may constitute an asset for the central government. For the purpose of accounting the net debt level the asset will offset central government's corresponding liability.

Figure 3: Recording Process



Source: Author

Loans

The unit negotiating the loan should begin the process of registering the contracts. Once the terms of the contract have been negotiated, usually, with the supervision of the legal office, it is signed by the government representative, and the recording process is sequenced. Again, staff members involved in the negotiation may take the initial step, under a specific user profile, by inserting the financial parameters (currency, interest rate, grace period, maturity etc) in the DMIS. This will also help managers to estimate the overall future debt service for budgetary purposes.

In the second step, the back office interprets the contracts, produces the term sheet and registers the contract.⁷ Debt is created when the disbursement (partial or full) is made by the creditor and recorded by the staff, affecting debt stock and affecting the maturity. The actual disbursement needs to be recorded straightaway. Before disbursement, the lender has a commitment to lend the funds, but effective borrowing has not yet been undertaken.

A potential challenge is to get information from loan contracts which are not under the direct oversight of the MoF. They may be scattered across different Line Ministries (LiM) and other implementing

⁷ See MEFMI (2010) for detailed information on recording a loan.

agencies. LICs report this as being one of the most challenging tasks to keep recorded data up to date⁸. Some countries avoid this by centralizing all borrowing decisions with the MoF and have one unit responsible for monitoring project execution. Because this is still central government debt, it is possible to control the cash flow of the contracts. Effective co-ordination can be a challenge because of a lack of mandate or authority given to debt management staff to liaise with executing agencies. Enabling the staff to retrieve that information requires managerial, operational and regulatory measures from the DMO or Ministry of Finance. Procedures manual formally approved within the DeM entities are often conjugated with internal ordinances and decrees enabling debt managers to retrieve the disbursements from the execution agencies in liaison with the treasury/accountant general.⁹

How disbursements are made also needs to be considered. In the case of project loans, disbursement can take the form of: (i) advances to the borrowing entity; (ii) direct payment by the lender to suppliers of goods and services; or (iii) the reimbursement basis after the borrower has already paid the suppliers. The timing of the disbursement is different under each of these methods. Under the advances approach, periodic payments by the lender to the borrowing government constitute disbursement; under the direct payment approach, it is the moment when the lender pays the supplier; and under the reimbursement approach, it is when reimbursements are made to the borrowing government. The back office must keep track of these transactions and reconcile its records at regular intervals with information maintained by the line ministries and/or project agencies, as well as the government's own accounts.¹⁰

When a LiM is executing a contract, for example one that is financed by a multilateral development agency, it requests disbursement after providing proof that the project has been implemented. The LiM typically sends a request to both the creditor and the Treasury (MoF), the Treasury manages the account where the financed resources are deposited. Using Financial Management Information System (FMIS) applications, the resources are transferred to the LiM to fulfill its objectives under the project.¹¹

At the same time, the Treasury and the creditor will inform the DMO that the disbursement was made. As such, the back office accesses the FMIS and verifies if the resources affected its cash position at the specific date. They would also check with the creditor, either through their web-based portal or getting in touch with them directly. Another verification step could be to contact the LiM to ensure that the information is correct. Once there are matches on the disbursement, it will be recorded in the system.

When the disbursement period is coming to maturity or when there exists a lump sum loan staff should make sure the total disbursement is capped by the outstanding volume under the contract. This is an additional precaution that should be followed for consistency.

Best practices show a high degree of integration between DMIS and FMIS; yet this integration is lagging. Better results can be achieved by having essential information on recording, disbursements, settlement flowing between both systems on a timely basis, minimizing operational risks and improving the quality of the inputs necessary for other debt functions. Monitoring debt events and programming payments is even more relevant with active debt management. Yet in most cases, debt systems are kept as separate components. Although integration is desired, its absence should not prevent practitioners to use the information available in both systems to reconcile recorded debt.

⁸ Unpublished in confidential DeMPA reports.

⁹ Many countries hire consultants to design a procedures manual based on best practices and tailored to the local reality.

¹⁰ See MINECOFIN, 2012.

¹¹ See World Bank, 2014.

In advanced countries this integration facilitates coordination between debt and cash management, each with different set of functionalities embedded on the FMIS, reflecting different institutional structures and Public Financial Management (PFM) framework.¹² Typical FMIS supports the automation and integration of PFM processes, including: (i) Budget Planning – to facilitate budget formulation; (ii) Treasury Systems- to enable budget authorizations, commitment control, payments, cash forecasting and management; (iii) Budget Monitoring- for accounting and reporting.

Securities

The process of recording securities is similar to that for loans. The unit which issued the securities (typically the front office) should initiate the process by entering the information into the debt system. The back office should then check the terms and conditions of the offering, including whether it was an auction, direct issuance, or syndication. The record will typically include the amount sold and the security's specific characteristics, including issue date, ISIN, principal, interest rate, indexation (if any), amortization schedule, for each instrument (or series). It is important to distinguish between re-openings of the same instrument, and issuance of a new instrument, which has its own principal repayment schedule, currency and coupon (interest) conditions, and is not fungible with existing instruments. Lines can be also seen as a group of fungible debt instruments that share the same attributes and repayment conditions.

It's very important to distinguish between the one-off process of setting up an instrument in a system with its terms and conditions, and creating issuance records relating to a specific transaction, which will use the fixed details of the instrument such as its redemption date and interest rate, coupon rate and amortization characteristics. "Setting up" refers to configuring the debt instrument in the system, whereas recording the debt instrument attaches a volume and a price (with its corresponding yield or coupon rates) derived from the transaction. Box 1 shows an example where a five-years bond is set up and then reopened repeatedly, preserving basic conditions (ISIN, redemption date and coupon rate) set at the inaugural issuance.

Recording is undertaken by checking the initial input with the official documents that set out the results, like a press release or a ministerial decree. The information then needs to be sent to the central securities depository (CSD), which is often managed by the Central Bank. This is an extra step in the process and allows the clearing house to confirm the operation, affecting the outstanding debt and the maturity profile. As a result, the initial recording in the DMIS is mirrored by the registration in the clearing house, affecting the amounts for each security in the stock.

It is important to keep in mind that records are a representation of financial flows that are going to be settled and that resources will be transferred to or from the Treasury Single Account (TSA), affecting the government liquidity position. These procedures must also be recorded by another unit - usually the payments team- upon settlement date, by accessing the FMIS. They will create other types of registries, with three aspects in mind: financial; accounting; and budgetary. These will be explored further.

¹² It's the case for most OECD countries. Brazil, Colombia and Peru have advanced practices in sharing debt flows with the treasury department.

Box 1 – Reopening Securities Lines

Every bond has an identification number (ISIN), with a specific maturity date and coupon rate.¹³ Figure 4 describes a sequence of five-year bonds issued throughout one year.

The diagram shows that every single issue $\{t_0, t_1, \dots, t_n\}$ is a new line with different maturity dates (and possibly a different coupon rate). By doing this, a debt manager would end the year with a cluster of small bonds with different residual redemption dates five years from the original issuance $\{t_0+5, t_1+5, \dots, t_n+5\}$.

Conversely, debt managers may reopen the five-year bond throughout the calendar year. This would increase the volume of the bond, with equal maturity date and coupon rate. Figure 5 shows that, by the end of the year, the result would be a single bond, with a relatively larger size than each bond described in Figure 4.

Figure 4: Five-year Bond Issue without Reopening

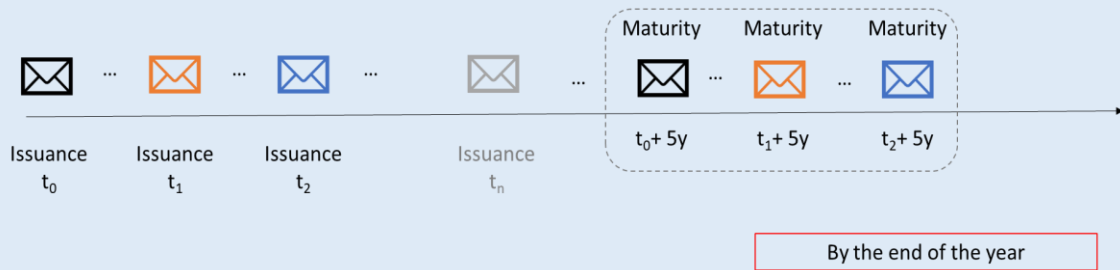


Figure 5: Reopening a Five-year Bond



¹³ Zero coupon bonds may be reoffered sequentially, observing its identical ISIN and maturity dates.

Box 2 - Face Value and Market Value, Prices and Quantities

Debt management information systems typically require the user to enter a set of inputs depending on the type of security offered to the public. For example, the security can have a coupon that is fixed or floating (or be zero coupon), be denominated in domestic or foreign currency, make a bullet principal repayment or be amortizing, have a fixed maturity date or be perpetual, or have some form of indexation (e.g. to inflation). Each instrument should have a standard identification number (ISIN) and may also have a local reference or instrument code to facilitate identification.

Once the general characteristics of the security have been registered in the system, for every issue of the instrument, a user is required to enter the nominal amount issued (face value), the total amount of cash raised, as well as the price (or yield rate) defined in the transaction. In addition to the total face value, debt systems can process and store the market value of the securities, effectively expressing the value of the stock in present value terms. These inputs also allow managers to record the quantity of the bond sold to the public.

For example, if USD 1.5 bn is raised through a nominal bond and sold at par (price=100), the price is equivalent of USD 1,000 and the system will understand that the quantity of that specific security is 1.5 mn units. Now, if it's sold at a price of 102, the system should record the nominal amount of USD 1.5 bn in addition to the fact that the cash amount raised was USD 153 bn.

Debt systems and central securities depositories can store information on the debt stock in present value as an aggregation of prices and quantities for each re-opening of every security, where the aggregate price for an instrument is the average of prices from each reopening.

Using face and market value (besides storing prices and quantities) allows debt managers to track each component of the debt individually. This is useful for reconciliation with the central depository and for the back office in the case of eventual discrepancies or operational errors. It is especially important for portfolios loaded with inked instruments, where the face value is not fixed.

Being able to work with nominal and market value facilitates the implementation of liability management operations. As they happen in future, buybacks (and exchanges) occur at prices that are different from original issuance. Representing the debt stock as an inventory of quantities and prices helps to analyze the true costs of an operation, that are obscured by reliance on the coupon rate.

Recording in a Constrained Environment

Most LICs have limited human resources; they typically need additional training; their IT-infrastructure may not fully integrate important systems with the DMIS, like clearing houses or FMIS. Efficient information management will need to process the operation from the front office directly to the back office, and to settlement and accounting. In LICs, however, inputs are often manually inserted, increasing operational risk.

LICs should nevertheless be able to develop and implement a strong, consistent recording process. Staff should be close to the unit where the debt originated, receiving information on loans and securities to put into the systems even if the debt was created outside the DMO. For that matter some countries use term sheets to facilitate recording the correct information. However, it's common to observe external affairs departments (or international cooperation) inside the MoF having a central role in negotiating

loans, sometimes sidelining the DMO. Similarly, Central Banks (CB)/Stock Exchange (SE) often have a large role regarding borrowing decisions while operating as the fiscal agent for securities issuances, which could result in the use of privileged information and conflict with monetary policy implementation (in case the CB is the fiscal agent).

Settlement of securities is rarely integrated in LICs. After domestic government securities have been sold, the CB/SE typically work as the clearing house and registry for these securities. Upon completion, the fiscal agent will settle the transactions by ensuring that the net proceeds are credited to the TSA. The CB/SE will update the registry system records with holders of the securities in book entry format (some countries still issue physical certificates on request, instead of scripless securities). The CB/SE uses a direct debit authority to transfer funds from the bank accounts of the successful bidders to the TSA. The back office will be responsible for ensuring that DMIS also captures these transactions and notifies the accounting office of these activities.

B. Monitoring

Once debt is created and recorded, it must be regularly monitored. Any changes in the outstanding debt must be checked and the same unit responsible for recording should be responsible for tracking stocks and flows by checking with clearing houses in the case of securities, and creditors in the case of contracts. All contracts must be monitored, either directly or indirectly under DMO oversight.

Monitoring is also important for the annual budgetary process, closely linked to debt service estimates. Forecasting of debt service payments on existing debt is often undertaken by the back office; economic and financial parameters are provided by other units. Information on new financing or borrowing is provided by the front office, and project loan disbursements are provided by line ministries and/or project agencies. The forecasts could be validated by the middle office that would also monitor actual debt service versus forecast debt service throughout the fiscal year. The debt service forecasts must be monitored and submitted to the budget office.

Loans

Contract monitoring requires close coordination with creditors and disbursing units. There needs to be a clear understanding of the contracts and how to record them in the system and records may need to be adjusted when disbursements and payments are made. The unit needs to maintain contact with individual creditors to collect information about the financial activity underlying a contract so that it is able to monitor any events that could impact the debt.

The process is very similar to the one described with LiM: the back office should check disbursements and repayments with every creditor and debtor on a regular basis, especially if the units responsible for spending the resources are located elsewhere. Debt management staff should interact constantly with creditors, for example through access to their operations portal. The final objective is to verify the activity of disbursements throughout the life of the contract so that that information can be accurately input into the DMIS and that future flows can be estimated correctly. Managers will then be able to check them against incoming invoices and prepare the incoming payments when there is consistency. In the absence of consistency, the creditors will need to provide a valid reason.

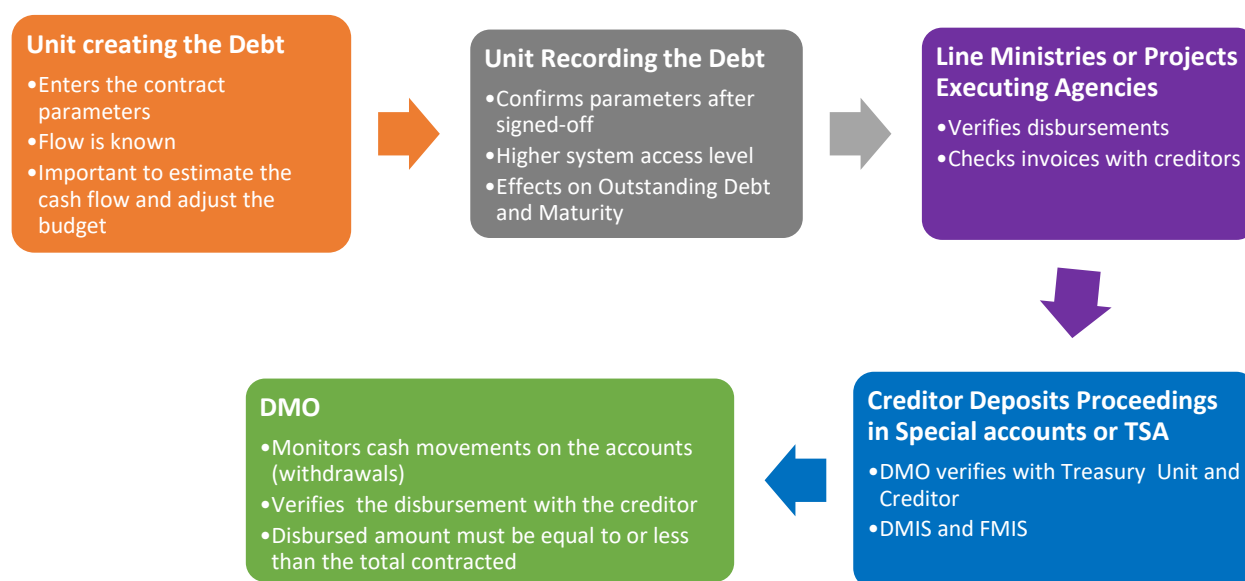
There are often amendments to the loan agreement, sometimes near to the closing date. This creates difficulty for the debt unit and will impact its ability to record the transactions with precision and in a timely manner. Given that creditors often charge commitment fees on the undisbursed balance, the debt unit should actively monitor the time frame of the loan, even if the project is closed but there is an

undisbursed balance that has not been cancelled. The back office is responsible for helping to prevent this as it may disturb the amortization profile.

This situation can be a challenge for reconciliation procedures. Debt recorded may be outdated or imprecise especially if there are financial mismatches between creditors' notices and those executing a project. Effective coordination is needed for regular reconciliation.

The procedures described above apply to guaranteed credit operations as they are a special case of contractual debt, composed of three parties: (a) creditor; (b) guaranteed debtor (for example a guaranteed SOE, Local Government); (c) guarantor (the Central Government). Close collaboration with creditors and debtors is necessary for adequate monitoring and oversight.

Figure 6: Monitoring Loan Contracts



Source: Author

Securities

Monitoring of securities requires close coordination with the clearing house and the back office. After securities have been issued and recorded, monitoring is required for every new issue and reopening of each security. Debt managers tend to re-open securities for a given period to improve their liquidity and pricing. A debt manager also must verify the amount at maturity, or in the instance of an early redemption or debt exchange.

Conversely, the stock of a given security will be reduced when redeemed either at maturity, by early redemption or by exchanging with other securities. There should be constant verification of the amounts involved with the unit that is performing those operations. The objective is to reconcile these operations with the DMIS and clearing houses.

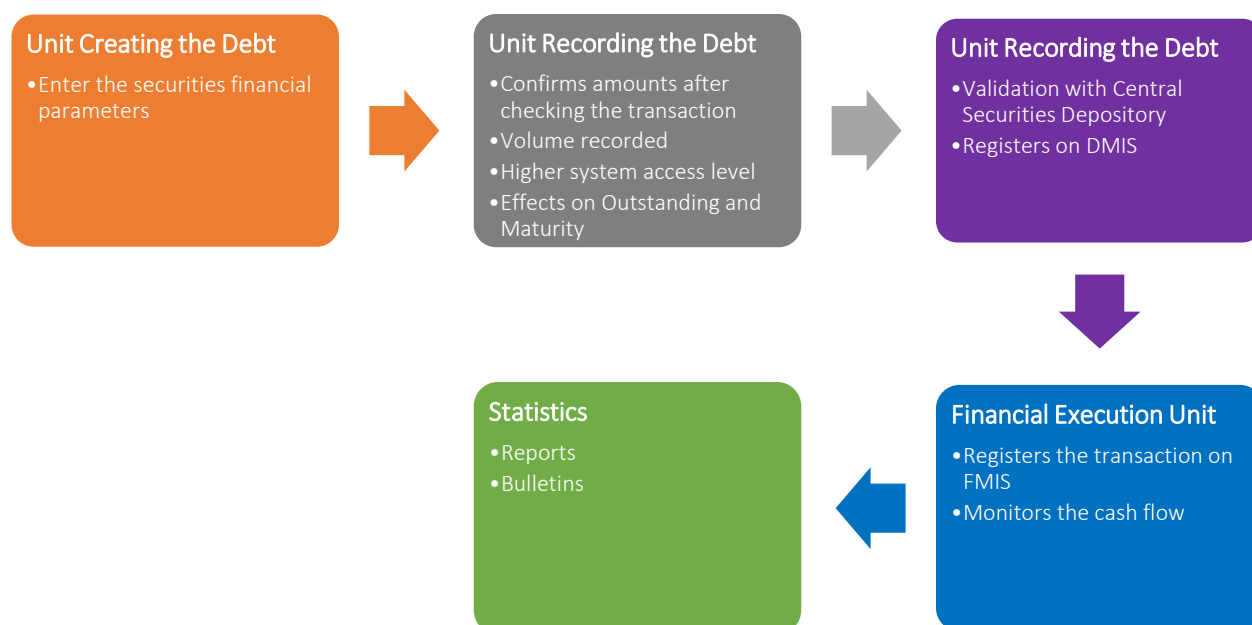
The frequency of verifications between the DMO and the clearing houses will depend on the level of market activity and the frequency of reporting. For securities registered in the domestic market this can be done daily, weekly or monthly. For example, some countries have sovereign retail debt programs that sell and repurchase bonds daily, which might not be significant in the context of the overall debt

portfolio, but they should be monitored in the same way as securities distributed in the wholesale market.¹⁴

For external securities, similar procedures should be followed. These securities are reopened occasionally as they tend to be offered in book-building or in syndicated operations. In this case, the volumes will change only occasionally, as a consequence of liability management operations or reopenings. The back office should keep its own records within the system and coordinate verification with their fiscal agent every semester.

Monitoring is closely related to recording. Those responsible for establishing the debt management entity and designing its managerial structure will want to consider how to cluster these activities in a single unit where both processes can be performed. The higher the number, and the more complex the debt instruments, the more staff will be needed. Extra staff will also be needed as debt management operations increase.

Figure 7: Monitoring Securities



Source: Author

Monitoring in a Constrained Environment

Where resources are limited, particularly in an understaffed environment some of the aforementioned basic functions will need to be combined. For example, the unit, or staff responsible for registering information could also be monitoring outstanding debt instruments.

The main challenge for LICs is to get timely information on events affecting contracts for projects that are executed outside the MoF. LICs often rely on the creditor notices of disbursements, but the back office should check the disbursement information with the unit responsible for executing the project, normally the LiM or implementing agency. There must be coordination with the Treasury, which is ultimately the entity managing the financial flows. An additional challenge arises when the Treasury

¹⁴ For example, Nepal, Kenya, Pakistan, Brazil and Mexico.

does not monitor the flows: the financing agency may transfer the resources directly to: (i) the entities implementing the project or (ii) the suppliers of goods and services. In any case, events need to be tracked, then recorded and double-checked accordingly. All disbursement notices must be sent to the Treasury and accountant office (or similar).

For domestic debt securities, the CB/SE in many LICs undertakes all issuances and redemptions of bills and bonds on behalf of the MoF. Coordination is often limited and the back office struggles to gather updated data of the stock and maturity. As a mitigating factor, most LICs have low activity in the local bond market. This does not mean that the need to do cross-verification is not as pressing, given that short-term bills are widely used. Hence monthly updates are desirable.

C. Financial Execution

Payments execution is a critical process within the back office. The back office is responsible for ensuring that all central government debt obligations are paid timely and accurately. The process is focused on how the debt will be serviced: either by initiating payment (the typical attribution) or by actually effectuating payments through the fiscal programming.¹⁵ The back office needs to settle transactions and mobilize the cash raised through debt management operations; it also needs to manage other budgetary resources to service the debt. This process relies on resources mobilization, which means that the back office will need to handle budgetary and accounting procedures in the FMIS.

Good debt recording and monitoring allows debt officers to verify payment notices, interest payments and redemptions with their own information. Debt officers will have first-hand knowledge of payments and will not have to rely solely on information supplied on creditor invoices, as has been observed in some LICs¹⁶.

Monitoring upcoming redemptions and interest payments, facilitates execution of debt service payments. For this to happen, the back office must also be prepared by keeping track of upcoming redemptions and interest payments, and verifying the budgetary authorizations in advance, normally broken down by interest and principal. To prepare the payment instructions, the back office needs to interact with the Treasury fiscal programming area to identify the sources for the payment.

Based on DMIS and FMIS user profile authorization, the staff will prepare all the documents necessary to implement the transaction. This typically involves setting: (a) accounting routines; (b) budgetary details and registers/codes and (c) financial recordings/earmarking. Once those registers are referred to the transaction, banking instructions will be sent for final approval, usually by the head of the unit (or head of the back office) to release the payment.

The degree of integration between settlement and its corresponding registries on budgetary and accounting registries depends on the country-specific Public Financial Management (PFM). This refers to: accounting standards; public finance law; budgetary and financial procedures to oversee aggregate control; prioritization; accountability; and efficiency in public resource management.¹⁷ In addition, it also depends on the components of the debt. For example, the budget may be organized to provide

¹⁵ See IMF, 2003 *“Public Financial Management and Its Emerging Architecture - Chapter 9: Cash Management and Debt Management: Two Sides of The Same Coin?”*, Washington, DC.

¹⁶ Some undisclosed DeMPA and Reform Plans reports in some LICs describe how some countries are currently not structured to conduct reliable recording, monitoring or reporting.

¹⁷ Sound PFM systems are fundamental for the appropriate use and effectiveness of donor assistance as aid is increasingly provided through modalities that rely on well-functioning systems for budget development, execution and control (World Bank 2016).

clarity and scrutiny for all types of debt instruments and debt-related transactions like domestic bonds for funding needs, domestic bonds for special purposes (defined by law), domestic loans, external bonds, external loans, guarantee payments, buybacks, etc. Each of these would have its own accounting routine and specific budget authorization.

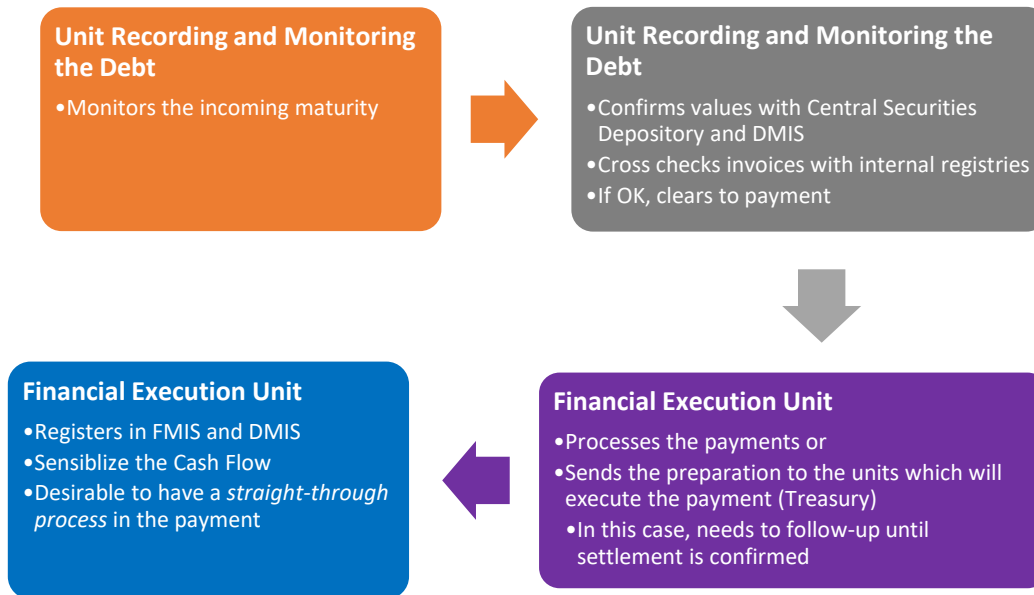
All cash derived from debt-related transactions must be accounted for and registered. In this case, when the resources are mobilized through debt issuance (securities), the bond buyers settle the transactions in a clearing house, which will send the cash to the TSA.¹⁸ As such, the financial execution must verify the accuracy of the deposits and record them in the FMIS, closely coordinating with the Treasury management unit. If there are available budgetary revenues from sources other than debt transactions, this must also be monitored.

Because of its involvement with payments and debt proceeds, financial execution is a focal point for auditors. External and internal auditors are focused on the reliability and integrity of financial and operational information, the effectiveness of the internal control system, and compliance with laws and regulations. Financial auditors assess the risk of material misstatement of public debt information that has been disclosed in financial reports, whether this is a result of error or fraud, to issue an opinion on the fairness of the public debt assertions (World Bank, 2015). As such, they are interested in the activities associated with this debt process to verify if payments have been made correctly.

The DMO should be more involved in the actual payment process. With a specific unit in the DMO dedicated to the payment process, there is less dependency on a third party to execute the payment, which reduces operational risk. The reality, however, is that the back office initiates payment procedures and forwards this to another unit in the government to complete the execution. If debt payments are executed inside the DMO, they are prioritized and do not compete with other types of spending in the fiscal programming schedule. Debt-related payments tend to create a high degree of specialization in terms of accounting and budgeting, and, because they are correlated with other areas in the DMO, there are positive spillover effects and knowledge-sharing. Finally, a dedicated payments unit facilitates gathering of information on cash flows, important for debt payments, as well as strategic planning and short-term operations.

¹⁸ It is quite common to see countries having a sub-account in the TSA that is exclusively dedicated to debt-related transactions.

Figure 8: Financial Execution of Debt Payments



Source: Author

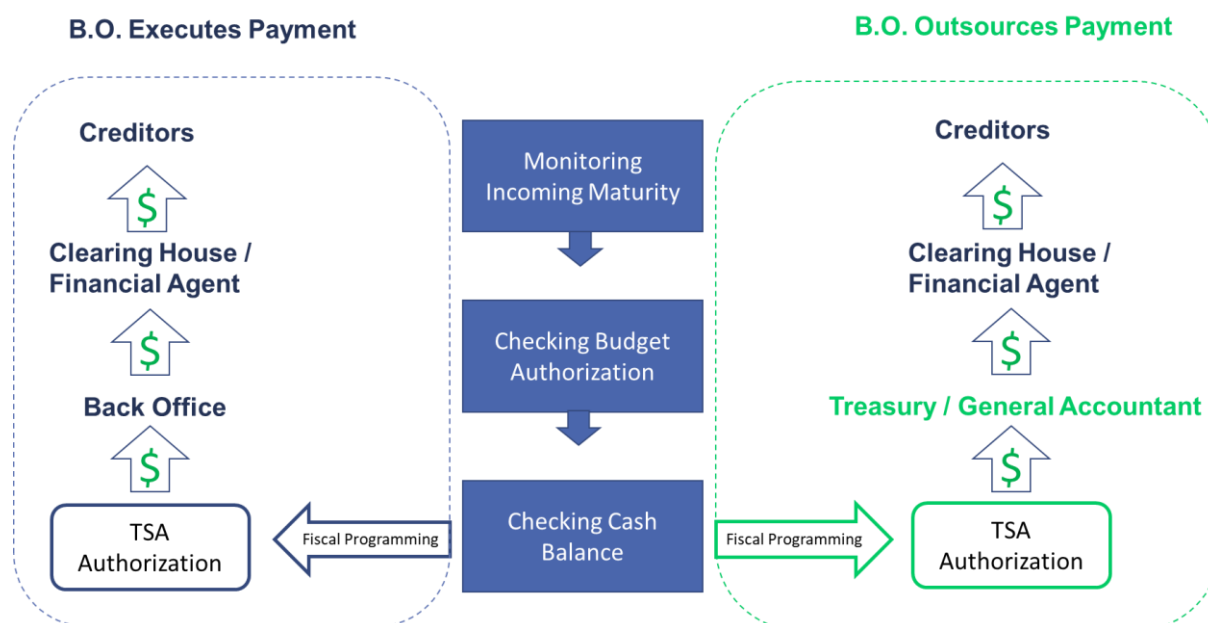
Financial Execution in a Constrained Environment

The debt management unit typically prepares payments and sends this to the Treasury for execution. The Treasury records the payment in the FMIS and payment instructions are forwarded to the fiscal agent to process payments to external and domestic creditors through the relevant government bank accounts, the fiscal agent is usually the central bank.¹⁹ Increased operational risk becomes a challenge as more steps and more people are added to payment execution; undertaking financial execution internally could help decrease this risk and simplify debt payment. Some countries have reported that losing control at the end of the payment settlement process, has caused delays and influenced recording, resulting in errors and negatively affecting the quality of overall debt statistics.

The integration of Treasury and Debt Management is also important to facilitate cash management. Because of the size of debt operations, it's critical for the treasury department to have real-time and accurate information on debt flows affecting the TSA. At the same time, the debt department will react to treasury cash needs throughout the budget execution. The information between these units is required to align short- and long-term issuance strategies, synchronization of annual borrowing plan execution and management of cash balances, for example.

¹⁹ In the case of securities, a fiscal agent would be used to interact with the clearing house and final holders.

Figure 9: Simplified Procedures for Financial Execution of Debt Payments



8

Source: Author

D. Reporting

Reporting and generating debt data for analysis are important debt office functions. The primary goal is to provide data to support debt management, but it also serves other objectives. Reporting will help fulfill legal requirements for accountability by increasing transparency, and by communicating with the whole financial community and society in general. Different groups benefit from sound reporting, including: MoF senior officials; budget and fiscal departments; the legislative; domestic and international financial institutions; rating agencies; and investors. Indeed, keeping updated and accurate debt records in a DMIS is a typical back office function. As discussed later, some countries allocate the reporting function within the analytical area (usually the middle office), which will benefit from accessing the DMIS.²⁰

In recent years, countries have become keenly aware of the need to create and maintain transparency-related products and activities related to sovereign debt. In this context, producing high quality reports is fundamental to both countries and creditors aiming at diminishing the information asymmetries between them. It facilitates improved credit risk assessment and pricing, potentially reducing borrowing costs.²¹

A few elements are required for effective communication between debtors and creditors: (i) dissemination through a website or e-mail of data and information on recent economic performance and policy initiatives; (ii) establishment of channels (either formal or informal) to answer the questions of investors, and to obtain feedback of their concerns; (iii) contacts of senior policymakers with investors

²⁰ It assumes the information stored in the DMIS is sound. Some countries in Southern Africa have the middle office auditing debt records instead of focusing on forward looking analysis.

²¹ Frequently, a broader scope of sovereign debt is covered by debt managers in respect to its communication efforts. Government related entities such as SOEs and Subnational debt, along with other fiscal risks are monitored by the investors' community and multilateral development agencies.

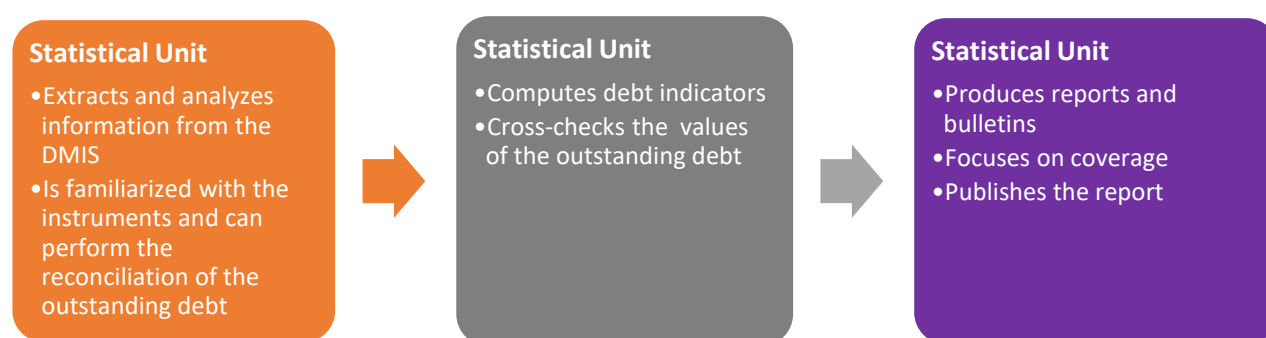
through meetings, teleconferences and roadshows to discuss issues of mutual interest; (iv) coordination among the different government entities in providing information to reduce the lack of familiarity among investors of the economic situation facing a country, while fostering a two-way dialogue (IMF, 2004).

Some of these indicators could be replicated for specific types of debts. For example, guarantees on credit operation could be disaggregated and could contain descriptions of creditors, original debtors, currency, interest rate exposure, and so on. In that case, it would be important to describe the risk factors that could trigger the execution of the guarantee, in addition to describing the procedures to be followed by the back office to ensure that creditors are protected against credit events (defaults).

In coordination with the risk monitoring and compliance office, the back office could manage operational risks relating to data security (e.g. debt data back-ups). The objective would be to ensure that debt recording and management system backups are made frequently and that backups are stored in a separate, secure location. The DeMPA methodology provides guidance on high standards for data security and administration.

Lastly, reports need to be published in English as well as the original language. Most countries use the internet to post reports and there are numerous examples that are published on a monthly basis. The International Institute of Finance (IIF) publishes a ranking of 40 countries in terms of their investor relations practices and data dissemination; it describes the steps taken by many economies to strengthen their relationship with the investor's community (IIF, 2017). These practices are supported by other agencies and international financial institutions, including the IMF and the World Bank. Therefore, to the extent that transparency should facilitate credit assessment, and have an impact on borrowing costs, it has an important role to fulfill by differentiating between issuers competing for funds in the capital market.

Figure 10: Reporting Debt Indicators



Source: Author

Box 3 - Debt Statistical Bulletins

A debt statistical bulletin (or its equivalent) covering the entire debt portfolio is essential for transparency to debt management. This bulletin could assume various forms. As a core function of the DMO, it should be published regularly (quarterly or monthly) and the goal is to provide information on central government debt stocks (by creditor, residency classification, instrument, currency, interest rate basis, original, and residual maturity); debt flows (principal and interest payments); debt ratios and indicators; and basic risk measures of the portfolio. Loan guarantees should also be decomposed by type of loan (e.g., creditor, residency classification, instrument, currency, interest rate basis, original and residual maturity), clarifying how much has already been amortized.

It should include basic risk measures including ratios of guaranteed debt to gross domestic product (GDP); guaranteed loans in foreign currency to total guaranteed debt; and the proportion of the guarantees triggered over the past five years.

According to DeMPA, at higher standards, a debt statistical bulletin should cover the following risk measures:

- Share of fixed rate to floating rate debt
- Share of short-term to long-term debt
- Average time to interest rate refixing
- Share of interest rate to be refixed within one year
- Share of foreign currency to domestic currency debt
- Currency composition of foreign currency debt
- Average time to maturity of the debt
- Redemption profile of the debt
- Share of debt to be refinanced within one year
- Average Cost
- Share of non-resident holdings on domestic debt

Other indicators may be reported and described, relating borrowing activities to the debt strategy. Similar to materials often distributed to investors, statistical bulletins may also contain granular and historical information on:

- Interest rates of each loan, by creditor
- Auctions - calendar, dates, amounts offered/sold, demand, cut-off yield rate, average yield, settlement date
- Eurobonds - Prospectus and Operation details (price, yield, coupon, spread at issuance, amount, maturity, fee, bookrunners)
- Arrears - Description of their nature, flow (materialization), notional amounts
- Swaps - Amounts, conditions, counterpart, regulatory framework.

Reporting in a Constrained Environment

Good reporting depends on the quality of the records created and monitored by the staff. The number and capacity (and training) of back office staff will determine their ability to produce reports on a timely basis. Such limitations should not prevent them from supporting the reporting process and from being capable of providing information needed by counterparts in the DMO, other parts of the government or ultimately, the financial community. The discussion in this note has focused on debt loans and

securities, which are the instruments that most LICs deal with. Notwithstanding, it may also be helpful for broader debt that may not be directly managed by the central government, for instance, SOE debt and subnational government (non-guaranteed) debt.

Some LICs may be in the position to extend debt coverage beyond central government. To do that, they need to have the administrative/legal mandate, they will also need to have control of the extended portfolio, and coordinate with the entities covered. For example, if the central government has strong links and controls over SOEs or local governments, they could create a separate portfolio and apply a similar process to register those liabilities, and this could be segregated by debtor type. Strong coordination among the units in charge of SOEs, fiscal risks and DeM is key to capture the potential impacts on debt issuances, recording and reporting. In Brazil, the Federal Guarantees Report produced by the DMO is part of broader risks captured by the fiscal planning area within the Treasury. Ethiopia is an example of where the legal and administrative system regulates SOEs borrowing activities and operates as an extension of the central government. In their case, the DMO would be able to control public sector debt.²²

While a DMO is responsible for debt recording, debt monitoring, financial execution and reporting, units within the DMO are constantly interacting with each other and sharing information about ongoing activities and processes. To do so, it needs to establish links with units responsible for mobilizing funds, planning, as well as creditors, financial agents, the central securities depository, legal advisors, Treasury, budget, accountant's office, system providers, IT support, audit and compliance officers. Given the environment in which the DMO operates, a well-drafted procedures manual needs to be designed to outline each of the basic core debt functions.²³

3. Staff

Strong operational controls and well-defined responsibilities for staff members should reduce the risk of errors, policy breaches, and fraudulent behavior. Such actions could lead to significant losses for the government and could tarnish the reputation of not only the DMO but also the whole government (World Bank, 2015).

An important aspect in creating a strong back office is staffing. Staff distribution is dependent on internal organization and needs to consider how tasks are split between those focused on debt recording, reporting and financial execution.

Managers should have a good understanding of the public policy considerations involved in debt management and should facilitate an organizational culture that is consistent with the goals that have been set for the units. The back office does not usually negotiate loans or take part in decisions regarding the issuance of debt securities, however, it should follow them closely, as they impact their activities. While providing technical assistance, the WB and the IMF have observed that the DMO (particularly the back office) can often be sidelined in the context of important debt operations, such as Eurobond issuance. The back office's recommendations in respect of recording and settlement and requests on ongoing debt operations should be followed carefully.

Each process should have at least two staff members responsible for managing operational risk. Job rotation is highly recommended as skills learned in one position could be useful if transferred to another. The following skills are desirable for performing the processes discussed:

²² In Ethiopia, local governments currently are not authorized to create debt.

²³ See MINECOFIN (2012).

A. Recording and Monitoring

Skills

- Understanding the administrative procedures for each lender and donor
- Understanding debt transaction procedures: auctions, book-building, and other procedures
- Confirmation of the terms and conditions of the financial instruments (bonds, loans, guarantees, swaps, etc.) used by the team originating the debt
- Debt registration and database management in the particular DMIS
 - Process project disbursement and monitor contractual obligations
 - Process liability operations with securities
- Strong operational skills, attention to detail, ability to follow procedures and identify quickly when errors have occurred
- Authentication skills, to double-check the information recorded with the incoming payments

Training

- Basic finance,
- Financial mathematics, English
- Usage of spreadsheets and debt systems

B. Financial Execution

Skills

- Familiarity with the FMIS and DMIS
- Operational Risk Management
- Budget management for the government
- Understanding cash flow and cash balance

Training

- Usage of spreadsheets
- Accounting
- Budget procedures

C. Statistics / Reporting

Skills

- Familiarity with the DMIS
- Knowledge of debt indicators
- Understanding the needs of data users
- In coordination with the risk monitoring and compliance function, management of operational risks relating to data security (e.g. debt data back-ups).

Training

- Basic statistics
- Basic financial mathematics, English
- Understanding financial instruments (bonds, loans, guarantees, swaps -if applicable, other instruments)
- Usage of spreadsheets and editing software

Staff retention and succession policies that provide incentives and career opportunities should be developed. Public debt management requires staff with a combination of financial literacy, market skills (e.g., time value of money, compound interest, portfolio management and risk analysis) and public

policy skills. Regardless of the institutional structure, the ability to attract and retain skilled debt management staff is crucial for mitigating operational risk. This can be a major challenge for many countries, especially where there is a high demand for such staff in the private sector, or an overall shortage of such skills. Investment in training can help alleviate these problems, but where large salary differentials persist between the public and private sector for such staff, debt managers often find it difficult to retain these skills.

4. Debt Management Information System – Brief Guidance

A debt management information system (DMIS) is the backbone of any sovereign debt management office. A robust, well-functioning and user-friendly system allows governments to strengthen their debt management environment (Aslan *et al*, 2018). The main objective of a debt system is to meet the DMO specific needs, covering all of its activities and functions, interacting with external information technology platforms as an essential part of their information ecosystem.

The objective of this section is to briefly outline the desirable elements of a DMIS to support core functions and business processes, managing the flow between debt creation and debt repayment, at a minimum. The system's functionalities should reflect the range of responsibilities of the DMO and the number and complexity of debt instruments in the overall portfolio. To illustrate, debt managers are increasingly involved in activities other than their core business (i.e. mobilizing resources to finance the budget and refinance the debt). Often there is involvement in management of guarantees, which requires different procedures and controls compared to traditional debt (loans, bills and bonds). There has also been the issuance of several other types of financial instruments such as Sukuk, catastrophe, green bonds and other non-standardized securities.

LICs are also bound to these types of instruments. By moving away from concessional borrowing, they look out other sources of funding, which eventually increases activity in the domestic market, as bills, bonds etc. are issued.²⁴ The development of this domestic market creates possibilities to use new cash management policies, introducing the usage of repo agreements as well as reopenings, early redemptions and exchanges.

The problems of having controls in parallel, outside a DMIS, is that it significantly increases operational risk. This is defined as the risk of loss resulting from inadequate or failed internal processes, people and systems, or from external events (Basel II 2004; Storkey *et al* 2010). The absence of a proper DMIS means that staff register and control debt operations in spreadsheets, which can result in poor recording and reporting. These risks are bundled together because human risk is heightened when operating spreadsheets, and unintentional errors or fraud are less likely to be detected or audited. The lack of a DMIS may also create a myriad of non-standardized file protocols, which could result in increased difficulties for any new staff at later stages.

The role of the DMIS is to support day-to-day business activities and to enable managers to make operational, tactical and strategic decisions in an efficient manner. It should be underpinned by an accurate, up-to-date and comprehensive database and have the ability to generate reports for the borrower and inform debt service estimates. This involves supporting front/middle/back office

²⁴ As of 2018, Lao PDR has launched an initiative to list domestic securities in the local securities exchange, making no objections on the participation of non-resident investors. Ethiopia and Mozambique have also had plans to develop the domestic market.

functions from debt negotiations, administering debt service and reporting, and facilitates the elaboration and implementation of debt strategies.

As such, the DMIS is based on (i) Data input; (ii) Storage, processing and retrieval; (iii) Information output (Maurel, 2017). This simplified tripod covers debt recording throughout the life of each instrument; it needs to cover all instruments (including guarantees and derivatives), types of operations (from auctions to liability management) and provide the necessary information to validate all debt related payments (including issuance). The aggregated information would allow managers to receive tailored reports for analyzing debt portfolios, breaking-down the outstanding debt by currency, creditor, concessionality, type of interest rate, other indexes. It should also bring together other portfolio indicators such as maturity profile, ATM²⁵, or costs, which would allow managers to analyze existing trade-offs associated with planning and strategy design. Box 4 provides more details on the relationship between debt systems and operational risk.

Ideally, the system would interface with other systems such as the FMIS; transaction management systems (if the DMO engages directly in financial market transactions); auctions; other systems used to make debt service payments.

Aslan et al. (2018) list the core functions of a DMIS ranked by the degree of importance. Mandatory functions include recording, validating and maintaining data; producing payment projections; and generating reports for analysis and decision. Relevant functions encompass conducting portfolio and risk analysis; planning future borrowings and resource mobilization associated with domestic bills and bonds issuances; and connecting with an FMIS. Desirable functions include straight-through processing where the transaction flow principle enables a single data entry and modification point for transactions. The method for transmitting payment notices to the Treasury and then consequently to the payment agent (usually the central bank) for actual settlement/repayment can depend on human intervention, but the risks associated with that could be greatly minimized if this method were automated.

Other attributes necessary to DMIS are related to the system interface, access to the database and ownership of the staff over its functionalities. The system should be user-friendly, have good technical quality and user documentation. As described, it should be based on the workflow and must be supported by the provider, who needs to interact with its users. Database construction depends on information flow under pre-defined coverage, quality, methodological soundness and timeliness. Data dissemination is important for testing the database, confronting maturities and invoices with internal information. Management information systems often fail due to lack of ownership, so users must be involved in the selection and review the system and, to do so, they must be adequately trained.

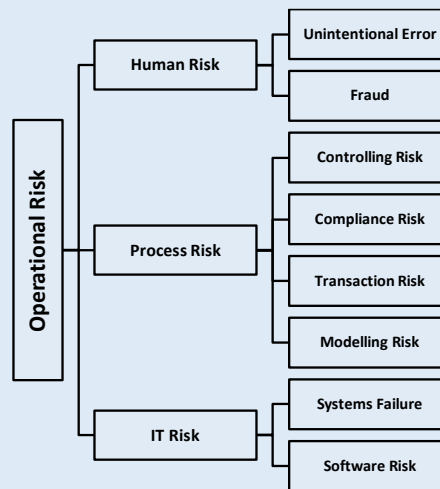
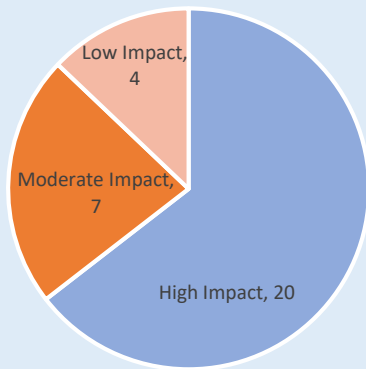
²⁵ Average Time to Maturity: a refinancing risk measure defined as the yearly principal repayment weighted by the remaining time to maturity and the overall debt stock.

Box 4 - Debt Systems and Operational Risk

To illustrate the link between DMIS and operational risk, in the early 2000s the Brazilian DMO used 4 structured systems, 5 databases and roughly 130 spreadsheets. After defining an operational risk model, an external consulting group mapped 67 processes: they identified their underlying risks, assessed the likelihood and impact of each risk, and developed a risk matrix. The Figure below shows the results. It was only after scrutinizing the processes and risks that an in-house system started to be built and was able to unify all existing systems and databases, downsizing risks, and improving productivity and transparency.

Figure 11: Operational Risk Assessment in the Brazilian DMO (as of 2003)

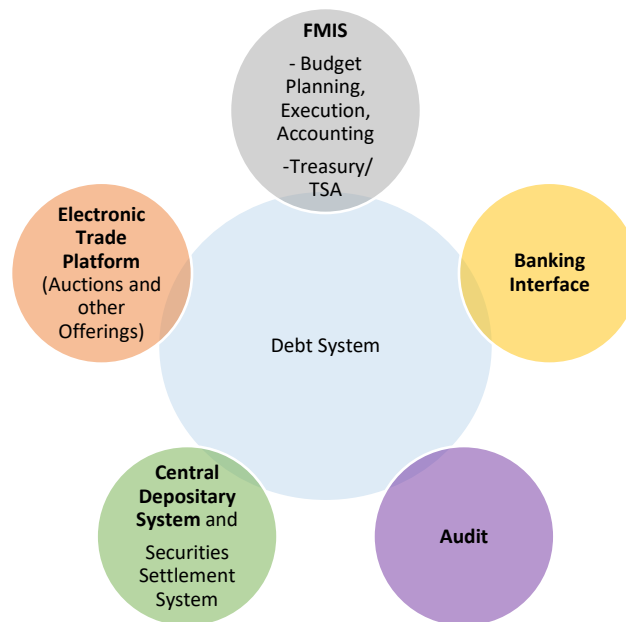
Back Office- Number of procedures assessed



Source: Brazilian National Treasury²⁶

²⁶ 11th UNCTAD Debt Management Conference (2017)

Figure 12: Debt Management Information System Integrated with other Systems



Source: Author

5. Conclusion

Debt recording, monitoring, and reporting are basic processes for any debt management office. Notwithstanding, there is always room for improvement as there is evidence that many countries' debt management offices suffer from a number of problems related to institutional/staffing issues; low awareness of the processes and poor understanding of the importance of debt recording; absence of procedures manuals; unsatisfactory use and performance of debt systems. Some countries do not have proper debt controls in place and are settling debt payments just from creditor notices, without verification of their own records.

This note has described how countries could organize their debt management units to function successfully, make sure they keep good records, and report this information effectively. One of the main challenges is to capture the information timely, and with accuracy, to be able to record it safely in the debt systems. Records need to be monitored according to the characteristics of the debt instruments such that any relevant event has the appropriate effect on outstanding debt and maturity. Transforming information into data is fundamental for producing debt reports and for providing internal and external data users with the information that they need.

A few conundrums are posed to debt managers with regards to recording and reporting. The first set of problems involves institutional and legal problems. There is extensive evidence that debt management is often fragmented, which makes data collection more complicated and may leave it vulnerable to mistakes. This note advocates for a specific unit in each debt management office to be responsible for information, data, and record-keeping. If this unit has the operational and legal mandate and the staff to manage all necessary steps to cover other types of debt within the public sector (for example, SOEs and subnational governments), it could even extend its coverage. However very few countries are currently doing this.

Secondly, staffing, capacity building and retention of talent is challenging. Sound debt recording involves separation of duties, but many countries have insufficient staff. Often there is a lack of analytical skills creating need for training to understand the specificities of each debt instrument, in tandem to the processes in which they are created, monitored and serviced. Lack of trained internal and external auditors can result in weak audits and a lack of follow-up on audit recommendations. Where responses are weak, or recommendations are ignored, audits have limited impact (World Bank and IMF, 2018a). This note has offered some guidance on the skills and training required for each process. However, the recommendation does not address the fact that many DMOs, especially in LICs, remain several understaffed.

Reliable debt systems are the cornerstone of an effective debt management office. The staff must know how to operate the system to record all liabilities based on an accurate and updated dataset, they must also use the system to monitor control the data and to generate reports. Connecting with other applications, such as payment systems, central securities depository, or FMIS is also essential.

Sound reporting is important for risk assessment and debtor monitoring, it is also important for the elaboration and execution of debt strategies. In that sense, the back office has a key transparency role, not only for different parts of the government, but also for external stakeholders. As regards government, their activities will affect cash mobilization, budgetary and fiscal planning, design and implementation of debt strategies, including borrowing plans. Creditors, and the wider part of the investors' community, also benefit from these activities, by monitoring the debt and the appearance of contingent liabilities.

Annex 1 – Glossary

Arrears	A legal term for the part of a debt or an obligation that is overdue after missing one or more contractual payments.
Average Time to Maturity (ATM)	An average of principal repayments weighted by the remaining time to maturity. A refinancing risk indicator.
Average Time to Refixing (ATR)	An average of principal repayments weighted by the remaining time to maturity, considering all variable debt repayment in the short-term. An interest rate risk indicator.
Back Office	Handles the settlement of transactions and the maintenance of the financial records.
Book Entry	A system of tracking ownership of securities where no physical certificate is given to investors.
Cash Flow	A distribution of principal and interest payments over time.
Cash Management	Strategy and underlying process for managing cost-effectively short-term government cash flows and cash balances within government and across other sectors.
Central Securities Depository (CSD)	A specialized financial organization holding securities such as bonds and shares in certificated or uncertificated (dematerialized) form so that ownership can be easily transferred through a book entry rather than the transfer of physical certificates.
Clearing	All activities from the time a commitment is made for a transaction until it is settled.
Contingent Liabilities	Obligations that do not arise unless a particular, discrete event occurs in the future. Usually not a debt instrument.
Coupon Bearing Bond	A bond which makes coupon payments (usually on a regular basis) between issuance and redemption.
Coupon Payments	The annual interest payment that is made on a bond until it matures.
Debt Assumption	Trilateral agreement between a creditor, a former debtor, and a new debtor under which the new debtor assumes the former debtor's outstanding liability to the creditor and is liable for repayment of debt. Example: Calling a guarantee.

Debt Instruments	Financial claims that require payment(s) of interest and/or principal by the debtor to the creditor at a date (or dates) in the future.
Debt Management Recording System	IT system that is capable of, at a minimum, (i) Data input; (ii) Storage, processing transactions and retrieval; (iii) Information output. Considered part of other PFM systems.
Debt Management Strategy	A document outlining how the Government will meet its financing goals while achieving an appropriate balance between cost and risk and supporting secondary objectives such as development of the domestic debt market. Analytically informed, typically including quantitative benchmarks or targets.
Debt of Debt Maturing in i year	Share of the debt falling due in one year.
Debt Prepayment	Repurchase, or early payment, of debt at conditions that are agreed between the debtor and the creditor.
Debt Securities	Negotiable financial instruments serving as evidence of a debt. Normally a schedule for interest payments and principal repayments is specified. Examples include: Bills and bonds: securities that give holders the unconditional rights to receive fixed payments or contractually determined variable payments on a specified date or dates (e.g., treasury bills, promissory notes, etc.)
Delivery vs Payment (DvP)	Common form of settlement for securities. The process involves the simultaneous delivery of all documents necessary to give effect to a transfer of securities in exchange for the receipt of the stipulated payment amount.
Derivatives	A contract whose value is derived from that of other quantities. Examples, Interest Rate and Foreign Exchange Swaps.
Eurobonds/Global Bonds	A debt instrument issued in a currency other than the domestic currency of the country in which it is issued.
Face Value	The amount to be repaid at maturity.
Financial Management Information System	IT System with various applications and interfaces to support the automation and integration of PFM processes, including: (i) Budget Planning – to facilitate budget formulation; (ii) Treasury Systems- to enable budget authorizations, commitment control, payments, cash forecasting and management; (iii) Budget Monitoring- for accounting and reporting.
Fiscal Agent	An entity that manages fiscal matters on behalf of another party. A fiscal agent may assist in the redemption of bonds or coupons at maturity. Example: The FED is the fiscal agent of the Government of the United States.
Fixed Rate Debt	Share of debt with fixed interest rate.

Floating Debt	Rate	Share of debt with variable interest rate.
Front- Office		Typically, responsible for executing transactions in financial markets, including the management of auctions and other forms of borrowing, and all other funding operations.
Guarantees		An agreement in which the sovereign fulfil the original obligation from a beneficiary, typically a government.
Indexed Debt		Share of the debt linked to a specific index. Example: Foreign-Exchange Debt, Inflation-linked debt.
Interest		A form of investment income that is receivable by the owners of certain kinds of financial assets (SDRs, deposits, debt securities, loans, and other accounts receivable) for putting these financial assets and other resources at the disposal of another institution.
Liability Management Operations		Strategies implemented by debt managers to improve debt composition and structure according to debt management objectives. Example: Buybacks and exchanges.
Loan		A financial instrument that is created when a creditor lends funds directly to a debtor and receives a nonnegotiable document as evidence of the asset. Examples include project and trade finance, overdrafts, liabilities to financial institutions.
Market Value		The actual price that a financial instrument is worth at any given time for trade on the market (stock or Over-the-Counter). Reflects investor's perceptions on the issuer and prevailing conditions in the market.
Middle- Office		Usually undertakes risk analysis and monitors and reports on portfolio related risks, and assesses the performance of debt managers against any strategic targets/benchmarks
Nominal Value		The amount that the debtor owes to the creditor at any moment. Reflects the value of the debt at creation and any subsequent economic flows, e.g. repayment of principal, exchange rate and other valuation changes (other than market price changes). It's the principal sum borrowed plus interest accrued and not yet repaid.
Principal		The provision of economic value by the creditor, or creation of debt liabilities through other means, establishes a principal liability for the debtor, which, until extinguished, may change in value over time.
Reconciliation		Is a process of comparing two or more sets of related records/data from different sources to ensure consistency. When differences arise (usually in balances), they should be explained and justified, and adjustments and corrections should be made in accounting records as required. Timely and frequent reconciliation of data is fundamental for data reliability.
SDRs		Special Drawing Rights (SDRs) are international reserve assets created by the IMF and allocated to its members to supplement reserve assets

Securitization	Occurs when a unit, named the originator, conveys the ownership rights over financial or nonfinancial assets, or the right to receive specific future flows, to another unit, named the securitization unit.
Settlement	Is a process whereby securities/loans or interests in securities/loans are delivered, usually against simultaneous exchange for payment of money, to fulfill contractual obligations, such as those arising under securities trades or loans agreements.
Treasury Single Account	A TSA is a unified structure of government bank accounts that gives a consolidated view of government cash resources. Based on the principle of unity of cash and the unity of treasury, a TSA is a bank account or a set of linked accounts through which the government transacts all its receipts and payments.
Yield to Maturity	Yield to maturity is the discount rate at which the sum of all future cash flows from the bond (coupons and principal) is equal to the current price of the bond.
Zero-Coupon Bond	A bond typically sold at a discount, with an implied interest payment based on the difference between the discounted value and the nominal value.

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